General

United States Government

memorandum

Department of Energy
Albuquerque Operations Office
Los Alamos Area Office
Los Alamos, New Mexico 87544

DATE: JUL 31 1997
REPLY TO ATTN OF: LAM:2JV-057
SUBJECT: DOE Work Smart Standards for Environment, Safety, and Health (ES&H)

TO: Those on Attached List

In my February 25, 1997 memorandum to you (attached), I informed you of a process DOE and LANL undertook to critically relook at the work performed at LANL and the associated hazards. This has been accomplished and we have completed our DRAFT set of ES&H standards for work at LANL.

I am placing in the Northern New Mexico DOE reading room and LANL community outreach centers copies of the DRAFT set of standards. DOE is accepting stakeholder input through August 4, 1997.

If you have any questions, please call Mr. Joe Vozella at (505) 665-5027.

G. Thomas Todd
Area Manager

Attachment

cc w/attachment:
Bruce Twining, Manager, AL
Richard Glass, Assistant Manager, OTMO, AL
Siegfried Hecker, Director, LANL, MS-A100
Dennis Erickson, Director, ESH-DO, LANL, MS-K491
Carl Ostenak, Project Leader, FSS-DO, LANL, MS-G729
Karen Boardman, Director, PAD, AL

13062

JUL 2 1 1997

Addressees - Memorandum dated

The Honorable Lawrence Herrera
Governor
Pueblo of Cochiti
P. O. Box 70
Cochiti Pueblo, New Mexico 87072

The Honorable Joseph Leonard Loretto
Governor
Pueblo of Jemez
P. O. Box 100
Jemez Pueblo, New Mexico 87024

The Honorable Walter Dasheno
Governor
Pueblo of Santa Clara
P. O. Box 580
Española, New Mexico 87532

The Honorable Elmer Torres
Governor
Pueblo of San Ildefonso
Route 5, Box 315-A
Santa Fe, New Mexico 87501

Dr. Ed Kelley, Director
Water and Waste Management Division
New Mexico Environment Department
1190 St. Francis Drive
P. O. Box 26110
Santa Fe, New Mexico 87502

Gedi Cibas, Ph.D.
New Mexico Environment Department
1190 St. Francis Drive
P. O. Box 26110
Santa Fe, NM 87502

Steve Yanicak, Point of Contact
Oversight Bureau
New Mexico Environment Department
LANL, MS-J993

Mr. Michael Jansky
EPA Office of Planning
and Coordination
Mail Code 6EN-XP
1445 Ross Avenue
Dallas, TX 75202-2733

JUL 2 1 1997

Addressees - Memorandum dated _____

Ms. Loyda Martinez
Mr. Manuel Trujillo
Co-Chairs
Northern New Mexico Citizens' Advisory Board
c/o Northern New Mexico Community College
1002 N. Oñate Street
Española, NM 87532

Mr. Albert B. Jordan, Program Manager
Defense Nuclear Facilities Safety Board
625 Indiana Ave., NW., Suite 700
Washington, DC 20004

Mr. Greg Mello
Los Alamos Study Group
212 East Marcy Street
Santa Fe, NM 87501

Mr. Jay Coghlan
Concerned Citizens for
Nuclear Safety
107 Cienega Street
Santa Fe, NM 87501

Mr. William Paul Robinson
Southwest Research and Information
Center
P. O. Box 4524
Albuquerque, NM 87106

Mr. Victor O. Lujan
Executive Director
Eight Northern Indian
Pueblos Council
P. O. Box 969
San Juan Pueblo, NM 87566

Mr. Juan Montes
Rural Alliance for
Military Accountability
P. O. Box 855
Questa, NM 87556

Ms. Dorelen Bunting
Albuquerque Center for Peace
and Justice
144 Harvard Street
Albuquerque, NM 87106

JUL 2 1 1997

Addressees - Memorandum dated _____

Mr. Doug Meiklejohn
Executive Director
New Mexico Environmental Law
Center
1405 Luisa Street, Suite 5
Santa Fe, NM 87505

Ms. Janna Rolland
Physicians for Social Responsibility
New Mexico Chapter
P. O. Box 4096
Albuquerque, NM 87196

Ms. Janet Greenwald
Citizens for Alternatives to
Radioactive Dumping
144 Harvard SE
Albuquerque, NM 87106

Mr. Steven Schmidt
New Mexico Green Party
535 Cordova Road
Santa Fe, NM 87501

Mr. Lorenzo Valdez
New Mexico Alliance
P. O. Box 3933
Fairview, NM 87533

Mr. Gilbert Sanchez
Executive Director
Tribal Environmental Watch
Alliance
Route 5, Box 442-B
Española, NM 87532

Ms. Jean Nichols
La Communidad
P. O. Box 237
Peñasco, NM 87553

Ms. Alice Roos
The Sanctuary Foundation
109 Victoria Street
Santa Fe, NM 87501

JUL 21 1997

Addressees - Memorandum dated

Ms. Virginia Miller
People for Peace
125 Calle Don Jose
Santa Fe, NM 87501

Mr. Roger Bagley, Acting Administrator
Incorporated County of
Los Alamos
2300 Trinity Drive
Los Alamos, NM 87544

Ms. Judith Schlosser
Community Development Dept.
Incorporated County of Los Alamos
P. O. Box 30
Los Alamos, NM 87544

Mr. Lorenzo Valdez
Rio Arriba County Manager
1800 N. Riverside Drive
Suite A
Española, New Mexico 87532

Mr. Roy Weaver
Superintendent
Bandelier National Monument
HCR-1, Box 1, Suite 15
Los Alamos, NM 87544

Mr. Robert Remillard
U. S. Forest Service
475 20th Street, Suite B
Los Alamos, NM 87544

Santa Fe County Administrator
P. O. Box 1985
Santa Fe, NM 87504

Santa Fe City Administrator
P. O. Box 909
200 Lincoln Ave.
Santa Fe, NM 87504

City of Española Administrator
404 North Paseo de Oñate
Española, NM 87532

JUL 2 1 1997

Addressees - Memorandum dated

Ms. Sandra Martinez
LANL Outreach Center and Reading Room
1350 Central Avenue, Suite 101
MS-C314
Los Alamos, New Mexico 87544

Ms. Nancy Bennett
Government Documents
DOE FOIA Reading Room
Technical Vocational Institute
Montoya Campus Library
4700 Morris NE
Albuquerque, NM 87111-3704

Ms. Jennifer Fowler-Propst
State Supervisor
U. S. Fish and Wildlife Service
Ecological Services
2105 Osuna Rd., NE
Albuquerque, NM 87113

Mr. David Simon
National Parks and Conservation
Association
Southwest Regional Office
823 Gold Ave., SW
Albuquerque, NM 87102

Memo for Record:

'ted States Government

memorandum

Department of Energy
Albuquerque Operations Office
Los Alamos Area Office
Los Alamos, New Mexico 87544

DATE: FEB 25 1997

REPLY TO ATTN OF: LAM:9JV-174

SUBJECT: DOE Work Smart Standards for Environment, Safety and Health (ES&H)

TO: Those on Attached List

This is to inform you of a new process we have started that relates to improved safety management at LANL. At the same time, I want to offer the opportunity to you or your organization for the DOE to present a more detailed discussion, if you feel that it would be helpful. I am doing this because I am interested in benefitting from stakeholder feedback by taking your comments and concerns into account as we progress through this issue.

The process we have undertaken is a critical relook at the work performed at LANL and the associated hazards. From this information we are reidentifying the appropriate standards (laws, regulations, national consensus standards, DOE Orders, etc.) that upon effective implementation will protect the public, the workers, and the environment. These standards will be the updated contractual set of commitments that LANL will be required to meet in all of its day to day operations. This relook at the standards under which we operate is expected to reaffirm the basis of our safety standards and will assist in reinvigorating our commitment to safe operations.

We have begun the process and are well on our way to identifying the DRAFT set of "work smart" standards appropriate for the work and the hazards at LANL. Within the next 45 days we expect to have a DRAFT set of ES&H standards that we would like to share with you or your organization and obtain your feedback for our consideration. If you are interested in obtaining more information or scheduling a more detailed discussion, please contact Mr. Joseph Vozella at (505) 665-5027. This effort is one of many that are underway to improve LANL's safety management systems and I will continue to keep you informed of its progress.

ORIGINAL SIGNED BY
G. T. TODD

G. Thomas Todd
Area Manager

cc:
Bruce Twining, Manager, AL
Richard Glass, Assistant Manager, OTMO, AL
Siegfried Hecker, Director, LANL, MS-A100
Dennis Erickson, Director, ESH-DO, LANL, MS-K491
Karen Boardman, Director, PAD, AL

FEB 2 5 1997

Addressees - Memorandum dated _____

The Honorable Lawrence Herrera
Governor
Pueblo of Cochiti
P. O. Box 70
Cochiti Pueblo, New Mexico 87072

The Honorable Joseph Leonard Loretto
Governor
Pueblo of Jemez
P. O. Box 100
Jemez Pueblo, New Mexico 87024

The Honorable Walter Dasheno
Governor
Pueblo of Santa Clara
P. O. Box 580
Española, New Mexico 87532

The Honorable Elmer Torres
Governor
Pueblo of San Ildefonso
Route 5, Box 315-A
Santa Fe, New Mexico 87501

Dr. Ed Kelley, Director
Water and Waste Management Division
New Mexico Environment Department
1190 St. Francis Drive
P. O. Box 26110
Santa Fe, New Mexico 87502

Gedi Cibas, Ph.D.
New Mexico Environment Department
1190 St. Francis Drive
P. O. Box 26110
Santa Fe, NM 87502

Steve Yanicak, Point of Contact
Oversight Bureau
New Mexico Environment Department
LANL, MS-J993

Mr. Michael Jansky
EPA Office of Planning
and Coordination
Mail Code 6EN-XP
1445 Ross Avenue
Dallas, TX 75202-2733

Addressees - Memorandum dated _____

Ms. Bernadette Chavira-Merriman
Dr. Antonio Delgado
Co-Chairs
Northern New Mexico Citizens' Advisory Board
c/o Northern New Mexico Community College
1002 N. Oñate Street
Española, NM 87532

Mr. Albert B. Jordan, Program Manager
Defense Nuclear Facilities Safety Board
625 Indiana Ave., NW., Suite 700
Washington, DC 20004

Mr. Greg Mello
Los Alamos Study Group
212 East Marcy Street
Santa Fe, NM 87501

Mr. Jay Coghlan
Concerned Citizens for
Nuclear Safety
107 Cienega Street
Santa Fe, NM 87501

Mr. William Paul Robinson
Southwest Research and Information
Center
P. O. Box 4524
Albuquerque, NM 87106

Mr. Victor O. Lujan
Executive Director
Eight Northern Indian
Pueblos Council
P. O. Box 969
San Juan Pueblo, NM 87566

Mr. Juan Montes
Rural Alliance for
Military Accountability
P. O. Box 855
Questa, NM 87556

Ms. Dorelen Bunting
Albuquerque Center for Peace
and Justice
144 Harvard Street
Albuquerque, NM 87106

Addressees - Memorandum dated _____

Mr. Doug Meiklejohn
Executive Director
New Mexico Environmental Law
Center
1405 Luisa Street, Suite 5
Santa Fe, NM 87505

Ms. Janna Rolland
Physicians for Social Responsibility
New Mexico Chapter
P. O. Box 4096
Albuquerque, NM 87196

Ms. Garland Harris
Citizens for Alternatives to
Radioactive Dumping
144 Harvard SE
Albuquerque, NM 87106

Mr. Steven Schmidt
New Mexico Green Party
535 Cordova Road
Santa Fe, NM 87501

Mr. Lorenzo Valdez
New Mexico Alliance
P. O. Box 3933
Fairview, NM 87533

Mr. Gilbert Sanchez
Executive Director
Tribal Environmental Watch
Alliance
Route 1, Box 442-B
Española, NM 87532

Ms. Jean Nichols
La Communidad
P. O. Box 237
Peñasco, NM 87553

Ms. Alice Roos
The Sanctuary Foundation
109 Victoria Street
Santa Fe, NM 87501

Addressees - Memorandum dated _____

Ms. Virginia Miller
People for Peace
125 Calle Don Jose
Santa Fe, NM 87501

Mr. Alex Georgieff, Administrator
Incorporated County of
Los Alamos
2300 Trinity Drive
Los Alamos, NM 87544

Mr. Kevin Fenner
Community Development Dept.
Incorporated County of Los Alamos
P. O. Box 30
Los Alamos, NM 87544

Mr. Lorenzo Valdez
Rio Arriba County Manager
1800 N. Riverside Drive
Suite A
Española, New Mexico 87532

Mr. Roy Weaver
Superintendent
Bandelier National Monument
HCR-1, Box 1, Suite 15
Los Alamos, NM 87544

Mr. Robert Remillard
U. S. Forest Service
475 20th Street, Suite B
Los Alamos, NM 87544

Santa Fe County Administrator
P. O. Box 1985
Santa Fe, NM 87504

Santa Fe City Administrator
P. O. Box 909
200 Lincoln Ave.
Santa Fe, NM 87504

City of Española Administrator
404 North Paseo de Oñate
Española, NM 87532

Addressees - Memorandum dated _____

Ms. Sandra Martinez
LANL Outreach Center and Reading Room
1350 Central Avenue, Suite 101
MS-C314
Los Alamos, New Mexico 87544

Ms. Salley Lindsey
DOE Public Reading Room
Technical Vocational Institute
Montoya Campus Library
4700 Morris NE
Albuquerque, NM 87123

Ms. Jennifer Fowler-Propst
State Supervisor
U. S. Fish and Wildlife Service
Ecological Services
2105 Osuna Rd., NE
Albuquerque, NM 87113

Mr. David Simon
National Parks and Conservation
Association
Southwest Regional Office
823 Gold Ave., SW
Albuquerque, NM 87102

General

Los Alamos National Laboratory Environment, Safety, and Health Work Smart Standards Set

July 16, 1997

Laboratory Standards Project

Los Alamos Application of the Necessary & Sufficient Process for Establishing Institutional ES&H Work Smart Standards

1. Introduction

In 1994, the Department of Energy (Department or DOE) Standards Committee (DSC) established an integrated standards-based management system, which is reflected in the "Criteria for the Department's Standards Program" (DOE/EH/0416). The primary objective of these criteria is to promote a culture based on environment, safety, and health (ES&H) standards tailored to work and to move away from a "one size fits all" approach. These criteria establish the expectations for how DOE personnel, contractors, and other interested parties should interact in defining the so-called "Work Smart Standards" (performance expectations) necessary and sufficient for performing work safely, integrating those standards into the process for planning and accomplishing work, evaluating the efficacy of the standards in light of current missions, and continuously assessing the effectiveness of the standards in providing adequate protection to the workers, the public, and the environment.

The DSC recognized that a key to the success of the Department Standards Program is the availability of a process that provides a disciplined and collaborative analysis of the work to be performed and the potential hazards associated with that work. Hence, the DSC jointly commissioned DOE and contractor staff to develop a DOE-wide process for identifying the "Work Smart Standards" necessary and sufficient to ensure, when effectively implemented, adequate protection of the workers, the public, and the environment. The result -- the Necessary and Sufficient Process for establishing Work Smart Standards -- was successfully demonstrated by several pilots at a variety of activities, facilities, and sites throughout the DOE complex, including the radiation protection pilot at Los Alamos.

Based on the success of these pilots, Los Alamos received permission to implement the Necessary and Sufficient Process site-wide for ES&H and other functional areas, and began developing standards for managing facilities to support a high-priority Los Alamos initiative. After many months and the successful completion of these internally developed facilities standards, Los Alamos and DOE management then redirected the Laboratory Standards Project to focus exclusively on ES&H as the top priority and to identify the externally developed standards (e.g., applicable laws and regulations and value-adding consensus standards) necessary and sufficient for performing our work safely. Hence, Los Alamos and DOE jointly embarked last November on identifying an institutional set of ES&H Work Smart Standards, based on the work and associated hazards (or, more broadly, ES&H "issues" – hazardous materials/conditions and other ES&H concerns) at Los Alamos, to serve as our contractual basis for performing work safely. This effort is vital to achieving the DOE-approved Los Alamos Integrated Safety Management Plan dated November 1996 (see Attachment 1), which is aimed at accomplishing our work in a manner that adequately protects the workers, the public, the environment, and facilities. The Los Alamos commitment to perform work safely is affirmed on the next page as excerpted from its Integrated Safety Management Plan.

The Los Alamos National Laboratory Commitment - Environment, Safety, and Health -

We affirm to all our stakeholders, including our workforce, customers, and the public...

that we conduct our operations with respect and care for their personal safety and health and for the environment. Safety, health and environmental protection are integral to all our activities. We perform all work safely and strive to eliminate injuries, prevent adverse environmental and health impacts, protect property, proactively conform to applicable laws and regulations, conserve natural resources, and respond to the public's expectations for safety and protection of the environment. We assess the environmental impact of each facility we propose to construct and design, build, operate and maintain all our facilities so they are safe and environmentally sound. We are prepared for emergencies and provide leadership to assist our local communities to improve their emergency preparedness. We minimize waste generation, recycling materials to minimize the need for treatment or disposal. When waste is generated, we handle and dispose of it safely and responsibly. We monitor emissions and reduce them to as low as reasonably achievable, giving priority to those that may present the greatest potential risk to health or the environment. Where past practices have created conditions that require correction, we responsibly correct them. We manage our land to preserve habitats for wildlife. We deploy our resources to meet this environmental, safety, and health (ES&H) Commitment and do so in a manner that strengthens our institution. We continuously assess and improve our practices at the institutional, facility, and activity levels in light of advances in technology and new understandings in ES&H science. We build alliances with policy makers, businesses, and advocacy groups to develop sound policies, regulations, and practices for improving ES&H. We will make consistent, measurable progress in implementing this total ES&H Commitment throughout all our present and future operations.

Workforce Responsibility and Accountability

Line management is responsible and accountable for the protection of the workers, the public, and the environment. Everyone is responsible and accountable for the safe conduct of their activities. The Laboratory Leadership Council, including the Lab Director, stays informed on ES&H conditions and issues and ensures that policies are in place and actions taken to achieve the Lab's ES&H Commitment. Compliance with this Commitment, including applicable laws and regulations and established institutional, facility, and activity requirements, is the responsibility of every employee and contractor and a condition of their employment or contract. All managers are responsible for educating, motivating, and enabling their workers to understand and comply with this Commitment and for involving them in establishing, promoting, improving, and achieving the appropriate institutional, facility, and activity requirements. All managers are also responsible, through personal example and the involvement of all their workers, for creating a climate in which everyone is dedicated to meeting this Commitment.

Clear Roles, Responsibilities, and Authorities

We establish and maintain clear and unambiguous roles and lines of responsibility, authority, and accountability at all organizational levels throughout the Laboratory to ensure protection of the workers, the public, and the environment.

Competence Commensurate with Responsibilities

We ensure that all personnel have the necessary experience, knowledge, skills, and abilities to discharge their responsibilities. ES&H support services are provided, as needed, at the institutional, facility, and activity levels to assist personnel.

Balanced Priorities

We effectively allocate resources to address ES&H, programmatic and operational considerations. Protecting the workers, the public, and the environment is paramount whenever activities are planned and performed.

Identification of ES&H Standards and Requirements

Before specific work is performed, we evaluate the associated hazards and establish an agreed-upon set of standards and requirements that, properly implemented, provide adequate protection to the workers, the public, and the environment.

Hazard Controls Tailored to Work Being Performed

Before specific work is performed, we tailor engineered and administrative controls to prevent and mitigate the hazards associated with the work. The level of control is commensurate with the type of work and level of hazard.

Work Authorization

Before specific work is performed, we establish an agreed-upon set of terms and conditions that must be satisfied. The type of agreement and the agreement parties are determined on the basis of the type of work and level of hazard. No work will be performed unless it can be performed safely!

S. S. Hecker

Siegfried S. Hecker, Director
Los Alamos National Laboratory

11/27/96
Date

Los Alamos followed DOE Manual 450.3-1, "The Department of Energy Closure Process for Necessary and Sufficient Sets of Standards" (see Attachment 2), in identifying an institutional set of ES&H Work Smart Standards. This so-called Necessary and Sufficient Process was intentionally written in performance-based terms and is not a prescriptive checklist. The basic steps of this Process include defining the work and associated ES&H issues; identifying the institutional set of ES&H Work Smart Standards; confirming the set; and approving the set. Inherent in the Process are five guiding principles:

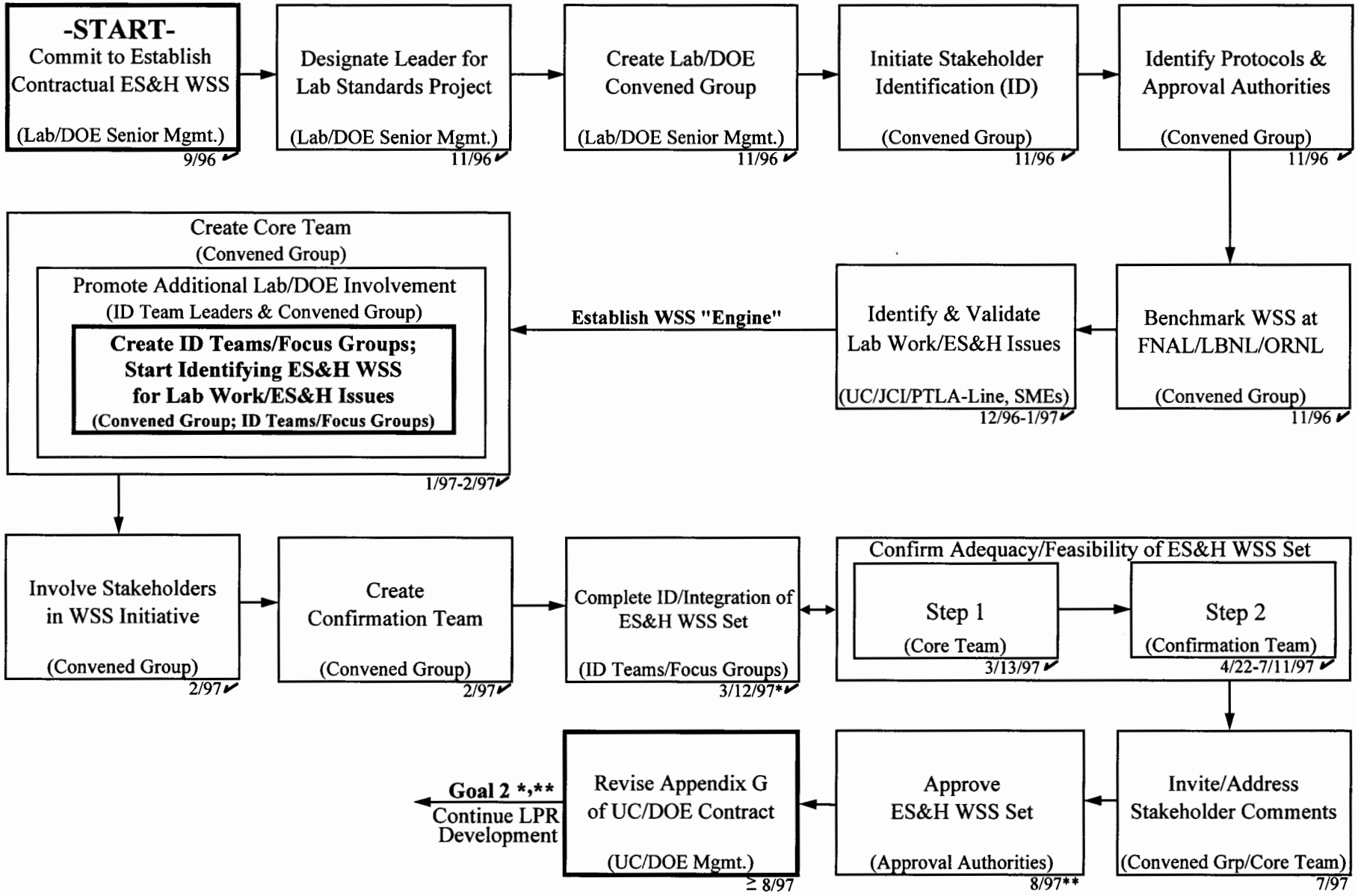
- Parties who must agree on the set of standards shall participate in the Process planning;
- Stakeholders are identified and invited to contribute to the Process;
- People qualified by knowledge and experience identify and confirm the set of standards;
- The Process shall be documented and the set of standards confirmed; and
- The approved set of standards shall be accepted by DOE at large as the basis for work performance and oversight.

The DOE-wide pilots demonstrated that several intangible benefits accrue when the Process is conducted properly. One benefit is the enhanced communication among DOE, contractors, and stakeholders, fostering a better understanding of the work and the ES&H issues and acceptance of a set of standards. Feelings of synergy, team spirit, and empowerment were created among the various team members and teams. In the longer term, more tangible benefits will include measurable improvements in the safe performance of work.

The Los Alamos application of the Necessary and Sufficient Process is illustrated on the next page and described in the sections that follow. This application reflects lessons learned from throughout the DOE complex, especially from benchmarking Lawrence Berkeley National Laboratory, Fermi National Accelerator Laboratory, and Oak Ridge National Laboratory. As with those sites, the resultant Los Alamos ES&H Work Smart Standards include mostly federal, state, and local laws and regulations and, where needed to achieve adequate protection (not just legal compliance), national consensus standards representing the highest operating standards used by industry. In short, the Los Alamos National Laboratory, in close partnership with DOE, has produced a defensible institutional set of ES&H Work Smart Standards tailored to the Laboratory's work and associated ES&H issues and aimed at adequately protecting the workers, the public, the environment, and facilities.

LABORATORY STANDARDS PROJECT - GOAL 1

(Establish ES&H Work Smart Standards [WSS] for UC/DOE Contract)



* ISM Plan requires development of ES&H WSS Set & LPRs by 9/30/97

** ISM Plan requires approval of ES&H WSS Set & LPRs by 12/24/97

7/16/97

2. Initiating the Necessary and Sufficient Process at Los Alamos

Objective
To determine whether to initiate the Necessary and Sufficient Process at Los Alamos and to assign responsibility for conducting the Process.

Completed Actions
The **Agreement Parties**, which include the Customer Organization (DOE) and the Responsible Organization (University of California), initiated the Process at Los Alamos because the existing set of contractual DOE directives governing ES&H is not tailored to the work and associated ES&H issues at Los Alamos. Hence, they jointly designated Carl Ostenak, a senior technical staff member and former division and program director at Los Alamos, to lead the Laboratory Standards Project and serve as the **Process Leader** for conducting the Process and establishing an institutional set of ES&H Work Smart Standards for Los Alamos. The Process Leader's responsibilities are defined below and in DOE Manual 450.3-1. Carl Ostenak selected Hillard Howard, a senior technical staff member and former line manager at Los Alamos, to serve as the Deputy Process Leader. Upon successful completion of the Process, the Agreement Parties will contractually agree to meet the institutional set of ES&H Work Smart Standards for work performed at Los Alamos, consistent with the Los Alamos Integrated Safety Management Plan.

The Agreement Parties also designated individuals within their respective organizations to serve as members of the so-called **Convened Group**. The Convened Group, which is a steering committee for the conduct of the Necessary and Sufficient Process, represents the Agreement Parties and includes **Resource Authorities**. The Resource Authorities are organizations or individuals with control over and authority to commit the resources necessary to accomplish work, and they are responsible for supporting the execution of the Process. Convened Group responsibilities are cited below and in DOE Manual 450.3-1, and include providing overall direction and resolving issues. The Convened Group members are Karen Boardman, DOE Albuquerque Operations Office (DOE/AL), Howard Hatayama, University of California, Lee McAtee, Los Alamos, Dennis Miotla, DOE Office of Defense Programs (DOE/DP), Carl Ostenak, Los Alamos, Barbara Stine, Los Alamos, Maggie Sturdivant, DOE Office of ES&H (DOE/EH), and Joe Vozella, DOE Los Alamos Area Office (DOE/LAAO).

Consistent with guidance from the Agreement Parties and the Federal Advisory Committee Act, the Convened Group identified the **Stakeholders** to involve in the Process. The DOE defines Stakeholders as any parties other than federal employees or DOE contractor or subcontractor employees that will be materially affected by, or can materially affect, the outcome of the work, either favorably or unfavorably (e.g., representatives of state and local governments and citizens' groups). Stakeholders are not permitted to serve on any consensus-seeking groups associated with the Process. The Stakeholders include representatives of Los Alamos County, Santa Fe City and County, Espanola City, Rio Arriba County, the Northern New Mexico Indian Pueblos, New Mexico Environment Department, and several citizens' groups (e.g., Northern New Mexico Citizens' Advisory Board, Los Alamos Study Group, Concerned Citizens for Nuclear Safety, and Physicians for Social Responsibility). The value of inviting Stakeholder input, even if the opportunity is declined, has been proved by experience. Because acceptance of the standards set

is one of the underlying goals of the Process, the appropriate Stakeholders should always be informed of the intent to conduct the Process and be invited to contribute.

The Process Leader convened the first meeting of the Convened Group so it could establish its meeting protocols and identify the appropriate individuals to serve as the **Approval Authorities**. At this meeting, the Convened Group determined that future meetings would be scheduled as needed and led by the Process Leader. They also determined that the appropriate Approval Authorities -- those DOE and Los Alamos senior managers identified to approve the Los Alamos institutional set of ES&H Work Smart Standards based on proper implementation of the Process (see Process Element 6) -- are Sig Hecker, Director of Los Alamos National Laboratory, Tom Todd, Manager of DOE/LAAO, and Bruce Twining, Manager of DOE/AL.

3. Producing the Institutional Set of ES&H Work Smart Standards

Overall Objective
To identify and reach closure on the Los Alamos institutional set of ES&H Work Smart Standards necessary and sufficient to ensure, when effectively implemented, adequate protection of the workers, the public, the environment, and facilities, consistent with the Los Alamos Integrated Safety Management Plan.

(Note: Achieving this objective requires completion of six major process elements as defined in DOE Manual 450.3-1. The Los Alamos application of these process elements is described below. Users are permitted, as they gain an understanding of the Process, to repeat or iterate on one or more of these process elements to incorporate changes in the scope, expectations, team(s), and/or set of standards.)

Process Element 1: Defining the Work and ES&H Issues

Objective
To define the work and performance expectations to which the institutional set of ES&H Work Smart Standards, once identified, will apply.

Completed Actions
The Process Leader acquired relevant information on the work to be performed from the Convened Group and organized the information received as an initial basis for identifying the institutional set of ES&H Work Smart Standards. The following initial conditions and definitions of the performance expectations, scope of work, and associated ES&H issues were endorsed by the Convened Group and were subject to refinement during the Process. The Los Alamos Integrated Safety Management Plan articulates the performance expectations and objectives -- work at Los Alamos must be performed safely, i.e., in a manner that adequately protects the workers, the public, the environment, and facilities. Hence, the institutional set of ES&H Work Smart Standards identified for the work and ES&H issues at Los Alamos, when effectively implemented through Integrated Safety Management, must result in the safe performance of

work. With respect to resource availability and constraints, Los Alamos and DOE senior management have committed to provide the necessary resources for performing work safely by jointly approving the Los Alamos Integrated Safety Management Plan.

The defined scope of work includes all work performed at Los Alamos. This Laboratory-wide or institutional scope of work and the associated ES&H issues (hazardous materials/conditions and other ES&H concerns) that relate to or can cause adverse consequences were identified and validated, at the request of the Convened Group, by the respective organizations performing and managing the work. In this way, the physical conditions within which the work is performed and the uncertainties about the work were considered by those closest to the work.

Specifically, the three major organizations that make up the Los Alamos workforce -- the University of California and its two major subcontractors, Johnson Controls, Inc. (JCI) and Protection Technology Los Alamos (PTLA) -- were asked to systematically identify and validate their work and associated ES&H issues at Los Alamos. This vital step was accomplished by first having many Los Alamos subject matter experts prepare a draft "master listing" of the Laboratory's work and associated ES&H issues. They did this by drawing on official technical programmatic and ES&H databases at the Laboratory and on their own expertise and experience. Next, each of the Los Alamos division, program, and office directors and the JCI and PTLA General Managers coordinated a critical review, refinement, and validation of the draft master listing by involving their respective workers. This was essential for ensuring that their work and associated ES&H issues were adequately represented on the master listing before teams of workers and subject matter experts were assembled to identify the institutional set of ES&H Work Smart Standards. The Convened Group encouraged these teams, once formed, to further refine the master listing based on their collective knowledge of the work and ES&H issues at Los Alamos. See Attachment 3 for the listing of Laboratory work and associated ES&H issues.

The Convened Group also determined the appropriate channels of communication with the Stakeholders identified earlier to ensure they were informed of the Process, were given opportunities for input, and that their views were considered in a manner consistent with the Federal Advisory Committee Act. The official letter informing the Stakeholders of the Process and inviting their input is shown as Attachment 4. Following identification and confirmation, but before approval, the institutional set of ES&H Work Smart Standards will be provided to the Public Reading Rooms in Northern New Mexico and a second official letter will be sent to the Stakeholders inviting their review and comment. The review and comment period will be nominally two weeks, which the Convened Group may extend depending on the level of interest. If the interest is high, the Convened Group may also arrange a public meeting. The Convened Group will carefully consider all comments and determine the appropriate action, which may include making recommendations to the Approval Authorities. Always, the Convened Group will seek opportunities to benefit from the comments and to promote Stakeholder understanding and buy-in. Once again, the value of inviting and considering Stakeholder input cannot be overstated.

Process Element 2: Creating the Teams

Objective

To create the teams to identify the institutional set of ES&H Work Smart Standards and confirm that the set is adequate and feasible.

(Note: Identification and confirmation of the set of standards for a defined scope of work relies on the collective judgment of teams of knowledgeable people. The teams must establish that implementation of the set is feasible and that the set provides a basis for adequate protection. Confirmation of the adequacy and feasibility of the set strengthens the credibility of the Process and confidence in the set. The nature of the work, including its complexity, associated ES&H issues, and uncertainties, determine the breadth of knowledge needed within the identification and confirmation teams.)

Completed Actions

As described below, the Convened Group defined the specifications for the identification and confirmation teams that were formed, including their functions, relationships, composition, and qualifications, and helped arrange for individuals to be assigned to the teams. Four ES&H Work Smart Standards Identification (ID) Teams -- Worker Health and Safety, Environmental Protection, Emergency Preparedness and Management, and Facilities -- comprising operational experts (workers) and technical experts (subject matter experts) from the Los Alamos workforce and technical experts from DOE/LAAO and DOE/AL were established to identify the institutional set of ES&H Work Smart Standards for the Laboratory's work and ES&H issues. These ID Teams were (and continue to be) jointly led by Los Alamos operational and support managers and two senior technical staff, all selected by their senior line management based on their relevant knowledge and experience. The names of the ID Team Leaders are Barbara Hargis, Steve Schreiber, and Kim Thomas (Worker Health and Safety); Doris Garvey and Wayne Hansen (Environmental Protection); Bill Flor and George Van Tiem (Emergency Preparedness and Management); and Wayne Fisher and Rich Mah (Facilities). Each of the ID Teams comprises one or more Focus Groups. The names of these Focus Groups and their respective DOE and Los Alamos members are shown in Attachment 5.

Each Focus Group was required to include at least two workers from the Los Alamos workforce having first-hand knowledge of the work and ES&H issues, a Los Alamos subject matter expert, and a DOE (LAAO or AL) subject matter expert, all selected by their line management based on their relevant knowledge and experience. The ID Team Leaders were charged with providing direction, facilitating issues resolution, and minimizing duplication among the Focus Groups. Each ID Team has one or more Team Liaison/Coordinators (or TLCs) trained locally in the Necessary and Sufficient Process, who help to facilitate and provide support to the Focus Groups on behalf of the ID Team Leaders, Process Leader, and Deputy Process Leader. The names of the Team Liaison/Coordinators (or TLCs) are Darrell Allison, Los Alamos, Chuck Dorsey, Los Alamos, Ken Fellers, Vista, Jim Jorgensen, Los Alamos, Lynne Kroggel, Los Alamos, Marcia Lucas, Los Alamos, and Henry Mignardot, Los Alamos.

The ID Team Leaders also serve on a cross-cutting Core Team, which has nominally met weekly to help guide and integrate the overall ES&H Work Smart Standards effort. The Core Team is led by Carl Ostenak as Process Leader and by Hillard Howard. The Core Team includes Los

Alamos and DOE line and program management, including local members of the Convened Group, senior technical and operational staff, and JCI and PTLA senior union representatives. Specifically, members include the nine ID Team Leaders cited above; five Los Alamos Program Managers: Nick Nicholson, Don Parkin, Bob Vocke, Don Wolkerstorfer, and Carolyn Zerkle; three union representatives: Steve Carter, JCI, Walter Sanchez, PTLA, and Grant Guymon, ICF Kaiser; Tori George and Hillard Howard, Los Alamos; Dan Glenn, DOE/LAAO; the four local Convened Group members: Lee McAtee, Carl Ostenak, and Barbara Stine of Los Alamos and Joe Vozella, DOE/LAAO; and all seven TLCs cited above.

Confirmation of the proposed institutional set of ES&H Work Smart Standards was performed in two major steps. First, the Core Team, in cooperation with many senior technical and operational staff and managers at DOE/LAAO and DOE/AL, (1) critically reviewed the documentation produced by the ID Teams and other related documentation; and (2) determined whether the proposed set of ES&H Work Smart Standards was adequate and feasible -- i.e., could be effectively implemented and reasonably expected to provide adequate protection to the workers, the public, the environment, and facilities. As a result, the proposed set of standards was further refined by the respective ID Teams. Next, the second step of confirmation was performed by a "blue-ribbon" Confirmation Team that independently (1) critically reviewed the documentation produced by the ID Teams and other related documentation; and (2) determined whether the refined set of ES&H Work Smart Standards is adequate and feasible. (See Process Element 5 for results.)

The Confirmation Team membership was determined by the Convened Group to ensure sufficient expert knowledge and experience in the work and ES&H issues at Los Alamos, the scope of the ID Teams (Worker Health and Safety, Environmental Protection, Emergency Preparedness and Management, and Facilities), and the Necessary and Sufficient Process. Consistent with the Federal Advisory Committee Act, membership was limited to DOE and DOE contractor and subcontractor employees. The Confirmation Team included: Dr. Jack Bartley, Deputy Director, Environment, Health and Safety, Lawrence Berkeley National Laboratory; Tim Cooper, Project Manager, DOE Nevada Operations Office; Dr. Bob Day, Division Director, Dynamic Experimentation, Los Alamos; Rick Glass, Assistant Manager, Office of Technical Management and Operations, DOE/AL; Dr. Tom Gunderson, Program Manager, ES&H Planning & Management, Los Alamos; David Herbert, Director, Occupational Safety and Health Services, National Safety Council; Dr. Bob Long, Vice President (recently retired), Services and Nuclear Assurance Divisions, GPU Nuclear Corporation; John Palmer, Manager, Health and Safety, JCI; Paul Rice, President, Paul Rice & Associates; Gene Runkle, Director, Occupational Safety and Health Division, DOE/AL; Pete Selde, Director, Environment, Safety and Health, PTLA; Dr. Phil Thullen, Program Manager, Integrated Safety Management, Los Alamos; and Dr. George Werkema, Director, Nuclear Programs Division, DOE/AL.

Process Element 3: Defining and Agreeing to Protocols and Documentation Requirements for the Teams

Objective

To establish protocols, agreements, and documentation requirements for a credible and efficient Process.

Completed Actions

The Convened Group established protocols and agreements for schedules and time limitations; interactions between the Convened Group and the Stakeholders; resolution of differing opinions within the Convened Group and the teams; and interactions between the Convened Group and the teams. With respect to schedules and time limitations, the DOE-approved Los Alamos Integrated Safety Management Plan requires that the institutional set of ES&H Work Smart Standards be developed by September 30, 1997, and approved by December 24, 1997. The Convened Group accepted this schedule and committed to help expedite it. With respect to interactions between the Convened Group and the Stakeholders, see Process Element 1.

With respect to resolution of differing opinions that arose within the Convened Group and on the teams, the Convened Group determined that all participants (workers, subject matter experts, et al.) would have an equal voice and that consensus would always be sought. For example, the institutional set of ES&H Work Smart Standards proposed for Los Alamos represents the consensus of the members of the ID Teams. Consensus was arrived at through a negotiation process that identified the standards each ID Team member considered adequate and feasible. This negotiation process was based on the assumption that the ID Teams comprise "reasonable people." Hence, if a member was unable to support a decision, their respective ID Team would recognize the member as a reasonable person and empathetically listen and seek to understand the member's concern. Once the concern was understood, satisfactory resolution normally followed. However, if the concern remained unresolved, the member with the concern would recognize their fellow members as "reasonable people," and consider supporting their recommendation as generally acceptable (but perhaps not ideal). Had members of an ID Team been unable to reach consensus on an issue, they were to bring the issue to the Process Leader for resolution by the Convened Group. These basic principles were used by the teams identifying and confirming the institutional set of ES&H Work Smart Standards. The Convened Group also employed these principles in gaining consensus among its members. It is noteworthy that consensus was achieved throughout the entire Process and there were no minority reports.

With respect to interactions between the Convened Group and the ID Teams, the Process Leader generally acted as the liaison. The Convened Group advised the Process Leader, and the local members of the Convened Group actively participated on the Core Team. Protocols for the two teams that independently confirmed the proposed institutional set of ES&H Work Smart Standards (see Process Element 2 for the Core Team and Confirmation Team) included: (1) each member received the proposed set and supporting documentation before their respective meeting; (2) the Process Leader presented an overview of the Los Alamos application of the Necessary and Sufficient Process; (3) the ID Team Leaders presented the proposed set and its justification; (4) members asked questions of the ID Team Leaders, challenging the necessary and sufficient aspects of the proposed set; (5) the Process Leader served as the moderator for the question phase; (6) a notetaker recorded questions raised at the meetings; (7) questioning proceeded until each member indicated that he/she had no further questions; and (8) questions representing "open issues" were assigned by the Process Leader to the appropriate ID Team(s) for further review and resolution.

For the Confirmation Team meeting, additional protocols included: (1) only members of the Convened Group and Confirmation Team were permitted to ask questions -- other invited attendees could pass questions to one of these members; (2) at each Confirmation Team

member's turn, that individual was permitted to ask one question and follow-on questions relevant to the same issue until the question had been satisfactorily answered or the Process Leader determined that the question represented an "open issue" requiring further review by an ID Team -- all follow-on questioning was to stay focused on the same issue, i.e., questions on other related issues were to be asked on a separate turn, and the Process Leader was to intervene if questioning strayed; and (3) once all questions were exhausted, the Process Leader and the Confirmation Team negotiated a strategy for resolving open issues and achieving confirmation. (See Process Element 5.)

The protocols defined above include documentation requirements. The Convened Group determined that the specific format and level of detail for documenting the institutional set of ES&H Work Smart Standards should be decided by the ID Teams, consistent with the following expectations. At a minimum, the documentation was to include a listing of the selected standards and a summary discussion sufficient to communicate an understanding of the relationship between the Laboratory's work and associated ES&H issues, the selected set of standards, and the justification for the set's adequacy. The justification was to be provided to the Convened Group along with team member names, responsibilities, and qualifications; results of the confirmation process; and differing opinions and their resolution. To ensure satisfaction of these protocols, the Process Leader, in cooperation with the local and DOE/AL Convened Group members, oriented the team members responsible for identifying and confirming the institutional set of ES&H Work Smart Standards. All protocols and documentation requirements were met.

Process Element 4: Identifying the Institutional Set of ES&H Work Smart Standards

Objective

To identify and reach consensus on the institutional set of ES&H Work Smart Standards by drawing on the collective knowledge and experience of the ID Teams.

Completed Actions

In summary, the ID Teams first critically reviewed and, as appropriate, further refined the "master listing" of Laboratory work and associated ES&H issues (see Process Elements 1 and 2); evaluated relevant sources of existing international, federal, state, local, and work-specific standards, including laws and regulations; identified those standards that collectively constitute an institutional set of ES&H Work Smart Standards for Los Alamos, including legal requirements and other standards that are necessary to provide adequate protection of workers, the public, the environment, and facilities; requested and involved additional technical and operational experts; reached consensus on and justified the institutional set of ES&H Work Smart Standards; identified a few requirements in an applicable DOE regulation (10 CFR 835) that were judged not to add value to achieving adequate radiological protection for workers, and then, in cooperation with DOE/LAAO and DOE/AL, developed a justification for pursuing an exemption from those requirements; and met the protocols and documentation requirements outlined in Process Element 3.

It is noteworthy that most of the Laboratory's work and associated ES&H issues have direct analogs in U.S. private industry and academia and that, for unique work, the ES&H issues associated with that work are comparable in industry and/or academia. This similarity with

industry and academia is reflected by the inclusion of many industry standards in the Laboratory's institutional set of ES&H Work Smart Standards. Moreover, because the Laboratory is a federal instrumentality, it is subject to federal laws and regulations to mitigate and control work-related hazards and to protect workers, the public, the environment, and facilities. These are included therefore in the ES&H Work Smart Standards. State laws and regulations and local ordinances are also included where the applicable federal law contains a waiver of federal sovereign immunity, making federal facilities subject to state and local legal requirements to the same extent as nonfederal facilities. Additional standards are included in the set because, in many cases, mere compliance with legal requirements was deemed insufficient to provide adequate protection of workers, the public, the environment, and facilities. These standards include national consensus standards (e.g., by the American National Standards Institute or ANSI) as well as those federal regulations (e.g., OSHA) that add value, but are not legally required because there is no sovereign immunity waiver in the applicable federal law. Always, emphasis was placed on selecting proven industry standards. Internal standards were included in the set only when a needed standard could not be found in the external domain.

The Laboratory's institutional set of ES&H Work Smart Standards has two major components: baseline standards and supplemental (above baseline) standards. This is illustrated on the next page. The baseline standards are defined by the combination of standards identified by the Worker Health and Safety ID Team, the Environmental Protection ID Team, the Emergency Preparedness and Management ID Team, and, for facility design and operations, the Facilities ID Team. These baseline standards are common to all Laboratory work. These standards reflect the same laws, regulations, and consensus standards (with some additional DOE standards) that private industry and academia are meeting to protect workers, the public, the environment, and facilities. Additionally, the Accelerator Facilities Focus Group and Nuclear Facilities Focus Group each identified for their unique work and associated ES&H issues the supplemental standards that are considered necessary, along with the baseline standards, to perform work safely in those facilities at Los Alamos. For specific Laboratory work and associated ES&H issues, it is essential that the entire institutional set of ES&H Work Smart Standards be viewed as a whole when identifying the applicable subset that must be met when performing the work. This is to be accomplished through effective implementation of the Laboratory's Integrated Safety Management System.

Process Element 5: Confirming the Institutional Set of ES&H Work Smart Standards

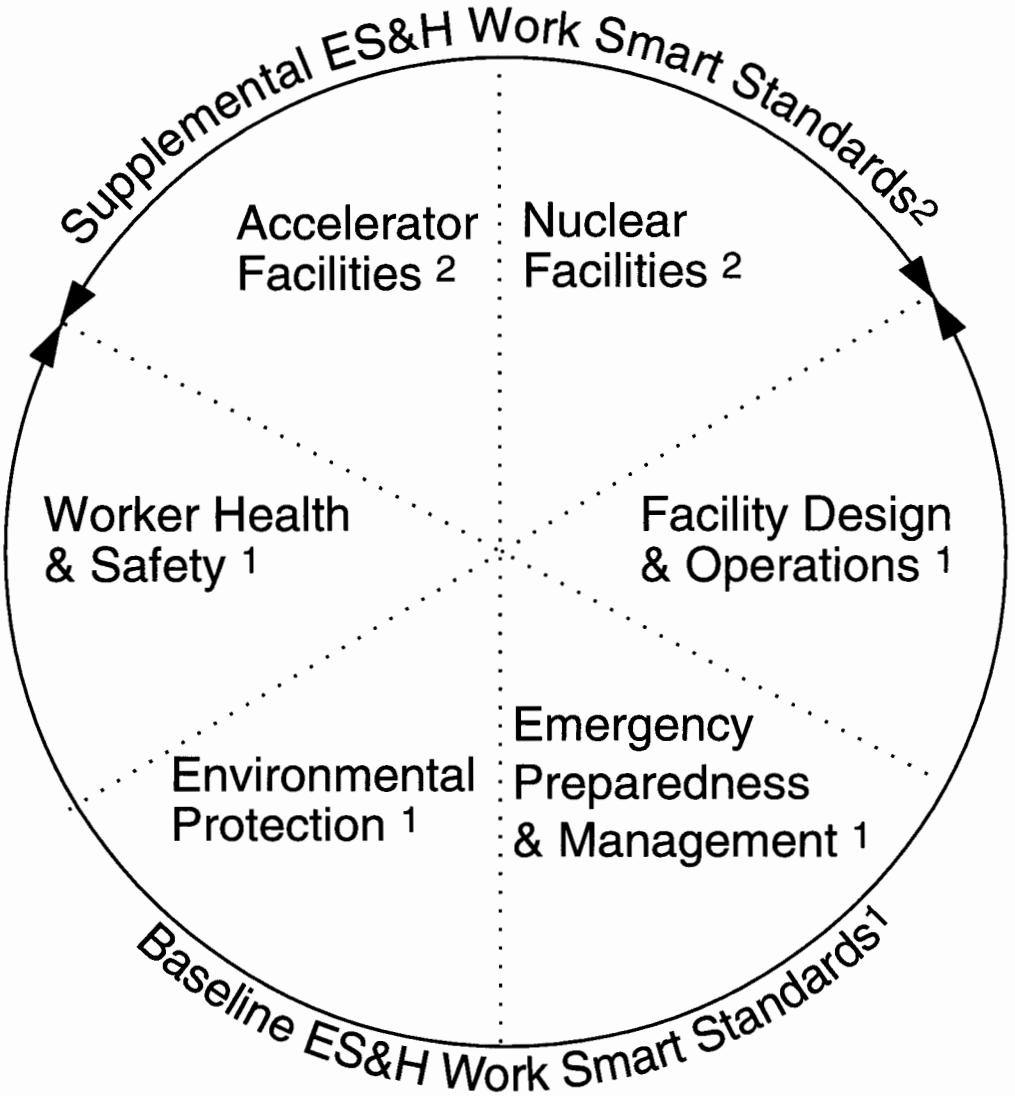
Objective

To confirm the adequacy and feasibility of the institutional set of ES&H Work Smart Standards identified by the ID Teams.

Completed Actions

The Core Team and Confirmation Team independently confirmed the Laboratory's institutional set of ES&H Work Smart Standards in accordance with DOE Manual 450.3-1. Briefly, each team: (1) critically reviewed the documentation produced by the ID Teams and other related documentation; (2) determined whether the proposed set of ES&H Work Smart Standards is adequate and feasible; and (3) documented their activities and results (see Attachment 6). Process Elements 2 and 3 provide additional information on team membership, the two-step confirmation

Los Alamos Integrated Set of Institutional ES&H Work Smart Standards



1 Baseline ES&H Work Smart Standards common to all Laboratory work

2 Supplemental (above baseline) ES&H Work Smart Standards unique to accelerator facilities and, separately, nuclear facilities, both of which must also meet the baseline standards

Note: The Los Alamos set of ES&H Work Smart Standards will be met through effective implementation of the Laboratory's Integrated Safety Management System.

process, and associated protocols. The Laboratory's entire institutional set of ES&H Work Smart Standards was successfully confirmed as of July 11, 1997.

Process Element 6: Approving the Institutional Set of ES&H Work Smart Standards and Authorizing Work to the Set

Objective

To accept the level of protection provided by implementation of the institutional set of ES&H Work Smart Standards, and to authorize the use of the set of standards at Los Alamos.

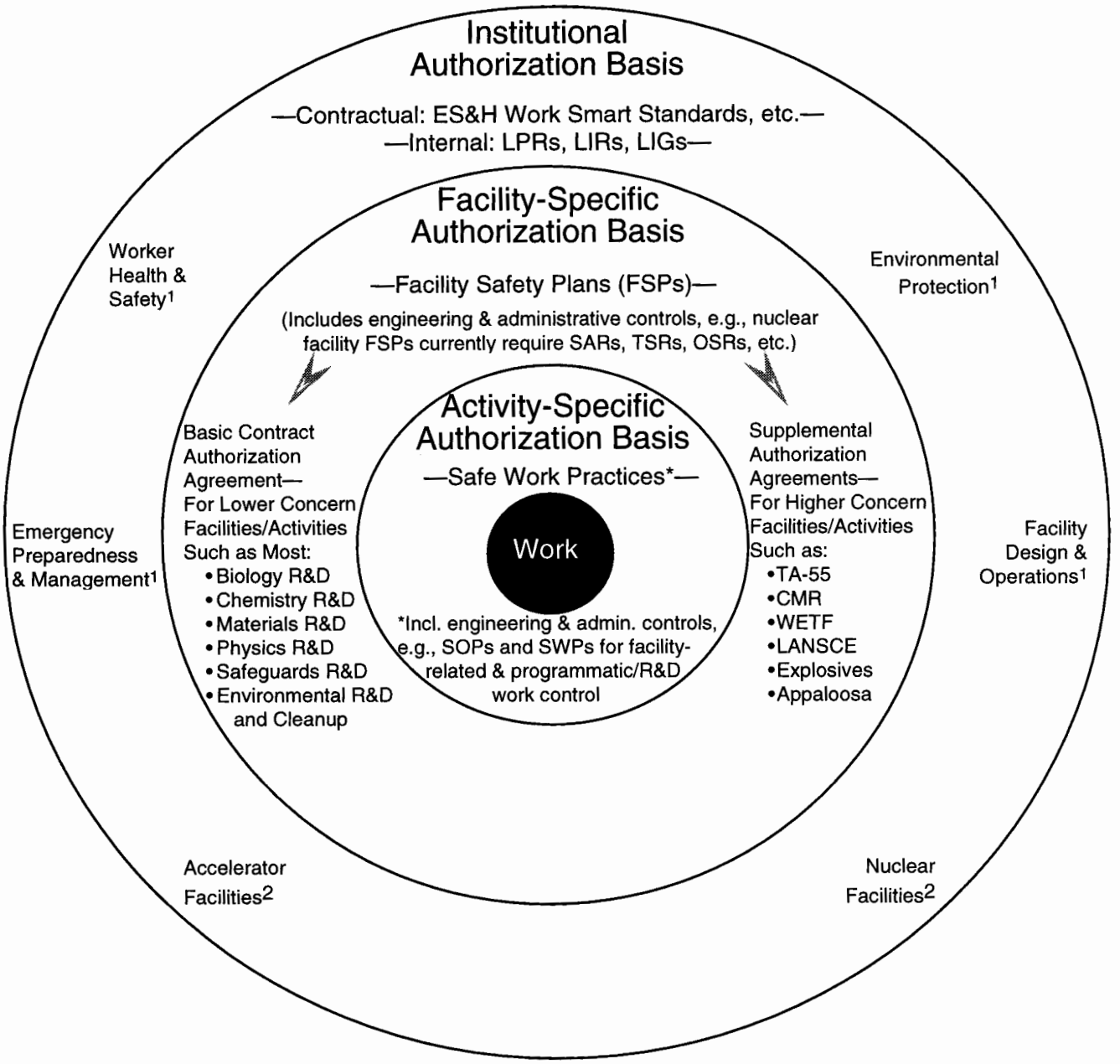
(Note: Approval constitutes agreement with the adequacy of the set and a commitment by the Resource Authorities to provide, or seek through the normal budget process, the resources necessary to implement the standards. Approval does not constitute granting of exemptions from applicable legal requirements judged not to add value. Exemption from those requirements must be sought and granted in accordance with established processes. Two requirements in DOE regulation 10 CFR 835 were judged not to add value to achieving adequate radiological protection for workers. An exemption request was developed and submitted in close cooperation with DOE/LAAO and DOE/AL. Approval is expected soon.)

Required Actions

The Approval Authorities designated by the Convened Group (see Section 2, "Initiating the Necessary and Sufficient Process at Los Alamos") have the following responsibilities as defined in DOE Manual 450.3-1. They must establish the adequacy of the institutional set of ES&H Work Smart Standards by determining whether: (1) the Process has been correctly implemented and has been documented in conformance with the protocols established by the Convened Group; (2) the ID Teams have endorsed and justified the set of standards as necessary and sufficient to provide adequate protection when implemented; and (3) the confirmation teams have confirmed the adequacy and feasibility of the set of standards. Stakeholder comments must be carefully considered (see Process Element 1). Finally, the Approval Authorities must approve or disapprove the set of standards for use in performing the defined work and inform the Convened Group of their decision.

Following approval, the Laboratory's institutional set of ES&H Work Smart Standards will serve (along with some DOE ES&H management requirements referenced in Attachment 6) as the agreed-upon contractual basis for performing work safely at Los Alamos -- i.e., in a manner that adequately protects the workers, the public, the environment, and facilities. These standards will replace, in part or whole, the ES&H requirements in the current Los Alamos contract between the University of California and the DOE. Note that these standards are "living" and will be periodically reviewed and, as needed, updated to ensure their sufficiency for the Laboratory's work and associated ES&H issues. Also, the Laboratory will continue to develop and approve Laboratory performance requirements (LPRs) to organize and integrate the ES&H Work Smart Standards and, as needed, detailed Laboratory implementing requirements (LIRs). Finally, each Los Alamos facility and activity will be required to meet these LPRs and LIRs by establishing facility- and activity-specific requirements and controls for working safely, consistent with the Laboratory's DOE-approved Integrated Safety Management Plan. The resultant institutional, facility- and activity-specific safety management "envelopes" are illustrated on the next page.

Los Alamos National Laboratory
Integrated Safety Management Envelopes



1 Baseline ES&H Work Smart Standards, LPRs, LIRs, and LIGs common to all Laboratory work

2 Supplemental (above baseline) ES&H Work Smart Standards (and, as needed, LPRs, LIRs, and LIGs) unique to accelerator facilities and, separately, nuclear facilities, both of which must also meet the baseline standards

Note: The Los Alamos integrated safety management envelopes are established and maintained through effective implementation of the Laboratory's Integrated Safety Management System.

Ostenak, 7/16/97

Attachment 1

Los Alamos National Laboratory

Integrated Safety Management*

Approved:

Siegfried S. Hecker, Director
Los Alamos National Laboratory
November 1996

Contents

Commitment: Environment, Safety, and Health

I. Introduction

II. Integrated Safety Management

- A. Framework
- B. Roles and Authorities
- C. Integrated Safety Management Processes

III. Safety Resource Allocation

Appendices

- A. Current Safe Work Practices and Facility Documents
- B. Authorization Agreement List
- C. Institutional ES&H Documents
- D. Acronyms

The Los Alamos National Laboratory Commitment - Environment, Safety, and Health -

We affirm to all our stakeholders, including our workforce, customers, and the public...

that we conduct our operations with respect and care for their personal safety and health and for the environment. Safety, health and environmental protection are integral to all our activities. We perform all work safely and strive to eliminate injuries, prevent adverse environmental and health impacts, protect property, proactively conform to applicable laws and regulations, conserve natural resources, and respond to the public's expectations for safety and protection of the environment. We assess the environmental impact of each facility we propose to construct and design, build, operate and maintain all our facilities so they are safe and environmentally sound. We are prepared for emergencies and provide leadership to assist our local communities to improve their emergency preparedness. We minimize waste generation, recycling materials to minimize the need for treatment or disposal. When waste is generated, we handle and dispose of it safely and responsibly. We monitor emissions and reduce them to as low as reasonably achievable, giving priority to those that may present the greatest potential risk to health or the environment. Where past practices have created conditions that require correction, we responsibly correct them. We manage our land to preserve habitats for wildlife. We deploy our resources to meet this environmental, safety, and health (ES&H) Commitment and do so in a manner that strengthens our institution. We continuously assess and improve our practices at the institutional, facility, and activity levels in light of advances in technology and new understandings in ES&H science. We build alliances with policy makers, businesses, and advocacy groups to develop sound policies, regulations, and practices for improving ES&H. We will make consistent, measurable progress in implementing this total ES&H Commitment throughout all our present and future operations.

Workforce Responsibility and Accountability

Line management is responsible and accountable for the protection of the workers, the public, and the environment. Everyone is responsible and accountable for the safe conduct of their activities. The Laboratory Leadership Council, including the Lab Director, stays informed on ES&H conditions and issues and ensures that policies are in place and actions taken to achieve the Lab's ES&H Commitment. Compliance with this Commitment, including applicable laws and regulations and established institutional, facility, and activity requirements, is the responsibility of every employee and contractor and a condition of their employment or contract. All managers are responsible for educating, motivating, and enabling their workers to understand and comply with this Commitment and for involving them in establishing, promoting, improving, and achieving the appropriate institutional, facility, and activity requirements. All managers are also responsible, through personal example and the involvement of all their workers, for creating a climate in which everyone is dedicated to meeting this Commitment.

Clear Roles, Responsibilities, and Authorities

We establish and maintain clear and unambiguous roles and lines of responsibility, authority, and accountability at all organizational levels throughout the Laboratory to ensure protection of the workers, the public, and the environment.

Competence Commensurate with Responsibilities

We ensure that all personnel have the necessary experience, knowledge, skills, and abilities to discharge their responsibilities. ES&H support services are provided, as needed, at the institutional, facility, and activity levels to assist personnel.

Balanced Priorities

We effectively allocate resources to address ES&H, programmatic and operational considerations. Protecting the workers, the public, and the environment is paramount whenever activities are planned and performed.

Identification of ES&H Standards and Requirements

Before specific work is performed, we evaluate the associated hazards and establish an agreed-upon set of standards and requirements that, properly implemented, provide adequate protection to the workers, the public, and the environment.

Hazard Controls Tailored to Work Being Performed

Before specific work is performed, we tailor engineered and administrative controls to prevent and mitigate the hazards associated with the work. The level of control is commensurate with the type of work and level of hazard.

Work Authorization

Before specific work is performed, we establish an agreed-upon set of terms and conditions that must be satisfied. The type of agreement and the agreement parties are determined on the basis of the type of work and level of hazard. No work will be performed unless it can be performed safely!

S. S. Hecker

Siegfried S. Hecker, Director
Los Alamos National Laboratory

11/27/96
Date

I. Introduction

This document describes Los Alamos National Laboratory's (LANL, Laboratory) Integrated Safety Management (ISM), a framework that supports workers in fulfilling their safety responsibilities. The purpose of the document is to describe ISM and how it will support work that meets the Laboratory's strategic goal, "Safety First." Work is defined broadly to include all Laboratory activities resulting from employment of the workforce. ISM is a comprehensive systematic approach toward integrating safety* with work, setting safety expectations for the entire Laboratory workforce. ISM as described in this document is official Laboratory policy and is to be followed by all members of the workforce.

Ultimately, safety depends upon the attitudes and behaviors of every member of the Laboratory workforce. In a safe system, each worker must be fully conscious of work hazards and have confidence in the controls to mitigate them. In support of every individual's responsibility for working safely, the Laboratory must provide a framework that promotes safe behaviors and provides direction, tools, and knowledge for safe work.

As an integral part of the work, safety is not simply an add-on independent of work processes. Interactions among the different elements that the safety system comprises—standards, safe-work processes, training, authorization, assessments, and budgets—must be understood and integrated. Additionally, one must understand the complex interrelationships that exist between the Laboratory as an institution, the separate facilities within it, and the specific activities within these facilities. One must also understand the basic relationships between a management system and individual behaviors. ISM takes all these relationships into account, enabling each individual to understand the unique contribution one can make toward Laboratory safety.

Line management is ultimately responsible and accountable for safety and, therefore, for establishing, implementing, and maintaining ISM. Every member of the workforce shares responsibility for effective ISM at the Laboratory. The Laboratory Director has charged the Operations Working Group (OWG), a subgroup of the Laboratory Leadership Council (LLC), with establishing, and maintaining ISM. The Environment, Safety, and Health (ESH) Division supports OWG to coordinate and facilitate establishing ISM.

The entire Laboratory workforce is expected to provide input and constructive criticism to continually improve ISM. Such comments should be submitted, in writing, to the ESH Division Office or the OWG. Changes to this document are subject to the approval of the ISMS Change Control Board comprising Laboratory and DOE representatives.

This document comprises several parts: first, is the Laboratory's statement of commitment to ES&H; second, this introduction. Section II is a description of ISM and Section III provides a discussion of resource allocations and budgets for safety.

* Throughout this document, the term "safety" is synonymous with environment, safety, and health (ES&H) and used broadly in reference to the protection of the worker, the public, the environment, and property.

II. ISM Description

A. FRAMEWORK

This section describes the objectives, guiding principles, core functions, and approach to tailoring that provide the framework for ISM.

Objectives

The Laboratory's safety strategic goal is "Safety First"—to have no workplace deaths or serious injuries and maintain a lost-time injury record that ranks best among comparable industries.

The objective of ISM throughout the Department of Energy (DOE) and the Laboratory is to systematically integrate safety management into work practices at all levels so that missions are accomplished while protecting the public, the worker, the environment, and property. Safety should involve every worker and be a seamless part of planning and conducting all work and from the inception of a mission through its completion.

Guiding Principles

DOE and its contractors have agreed upon the following seven fundamental principles that provide overall direction and guidance for instituting ISM throughout the DOE community.

1) Safety-Responsible Line Management

Line management is ultimately responsible for the protection of workers, the public, the environment, and property. Every member of the workforce shares this responsibility, which extends in an unbroken chain from external sponsors through the Director and to workers performing the work. Throughout this chain, safety shall be integral to decisions relating to the conduct of work, including resource allocation, planning, scheduling, and coordination. Section II-B provides additional details regarding line management responsibilities.

2) Clear Roles

The Laboratory establishes and maintains clear and unambiguous lines of authority, responsibility, and accountability are established and maintained so that everyone understands their individual and organizational safety roles. While the line managers are ultimately responsible for safety, different levels of the workforce and different organizations have differing roles that are defined. Section II-B provides additional details regarding safety roles.

3) Competence Commensurate with Responsibilities

Every member of the workforce will possess the experience, knowledge, skills, and abilities necessary to discharge their responsibilities. Supervisors must ensure that their workers are competent to safely accomplish the work. Worker competence is further addressed in section II-B and section III, *Resource Allocations*, in respect to implementation of safety expectations.

4) Balanced Priorities

Management effectively allocates resources to address safety, programmatic, and operational considerations. No work will be performed unless it can be performed safely. Whenever activities are planned and performed, adequate protection of the workers, the public, the environment, and property paramount. Work planning and resource allocation shall ensure through balance and priorities that the safety of any work is adequate, value-added, and reasonable. Safety will also be appropriately balanced relative to other competing or conflicting operating needs, such as safeguards and security. Resource allocation is further addressed in section III.

5) Identified Safety Standards and Requirements

Before work is performed, the associated hazards are evaluated and an agreed-upon set of safety standards, requirements, and/or controls (i.e., expectations) are established, which when properly implemented, ensure adequately that the workers, the public, the environment, and property are protected from adverse consequences. Establishing expectations is discussed in sections II-A–C.

6) Work-Tailored Hazard Controls

Administrative and engineered controls and other expectations to prevent and mitigate hazards are tailored to the work and associated hazards. The Laboratory's approach to tailoring of expectations is described later in this section.

7) Authorized Operation

The conditions and agreements to be satisfied for operations to be initiated and conducted are clearly established and agreed upon. Lower risk operations are authorized under the Prime Management and Operations (M&O) Contract between the University of California (UC) and the DOE. Higher risk operations are authorized under activity-/facility-specific authorization agreements between the Laboratory and DOE. Authorization is discussed further in section II-C.

Expectations

ISM involves three major and interdependent steps that manage "expectations," which are broadly defined as standards, policies, requirements, regulations, procedures, and controls:

(1) Establish safety expectations,
(2) Implement safety expectations, and
(3) Ensure safety expectations are effectively established and implemented to meet the safety objective.

If any of these three steps are weak or omitted, then the entire safety system is ineffective.

Five core functions

Five core functions used throughout the DOE complex serve to support establishing, implementing, and ensuring safety expectations (see figure 1). The interrelationships among these five core functions and the three major steps are shown in figure 2.

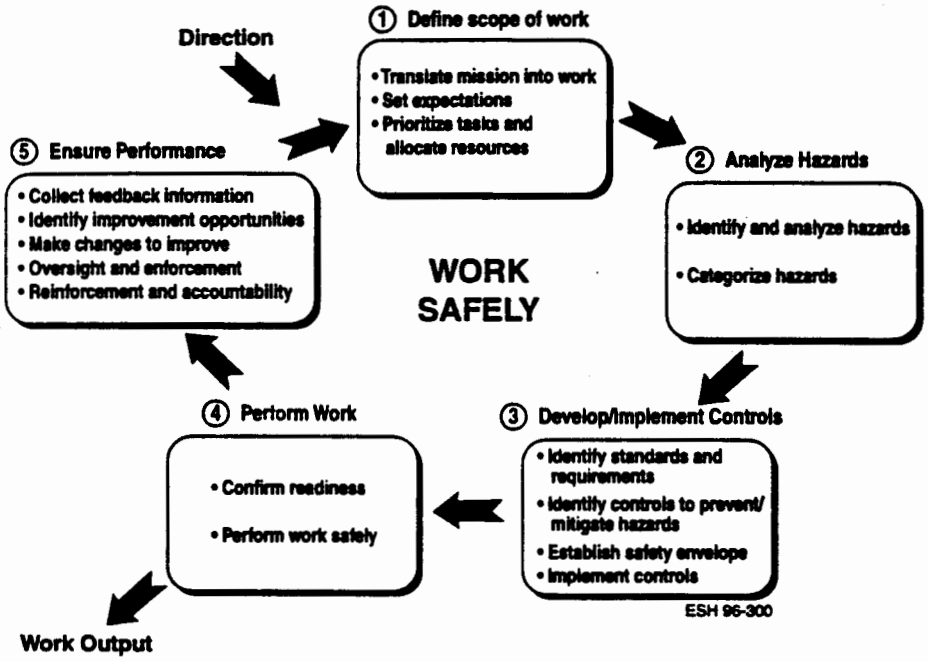


Figure 1. Laboratory ISM five core functions

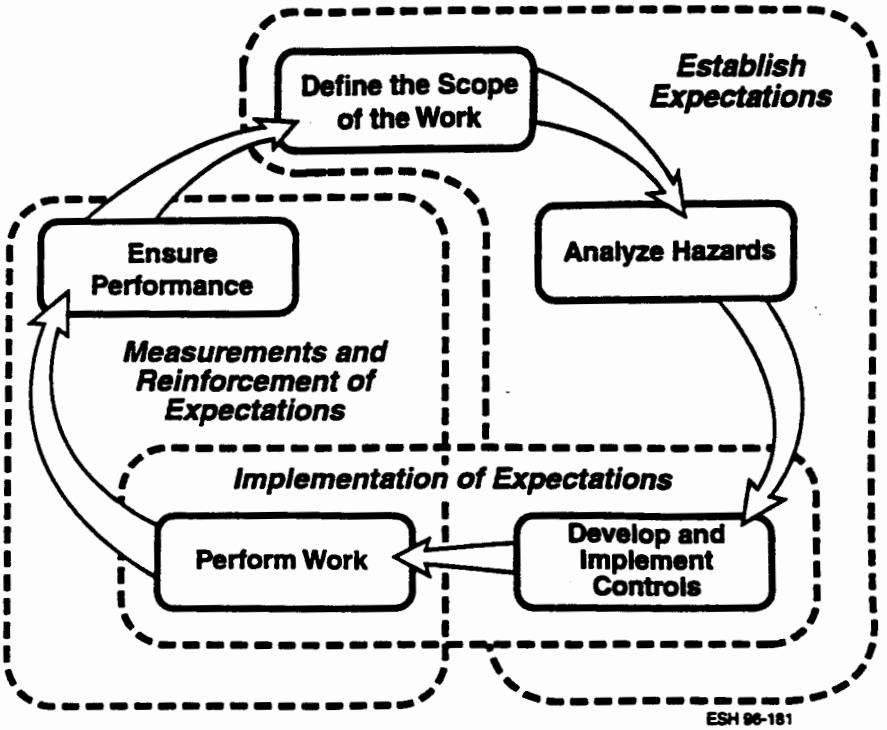


Figure 2. Relationship of five core functions to establishing, implementing, and ensuring expectations

The effectiveness of ISM resides in thorough understanding of the five core functions and their interrelationships and the development and application of Laboratory mechanisms (processes) that fulfill them.

Tailored and Consistent Safety Expectations

At the extremes of safety management, one of two things may happen: safety expectations can be tailored (graded) to specific facilities or activities; or expectations can be prescribed and administered consistently throughout the entire institution. One challenge of ISM is to strike a balance between the institution's expectations (i.e., one size fits all) and expectations tailored to unique activities by specific facilities.

Tailored safety expectations accomplish the following:

- provide flexibility and worker discretion that ensures expectations are effective, reasonable and practicable;
- allow for the exercise of judgment at the appropriate decision level, increase worker involvement and buy in; and balance competing needs.

The degree of rigor and documentation that establish safety expectations, the nature of controls, and the extent of ensured performance are commensurate with the work hazard level. In contrast, significant drivers and/or advantages to establishing institutionally consistent safety expectations may be economy-of-scale, regulatory requirements, industry lessons, liability, and other risk factors that may require consistency.

To achieve balance between the need for tailoring and the contrasting need for consistency, ISM applies the core safety functions at three different levels. It is important to note that all work takes place at the activity level, regardless of how safety management is applied.

- **Activity** level—focuses upon and applies to discrete work activities performed by individuals in the workplace (e.g., a maintenance or a research and development activity).
- **Facility** level—focuses upon and applies collectively, as appropriate, to the activities of a specific facility (e.g., TA-53 or the Chemical and Metallurgy Research building) or more broadly to a facility management unit (FMU). All Laboratory land and structures are part of designated FMUs.
- **Institution** level—focuses upon and applies collectively, as appropriate, to the activities of the Laboratory as a whole.

Figure 3 shows how core safety function are applied at each level within the Laboratory. As an institution, the Laboratory comprises many facilities; each facility, in turn, comprises all work activities conducted at the Laboratory. These nested relationships determine the institutional-level expectations that apply to all facilities and their activities. Institution-level expectations apply to all activities, i.e., there is one common set of expectations throughout the Laboratory. As necessary, a facility adds its own set of common expectations to those already established by the institution. Finally, an additional set of expectations may be necessarily activity-specific. Tailoring combines activity-, facility-, and institution-level expectations; the common institution- and/or facility-specific expectations provide consistency.

Figure 3 also shows that processes for determining institution- and facility-level expectations start from a roll up of all institution- and facility-level activities. Practically, this means that safety expectations at all three levels are based upon the work and its hazards and upon input from the workers.

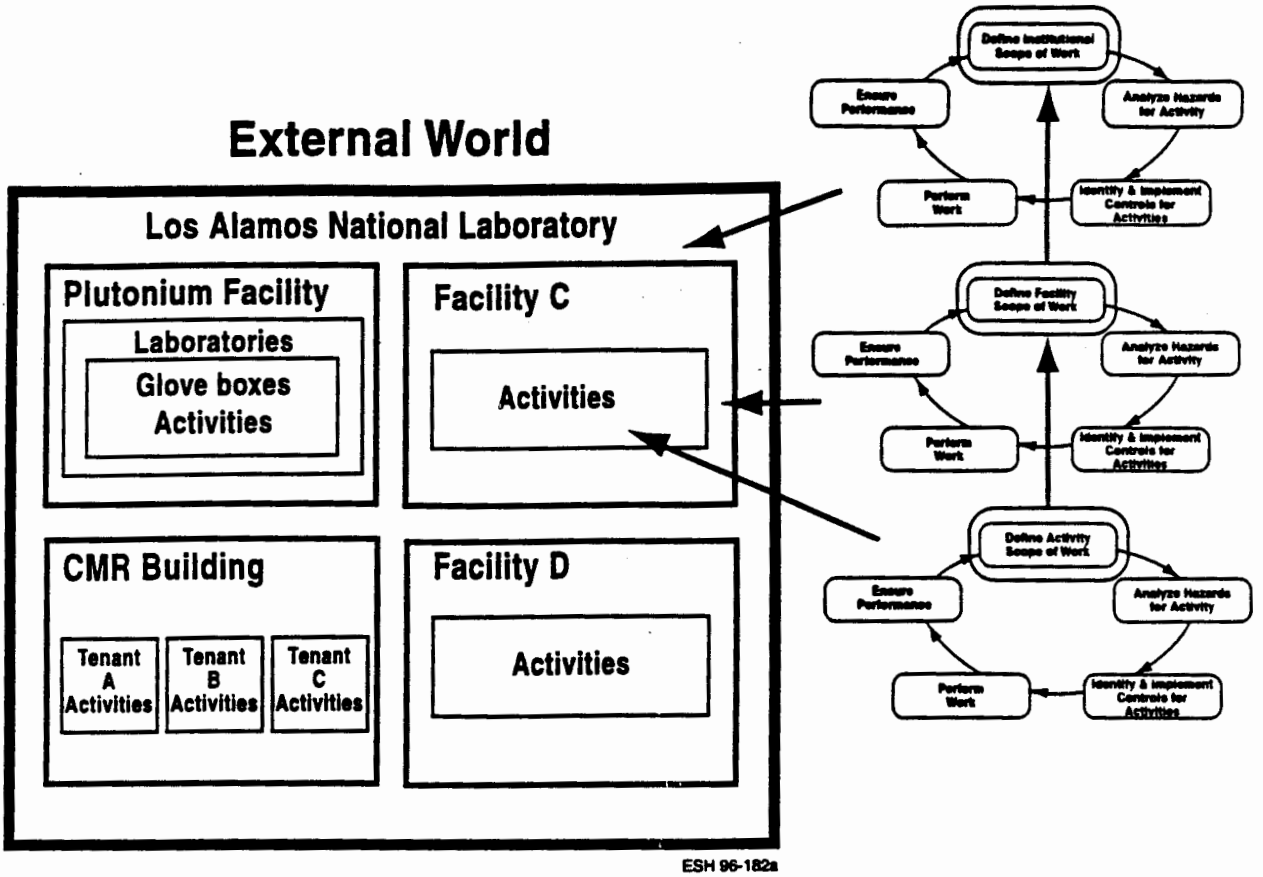


Figure 3. Core functions as they relate to the three levels (activity, facility, and institution)

The core functions in figure 3 can be rearranged as shown in figure 4, which depicts and summarizes the major characteristics and relationships of the Laboratory's ISM.

Figure 4 indicates that managing work safely at the Laboratory is accomplished through applying the five core functions at each of the three major levels. It shows that work activities and/or their roll up is the starting point at all three levels for analyzing and understanding hazards to determine the safety expectations or controls. This figure also depicts the applicability of facility and institutional expectations to individual work activities. A given activity must not only meet expectations derived from its activity-specific work definition and hazard analysis, but also those applicable expectations established for the institution and the facility in which the activity is conducted. In general, institutional and facility expectations prescribe specific processes at the activity level only when there exists compelling justification for facilitywide and or Laboratory-wide consistency.

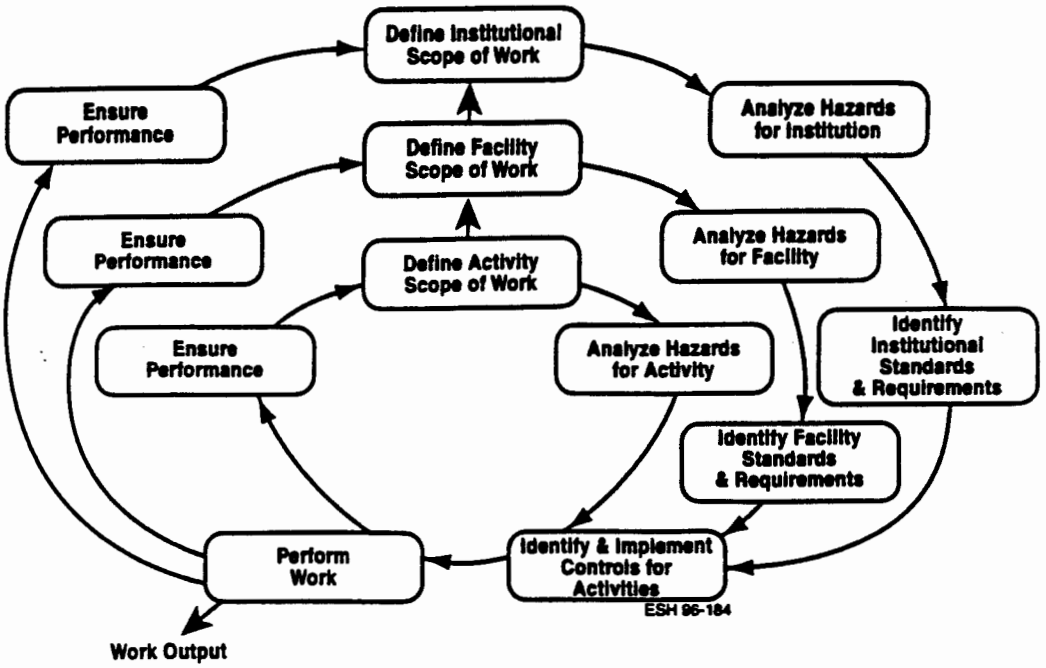


Figure 4. Core functions at the institutional, facility, and activity levels

The second guiding principle in the Laboratory's ES&H commitment covers unambiguous roles, responsibilities, and authorities. Most importantly:

- Line managers are responsible and accountable for safety;
- Program managers are responsible and accountable for providing funding;
- ESH Division is responsible and accountable for providing safety expertise, services, and process for establishing unambiguous institutional expectations.

Working safely requires each worker be accountable for their safety roles, responsibilities, and authorities as established within the Laboratory's organizational structure. These include roles and responsibilities for developing, coordinating, administering, and applying different safety processes at each of the three levels. Roles, responsibilities, and authorities at the Laboratory are usefully considered from two perspectives: the line management's functions and the organizational structure. Each individual at the Laboratory will have roles, responsibilities, and authorities in both perspectives. Figure 5 shows a chain of responsibility extending from individuals working on the floor through the Director and defines line management, supervision, and the workforce. This chain shows the collective responsibility for safe work.

The authority to manage all activities of the Laboratory is delegated from the UC President to the Laboratory Director. The Director retains ultimate responsibility but

delegates responsibilities for ensuring safe work to the deputy director and division, program, and office directors. These responsibilities are further delegated through the entire management and supervisory chain to individual members of the workforce.

In practice, various mechanisms, or processes, exist for fulfilling each of the core functions at the activity, facility, and institutional levels. These processes are described in Section II-C. of this document.

B. Roles and Authorities

In accordance with the second guiding principle, clear and unambiguous roles and authorities are established. **Actions 2, 3**

The safe conduct of work requires that each individual fulfill assigned safety roles and be accountable for various safety responsibilities associated with their roles.

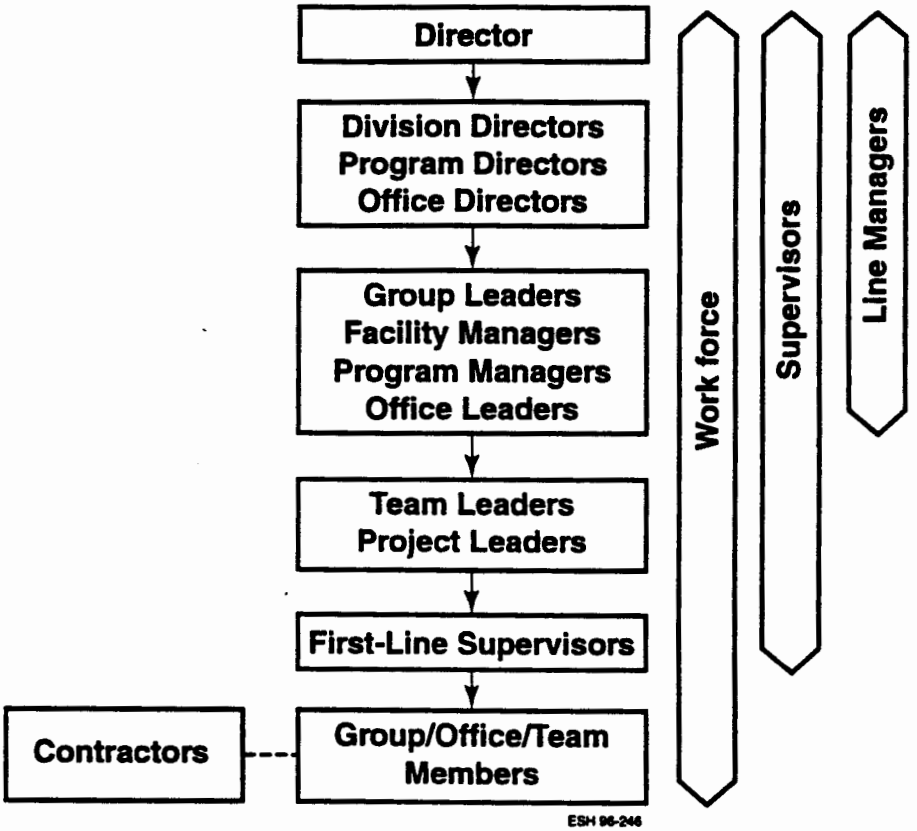


Figure 5. Chain of responsibility

Line Structure

The Workforce. The Laboratory workforce comprises all UC and contractor employees and includes line managers and supervisors. Working safely is every worker's responsibility and a condition for employment at the Laboratory. In the context of safety, the role of the workforce is to do all their work safely and to contribute to the safety of those around them. The workforce ensures that all hazardous work is covered by approved procedures and is done by trained personnel.

Responsibilities for which the workforce is held accountable include

- participate in defining the scope of their work, analyzing its hazards, and identifying and implementing appropriate expectations;
- inquire about and understand the hazards and safety requirements of their assignment;
- share responsibility with other workers for ensuring that safety expectations are met;
- take ownership of safety in the workplace;
- immediately correct safety-related problems or inform their supervisor of the problem if it exceeds the worker's resources, competence, or authorization level;
- warn fellow employees and visitors of known hazards, including defective equipment;
- know the emergency plans and procedures for their work areas;
- stop work when an operation is perceived to be imminently hazardous;
- track and correct safety issues;
- follow all activity, facility, and institutional safety requirements training and expectations; and
- participate in establishing, improving, and correcting if necessary, the Laboratory's safety expectations at the activity, facility, and institutional levels.

The workforce has authority and will be held accountable to perform work that is covered by safe work practices. They have the authority to stop work deemed to be unsafe (i.e., clear and present danger). Nonsupervisors are authorized to prepare but not approve activity level procedures and practices needed for the safe conduct of their work in accordance with institutional and facility expectations.

Managers and Supervisors. In their safety roles, managers and supervisors assume the same responsibilities as do the workforce. They also work with their own workforce, as well as with other organizations that either support or affect them, to fulfill the five core safety functions. Their role is to actively promote and model safe work practices, thereby demonstrating its value to the organization. Roles and responsibilities for which they are accountable include

Supervisors, team leaders, project leaders

- share all the responsibilities assigned to the workforce;
- plan, schedule, and prioritize resources to ensure work is conducted safely;
- ensure workers have the competence (i.e. have the necessary training, qualifications, and experience), tools, and other resources to work safely;
- make workers accountable, using timely positive and negative reinforcement to encourage appropriate safety behaviors;
- provide supportive environment for employees to raise safety issues and concerns;
- are aware of legal, regulatory, and contractual safety requirements applicable to their operations and facilities;
- engage the workforce in work planning, including developing and maintaining activity-level procedures and/or safety practices that apply to the work;
- maintain safe-working conditions and practices in those areas and with those workers they have authority over; and,
- ensure their employees, contract personnel, and visitors know and adhere to all applicable activity, facility, and institutional safety expectations.

Supervisors authorize their employees to work within Laboratory requirements. Supervisors are authorized to assign duties and require safety training, qualification, and/or certifications necessary to fulfill assigned duties. They are authorized to require, review, and help develop activity-level safety procedures and practices to work safely within the requirements of the Laboratory. Supervisors are authorized to recommend accountability actions. Supervisors are authorized to request representative participation in the development of group-level safety expectations that will apply to their work.

Group leaders, facility managers, program managers, office leaders

- assume all the responsibilities assigned to supervisors;
- authorize activities in their organization using safe work practices, as appropriate;
- provide a safe work environment;
- schedule, prioritize, and allocate adequate resources to work safely;
- establish the operational readiness of their organization's activities;
- approve and authorize safety procedures for hazardous operations in those facilities, groups, and activities under their supervision;
- are knowledgeable about their organization's performance relative to the UC Contract's Appendix F and other appropriate performance measures; and,
- provide knowledgeable workforce personnel to help develop and improve facility and institutional safety expectations.

In addition to their supervisory authorities, these managers are authorized to require readiness reviews of their operations and to require and review for approval activity-level safety procedures and practices to accomplish work safely within Laboratory requirements. They are authorized to approve accountability actions within requirements. Managers are authorized to request representative participation in the development of

activity, facility, and institutional safety expectations that apply to their organization's work.

Division directors, program directors, office directors

- assume all responsibilities assigned to group leaders;
- within their organizations and with the participation of their employees and other Laboratory management and resources, establish management processes for implementation and self-assessment of the Laboratory's safety commitment and other safety expectations at all Laboratory levels; and
- within their organizations and with the participation of their employees and other Laboratory management and resources, establish mechanisms within Laboratory policy for interacting with DOE, UC, and other external organizations in all matters concerning or affecting safety at the Laboratory.

In addition to the authorities listed above, directors have authority to establish and require management processes for safely accomplishing their mission. They are authorized to have representation in the development of activity, facility, and institutional expectations that apply to their organization's work. They have a joint authority for requiring and establishing mechanisms for interaction and negotiation with the DOE and other sponsors of work at the Laboratory, as well as with other contractors and subcontractors doing work at the Laboratory.

Laboratory Director

- the responsibilities listed above for division directors;
- own Laboratory safety goals;
- ensures that supportive environment exists for employees to raise safety issues and concerns; and
- ensures that Laboratory infrastructure for safely conducting work, including institutional, facility, and activity expectations, are developed, maintained, and implemented for all Laboratory work.

The Laboratory Director, in addition to the authorities listed above, has authority for requiring and establishing safety goals for the performance of the Laboratory.

Organizational Structure

In addition to workforce, supervisory, and management roles, programmatic-, facility- and institutional-level roles are assigned to facility management and institutional support organizations. These organizations are shown in figure 6, a simplified schematic of the Laboratory's organizational structure.

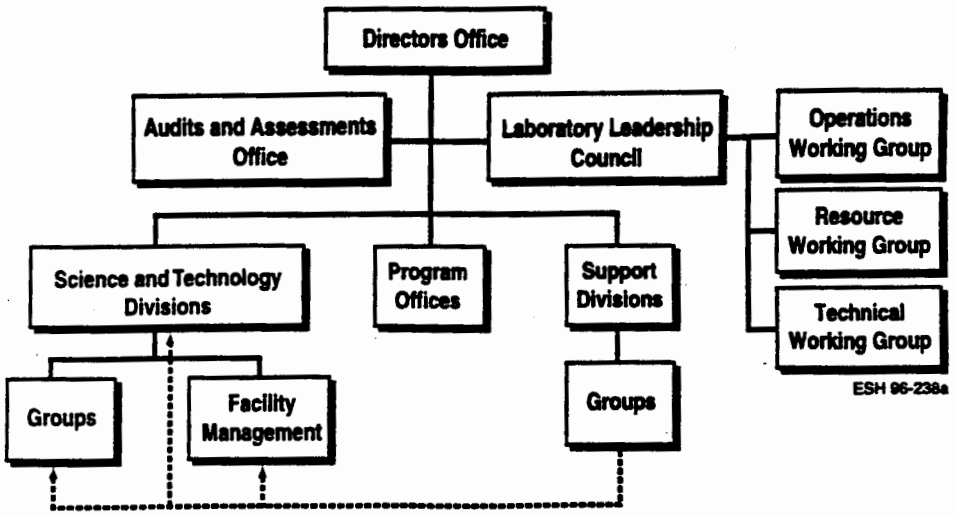


Figure 6. Simplified schematic of Laboratory organization

Programmatic. Programmatic organizations such as program offices, science and technology divisions, centers, and other research and development (R&D) organizations work safely.

Their associated roles and responsibilities include

- participate with facility- and institutional-level organizations to establish safety expectations covering their activities; and
- work with facility and institutional support organizations to ensure adequate resources and mechanisms exist for effective and efficient safety operations and conduct of work.

Programmatic organizations have the authority to be represented in the development of facility and institutional expectations that affect their work.

Facility Management. Owning division directors and, as appropriate, their supporting facility management teams, provide essential and negotiated infrastructure in support of facility tenants. They also help define the safety envelopes of facilities in which Laboratory activities are performed. They have the overall authority and responsibility to develop a facility-specific safety management system that complies with applicable statutory and Laboratory requirements. Their roles include

- establish, document, and maintain, with the participation of affected tenants, the Facility Safety Plan (FSP) that includes the facility-level safety envelope and the facility's processes to ensure safe facility operations;
- provide a safe and compliant operating platform that enables technical work to be accomplished;
- approve FSPs;

- implement, with the participation of affected tenants, applicable institutional programs and expectations;
- provide feedback and contribute to establishing, improving, and changing the Laboratory's safety expectations at the facility and institutional levels;
- participate with tenants to negotiate tenant/facility agreements that define interrelationships and mechanisms for establishing and maintaining compatible activity- and facility-level safety envelopes; and
- assess the implementation and effectiveness of facility-level safety processes.

Facility owning division directors have authority, in accordance with established Laboratory criteria for authorization agreements (table 1), to require, establish, and modify using change control, facility-operating-limit safety envelopes for the facilities within their FMU. They have the authority to tailor facility safety management based on hazard. They have the right to be represented in the development of facility and institutional expectations that affect their work. They have the authority to review and approve or terminate activity-level programmatic work that is unsafe or may alter or otherwise exceed the limits of the facility safety plan or safety envelope.

Institutional Support. Institutional organizations support the safe conduct of Laboratory work at all levels. This includes staying informed and, as appropriate, assessing the effectiveness of institutional processes for supporting safety. These organizations include

- Laboratory Director's Office (DIR),
- Legal Council (LC),
- Laboratory Leadership Council (LLC),
- Operations Working Group (OWG),
- Resource Working Group (RWG),
- Environmental, Safety, and Health (ESH) Division,
- Facilities, Security, and Safeguards (FSS) Division,
- Business Operations (BUS) Division,
- Quality and Planning Office (QPO),
- Audits and Assessments Office, and
- Laboratory Safety Committees.

Their roles include

- ensure involvement of and open communications with the workforce and external stakeholders in safety matters;
- work with all affected organizations to establish, maintain, and communicate the institutional safety expectations;
- work with all affected organizations to establish, maintain, and monitor institutional safety and oversight programs; and
- work with all affected organizations to ensure the adequacy of resources for meeting institutional safety objectives. **Action 50**

In conjunction with affected organizations, institutional support organizations have the authority and shared responsibility, to establish and require safety expectations for the Laboratory. To this end, they provide and administer institutional processes and participate with appropriate stakeholders in establishing Laboratory-wide safety expectations. They also have the authority to review and provide feedback throughout the Laboratory regarding the effectiveness of safety operations.

Subcontractor Organizations. The Laboratory is ultimately responsible for the safety of all on-site subcontractor organizations. However, safety activities may be assigned to subcontractors by the contractual relationship. In such cases, the Laboratory exercises due diligence to ensure that subcontractors meet the conditions of their contractual safety obligations.

All on-site Laboratory subcontractors, including Johnson World Services Controls, Incorporated (JCI) and Protection Technologies of Los Alamos (PTLA) meet identical or equivalent safety expectations—including the guiding principles and core functions of ISM—as the Laboratory. Such wording is present in the language of all contracts let by the Laboratory. Laboratory employees who are responsible for writing statements-of-work, or who otherwise bring contractors to the Laboratory, work with the Business Operations Division (BUS) and ESH Division to ensure that this requirement is met.

C. Integrated Safety Management Processes

Introduction

This section identifies and provides a general description of the processes that support the five core functions (see section IIB) at the institution, facility, and activity levels. The discussion of processes is subdivided to address establishing safety expectations, implementing these expectations, and assuring safety performance.

Establishing Expectations

As defined previously, expectations broadly include standards, policies, requirements, laws and regulations, procedures, engineered and administrative controls and responsibilities that apply to the performance of work. Performance expectations can be institutional (Laboratory-wide), facility-, or activity-specific. Institutional expectations apply to all Laboratory facilities and all activities. Facility-specific expectations apply to all activities done within the boundaries of the applicable facility. Key principles for establishing expectations at all three levels are

- understand the work and its hazards;
- involve people doing the work, other subject matter experts, and appropriate stakeholders;
- incorporate, as appropriate, external standards; and
- comply with applicable laws and regulations.

Activity Level. At the activity level, scope-of-work may be narrowly defined to encompass only a specific task or generically defined to include a class of activities and/or hazards. The workforce establishes activity safety expectations and operating limits using the first three core functions: define the activity, identify and analyze associated hazards, and determine applicable expectations or controls. Line managers and/or supervisors authorize work only after the first three functions are completed. Line managers and supervisors must sufficiently know their employees' work to be satisfied the work is authorized and within their employees' competence. Formality, rigor, and the extent to which employees perform the three functions are determined by line management commensurate with the magnitude and or uncertainty of hazards. DOE may be involved in authorizing Laboratory work, if this is consistent with hazard criteria in the authorization agreement matrix discussed in the next section.

A variety of institutional, facility, and activity processes, commonly referred to as "safe work practices," are used define the work, analyze its hazards, identify the safety expectations required for authorization, and control the work. Line management, supervisors, and workers are responsible for using these safe work practice processes, as appropriate, to determine safety expectations and operating limits for their activities.

A list of current safe work practices used individually or jointly, as appropriate, for authorizing work and establishing activity-level safety expectations is given in appendix A. These include facility work control, safe-operating procedures, special work permits, etc.

Facility Level. All Laboratory space, including physical structures, and facilities are assigned to owning division directors and their FMUs. An FMU can include multiple facilities, buildings, other structures, and/or large areas of land. In some cases, several FMUs may be grouped into facility management zones to share necessary safety and maintenance resources.

Each FMU has a facility management team that provides the infrastructure, processes, and resources required to effectively support its unique needs. Additionally, for each facility or building within an FMU, the facility management team works with tenant organizations to establish facility-specific safety expectations. Facility expectations comprise defined limits, boundaries, and facility processes to ensure that the current safety capabilities of the facility (commonly referred to as the facility operating limits or safety envelope) are not exceeded. They also establish the requirements for interfaces among tenants, the facility management team, and support organizations.

The FSP is the primary mechanism to help facility managers (FMs) establish, document, and integrate facility-level expectations. **Action 27**
Establishing and documenting the FSP is the responsibility of the facility owner and is usually delegated, along with other facility management responsibilities, to the facility manager. Consistent with the process for establishing institutional expectations, establishing the FSP begins with understanding the work and its hazards; involves the people doing the work, subject matter experts, and appropriate stakeholders; is tailored to

the work; incorporates applicable external standards; and complies with applicable statutory requirements.

The FSP describes the collective work of an FMU (or facility, building, or other subset depending upon the hazards). Within the plan, the FM analyzes a facility's hazards and identifies facility-specific expectations and controls to effectively manage risks to workers, the public, the environment, and property (i.e., fulfills the first three core functions). The FSP contains a definition of the facility's safety envelope and a description of the facility's administrative and engineering controls. It includes and is consistent with institutional expectations (i.e., Laboratory performance requirement [LPR], Laboratory implementing requirement [LIR], and Laboratory implementing guidance [LIG]; Laboratory permit; and other institutional requirements). In addition to identifying facility expectations, the FSP also contains an acknowledgment of acceptable residual risks for the facility.

The FSP may be a single document with appropriate references or a compilation of other applicable documents such as facility procedures and manuals, safety analyses reports, facility permits, emergency plans, quality management plans, and/or conduct-of- operations plans. The level of detail of the work description, the rigor of hazard analyses, and the nature of required facility processes and controls in an FSP document are consistent with Laboratory criteria and commensurate with the magnitude of the hazards associated with the facility.

Table 1 is a matrix that defines hazard categories and identifies the minimum FSP requirements for facilities having activities that meet the hazard criteria. **Actions 26**
For nuclear or higher-hazard nonnuclear facilities, the FSP may include DOE-prescribed requirements such as final safety analysis reports (FSARs), technical safety requirements (TSRs), safety analysis documents (SADs), or unreviewed safety question determinations (USQD) programs. Alternatively, facilities having only lower hazard activities may have short FSPs that mainly reference institutional programs or a few facility-specific documents such as emergency evacuation plans.

In addition to establishing facility-level expectations, the FSP also addresses how the expectations are maintained and establishes mechanisms to ensure modification of the FSP, as appropriate, when work or hazards change. Maintaining expectations may include processes such as FM/tenant and FM/support agreements, surveillance requirements (SRs), change control, configuration management, and assessments. The FSP addresses the means for identifying changes in activities and/or facility conditions and associated hazards that could result a need to modify expectations established in the FSP. It may also address processes for allowing exemptions to the FSP or other changes based upon input by workers, experts, or stakeholders. For nuclear facilities, modification refers to the USQD process.

The formality, rigor, and extent to which a facility's work is defined, hazards are analyzed, and expectations are established are determined by the owning division director. **Action 27**

The determination must be consistent with the guidance in the activity hazard categories matrix (table 1) and commensurate with the magnitude and/or uncertainty of the hazards.

Place Table 1 - Activity Hazard Categories Matrix - here

This table is to be constructed as part of Action 26

A variety of facility-specific mechanisms and processes that fulfill safety functions for establishing, implementing, and assuring expectations may be incorporated by reference in the FSP. A list of current examples of mechanisms or processes that may be included individually or jointly, as appropriate, in the FSP is given in appendix A.

Except when covered by an agreement with a regulatory party (e.g., regulatory permits or authorization agreements discussed below), the FSP and referenced documents —but not institutional expectations—can be changed at the discretion of the owning division director. Proposed changes or interpretations are submitted in writing by any member of the workforce to the facility-owning director. Disagreements regarding the safety expectations in the FSP shall be resolved within the supervisory chains of the owning division director and the organization proposing the change. Ultimately, the facility owner has the authority to determine facility-specific requirements in the FSP consistent with Laboratory guidance. In addition to ongoing changes, the FSP and referenced documents shall be systematically reviewed and updated at least every three years by the owning division director or designee.

The majority of Laboratory work is authorized by the prime contract between UC and DOE. However, in some cases, the Laboratory and DOE mutually agree to special authorization agreements for certain facilities and/or activities. Such agreements specifically authorize work associated with these facilities and activities. The agreements between DOE and the Laboratory identify (sometimes by reference) the risks and associated mitigation measures required for authorization of the facility or activity. The Laboratory's facility-owning division director and the DOE determine the agreement parties and basis for the authorization agreements. Appendix B provides a list of facilities and operations that currently require authorization agreements. All other activities/facilities not contained in appendix C are authorized by the Laboratory pursuant to its approved ISM system.

Institutional level. Institutional expectations apply Laboratory-wide and are directed at the entire workforce. These expectations derive from statutory requirements, contractual agreements between UC and DOE, consensus standards, and Laboratory practices. Contractual safety agreements between UC and DOE are based upon standards identified jointly by DOE, the Laboratory, and as appropriate, by other stakeholders. The Laboratory commits to full compliance with all applicable federal, state, and local laws and to regulations and contractual obligations, unless formal relief is obtained from the cognizant agency.

At the institutional level, Laboratory-wide safety expectations are established using the DOE's Work Smart Standards process. The output of this process is a set of DOE/UC contractual work standards and Laboratory performance requirements for performance-based institutional expectations. **Actions 5-18**

The contracted work standards are developed and approved by the Laboratory and DOE and are included, by reference, in the UC/DOE Contract. All LPRs include a statement of the institutional expectation and associated performance criteria. These are factored into the UC/DOE Contract Appendix-F performance measures used to evaluate the

Laboratory's work performance. Changes to the UC/DOE contractual set of work standards are subject to DOE (and possibly other stakeholder) negotiation and approval.

The LPRs provide the basis for more specific institutional expectations documented in mandatory Laboratory implementing requirements (LIRs) and discretionary Laboratory implementing guidance (LIGs). Incorporating more detailed expectations into LIRs and LIGs beyond those in the LPRs is based upon consideration of the following four criteria that help determine the need for institutional consistency: **Action 16**

- magnitude of risks,
- existence of explicit regulatory requirements,
- economy-of-scale and cost-effectiveness of implementation, and
- use by mobile populations.

LIRs and LIGs can be readily changed at the discretion of the Laboratory. Proposed changes or interpretations to institutional expectations (LPRs, LIRs, or LIGs) are submitted in writing by any member of the workforce to the Laboratory Standards Project for coordination with the appropriate office(s) of institutional coordination (OIC). An OIC is assigned by the Laboratory Standards Project for each LPR, LIR, and LIG. **Action 15**

Note that OICs may reside within support or science and technology organizations. Disagreements regarding institutional safety expectations shall be resolved within the supervisory chains of OIC and the organization proposing the change. If resolution is not reached before or at the division/office director level, the issue shall be presented to the OWG for final resolution. In addition to ongoing changes to institutional safety documents, LPRs, LIRs, and LIGs shall be systematically reviewed and updated at least every three years by the cognizant OIC. The process by which LPRs, LIRs, and LIGs are established or changed is currently managed by the Laboratory Standards Project within ES&H Division.

Exemptions to expectations in LIRs can be obtained for special circumstances when alternative measures are taken to provide sufficient protection. Requests and justification for exemptions are made in writing to the Laboratory Standards Project, which coordinates their disposition with the cognizant OIC. As with proposed changes, disagreements relating to exemptions shall be addressed by supervisory chains.

The official record and listing of institutional-level safety expectations exists electronically on the World Wide Web (WWW) under the Laboratory Policies and Procedures section of the Laboratory home page. A list of these documents is provided in appendix C. Individuals who use hard copies of LPRs, LIRs or LIGs are responsible for ensuring that they use the current version. The OIC will ensure that the most current version of a document is present on WWW and will communicate new and revised documents to potentially impacted organizations.

Implementing Expectations

Implementation involves the preparations and actions necessary to integrate and incorporate applicable expectations into work and requires performing work safely in accordance with established activity, facility, and institutional expectations. Implementation involves executing the third and fourth core safety functions: identifying/implementing necessary safety expectations and then performing the work. To make expectations part of an activity, supervisors must ensure that workers are competent in requisite knowledge and skills, that necessary tools and equipment are provided, and that adequate communication and interactions are established among involved workers.

People doing the work implement safety expectations. Safe work practices identify and establish the activity-level safety expectations. As shown in figure 4, the activity-level safety functions include identification and implementation of applicable facility and institution-level expectations along with those established specifically for the activity.

Actions must be taken to ensure that new or revised facility and institutional expectations are known and incorporated, as appropriate, into work. Each potentially affected organization must determine the following and take appropriate action.

- applicability of the expectations to their work;
- their current status relative to applicable expectations;
- competence requirements (personnel qualifications, initial or ongoing training, or other skills);
- need to revise safety documents; and
- engineered and administrative controls.

Line managers monitor implementation as part of their self-assessment process. Implementation also involves confirming readiness to ensure that all necessary actions are completed prior to performing work. Depending upon the hazards confirming may range from relatively informal walkdowns by appropriate members of the supervisory chain to formal readiness assessments performed jointly with DOE. In the latter cases, these readiness assessments are defined in the authorization agreement.

Ensuring Performance

The objective of the fifth core function, ensure performance, is to ensure that work is safely and effectively performed to expectations. Ensuring performance involves collecting feedback information, identifying improvement opportunities, making changes to improve, and reinforcing behavior. It may be accomplished through mechanisms, such as performance assessments, audits, workplace observations, and performance measurements. These mechanisms also include processes to ensure performance data are analyzed and lessons learned are shared with other Laboratory organizations. The Laboratory monitors its work, assesses the results, and identifies and implements needed improvements at the activity, facility, and institutional levels to ensure that work performance meets expectations.

Line management observes the activities of their workforce to ensure they meet activity, facility, and institutional expectations. This includes assessing results, identifying process improvements, taking effective corrective actions, and sharing lessons learned.

Owning facility directors ensure that work within their facility meets facility and institutional expectations. **Actions 22,23,27**

OICs, such as the Radiation Protection Office, monitor institutional-level expectations across the site, assess results, identify program improvements, take corrective actions, encourage continual improvement, share lessons learned, and report issues and program status to appropriate management

Independent organizations, such as the Audits and Assessments Office, help ensure performance by assessing OICs, facilities, and line organizations for performance relative to institutional expectations (including performance assurance expectations), analyzing results, identifying improvements, and reporting results to appropriate management.

Assessing results

Assessments are done by line management, facility owners, safety OICs, and the Audits and Assessments Office as indicated in figure 7. Assessments are based upon specific measures selected by and tailored to meet the needs of the assessing organization. These measures relate to implementation of expectations, corrective actions, occurrences, and other performance indicators. Assessment results are documented and reported to the cognizant line managers who take appropriate corrective actions.

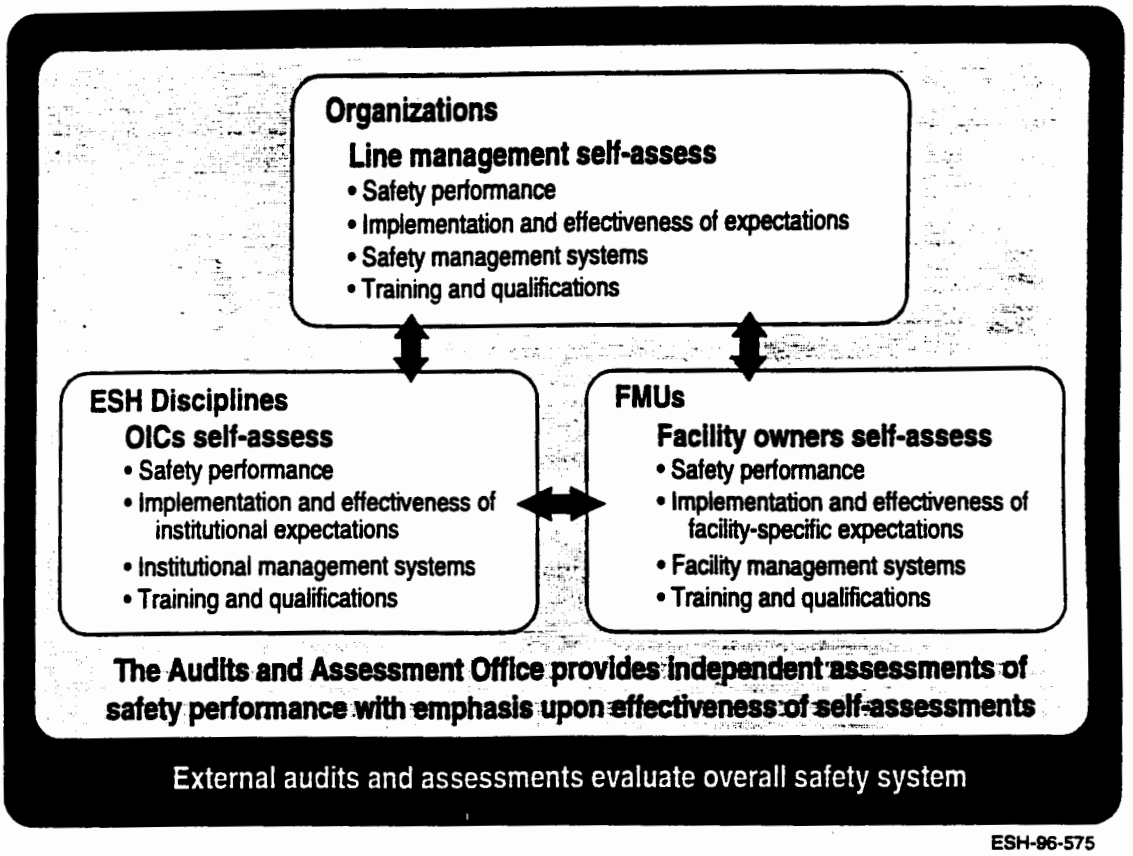


Figure 7. Assessments

Line management is ultimately responsible for safety and conducts self-assessments to ensure that their organizations meet facility and activity safety expectations. Line management assessment processes include management walkarounds to enhance workplace safety by maintaining first-hand knowledge of operations and visibly demonstrating commitment. Management is responsible for tailoring their assessments to meet their organization's needs. Managers are responsible both for meeting and knowing that they meet safety expectations. Line management self-assessments reinforce good practice and lead to correction of issues and improvement of processes and behaviors.

Owning division directors are responsible for ensuring that expectations established in an FSP are appropriate and met. Facility assessments are designed to meet the individual needs of the facility. Line and facility assessments are coordinated within a facility to avoid duplication.

Actions 41–43

Line management, facility management and safety organizations, safety committees, and the Audits and Assessments Office conduct assessments. Their objectives are to understand the behaviors and processes that support safety performance measures. The assessment process helps preclude major unexpected safety occurrences by enabling continuous safety improvement and showing when corrective actions are needed.

Safety discipline assessments (e.g., radiation protection, industrial hygiene) evaluate the implementation and effectiveness of institutional expectations. Normally, safety discipline assessments include observations by deployed personnel and the results of line and facility assessments. These assessments are coordinated with line and facility assessments to avoid duplication.

The Audits and Assessments Office provides independent performance-based assessments of Laboratory issues, programs, and organizations, which emphasize evaluation of the effectiveness and validity of line management, facility, and safety discipline assessments. The Audits and Assessments Office uses a risk-based method to select topics for coverage. The office's assessment teams are independent from the assessed organizations and report their results to the Laboratory Director.

In addition to internal Laboratory assessments, DOE, New Mexico Environmental Division, and other regulatory authorities provide safety oversight of the Laboratory. This oversight includes routine on-site DOE representatives and periodic audits/reviews. The UC ES&H Advisory Panel and the external ESH Division Review Committee also provide safety oversight. Laboratory self-assessment results are ordinarily provided to DOE and other external reviewers, as appropriate.

Performance Measures

Performance measures provide agreed-upon objectives, measures, and targets for safety performance. The highest level Laboratory performance measures are those defined jointly by the Laboratory, UC, and DOE as Appendix F in the UC/DOE contract.
Success in achieving the objectives defined by the Appendix-F performance measures depends upon the effectiveness and implementation of the expectations established at the activity, facility, and institutional levels. **Action 47**

As an important assessment of the Laboratory's performance, LLC performs quarterly reviews of the status of individual organizations and facilities relative to Appendix-F performance measures. These reviews provide the basis for follow-up actions taken by management to improve safety performance and meet the targets established in the measures. **Action 38, 39**

Laboratory representatives also meet quarterly with UC and DOE to discuss the Laboratory's performance relative to the Appendix-F performance measures and to discuss any related issues and trends. Annually, the Laboratory, UC, and DOE develop comprehensive assessments of the Laboratory's performance relative to the performance measures.

Issues Management and Corrective Actions

The Laboratory maintains issues management and corrective processes to ensure that important issues (internal/external) are captured and resolved. **Actions 44–46**

This includes evaluating and prioritizing the issues, assigning the issues for resolution, tracking the corrective actions to completion, verifying that the completed actions resolved the issue and communicating lessons learned. Line management is ultimately responsible for tracing and correcting all safety issues. Support and facility management may track and correct issues relating to institutional and facility levels. Issues are prioritized and resources allocated for corrective actions based upon formal or informal cost/risk/benefit analyses. Issues management and corrective actions are evaluated as part of Laboratory assessments.

Behavioral Safety

Behavioral safety refers to mechanisms that relate to personal accountability, positive and negative reinforcement, and perceptions that influence workforce behaviors. Traditional aspects of behavioral safety include employee performance appraisals, accountability, awards programs, and disciplinary actions. In the past decade, the term has been expanded to include other mechanisms for fostering safe behavior such as peer (worker-to-worker) safety assessment and systematic analyses of behavior precursors such as perceptions and reinforcing antecedents. **Actions 52**

All members of the workforce are held accountable by their supervisors and managers for meeting and helping their coworkers meet the Laboratory's safety expectations. In particular, line managers and supervisors are accountable for having effective processes in place to establish, implement, measure, and reinforce safety expectations. **Action 39**

Accountability includes both the positive reinforcement of employees who meet safety expectations and also negative reinforcement, including disciplinary actions, for those who do not. Positive reinforcement ranges from verbal acknowledgment to monetary rewards for positive safety behaviors. The Laboratory uses progressive discipline to correct behaviors that are not consistent with Laboratory expectations. The Laboratory's disciplinary policy is documented in the Administrative Manual as AM 112. Additionally, the Laboratory has adopted the accountability matrix for poor safety performance (figure 8) to guide appropriate disciplinary actions for both supervisors and other members of the workforce.

Level	Finding	First Incident	Second Incident	Third Incident
I	Employee misconduct that (a) immediately jeopardized the safety of the employee or others in a serious way, or (b) created an immediate danger of serious damage to the environment or human health, or (c) subjected or potentially subjected the employee or the Laboratory to significant civil (over $10,000) or criminal penalties.	Written Reprimand and Suspension without Pay for at least 1 week and up to 1 month* or Termination for Cause**	Termination for Cause**	
II	Employee misconduct that (a) created a danger to the safety of the employee or others, but that was not immediate or serious, or (b) created the potential for damage or actually resulted in damage to the environment or human health that was not immediate or serious, or (c) subjected or potentially subjected the employee or the Laboratory to civil penalties not exceeding $10,000.	Written Reprimand and Suspension without Pay for not less than 2 days but not more than 1 week*	Written Reprimand and Suspension without Pay for not less than 1 week but not more than 2 weeks*	Written Reprimand and Suspension without Pay for not less than 2 weeks,* up to and including Termination for Cause**
III	Employee misconduct that (a) involved deviation from Laboratory SOPs or external regulatory requirements that did not involve immediate or more remote threats to safety, the environment, or human health but that demonstrated such a degree of carelessness or indifference that compliance with the formal requirements of safety and environmental standards is undermined or (b) subjected or potentially subjected the Laboratory to civil penalties of some amount less than $1000.	Oral or Written Counseling***	Written Reprimand and Suspension without Pay for not less than 2 days*	Written Reprimand and Suspension without Pay for not less than 2 days but not more than 1 week*

* Documented in group, division, and Official Personnel File for 2 years

** Documented permanently in the Official Personnel File

*** Documented in group and division office files for 2 years

Figure 8. ES&H discipline—violation levels

III. Safety Resource Allocation

Laboratory program and line management are responsible for planning work and for ensuring that expectations for safe work are incorporated into all work plans and addressed in the resource prioritization and allocation. The Laboratory funds safety functions through a mixture of general and administrative (G&A) and direct mechanisms. Institutional safety functions are funded by G&A overhead allocations usually made to the Laboratory infrastructure and support divisions. Safety functions specific to a given facility or programmatic activity are funded either directly by a program or by collection of a recharge, organizational support, or other internal taxation mechanism.

Annually, G&A budget requests for institutional safety functions are prepared by the cognizant institutional support organizations. These requests cover core institutional safety activities such as the Laboratory Standards Project Office and sitewide environmental permitting. Budget requests and priority justifications are reviewed by a team comprising program and line managers. The team considers the costs, risks, and benefits of activities covered by requests. Based upon this review, the team prioritizes the requests along with other ongoing safety expenditures and recommends to the Director's Office G&A allocations for institutional safety functions. Line and program managers are responsible for providing funds other than G&A for safety functions required at their facility and activity levels. This is consistent with their safety responsibility and promotes line ownership, cost effectiveness, and customer focus by the support organizations. **Action 52,53**

The changing programmatic environment requires flexible customer-driven deployment of safety staffing to the field in support of activity and facility-specific safety functions. To meet this need, mechanisms for effective load-leveling, including deployable worker pools, flexible funding, and contractor arrangements are established and used by Laboratory management. Effective integration of safety into work requires all program and line managers to plan explicitly for safety in their annual budget cycle and for on-going resource management, including prioritization. Safety resource planning and resource allocations by line management are based upon systematic needs analysis done jointly by the line and support organizations. Long-term planning of core institutional safety functions and staffing is also essential due to the broad mix of safety challenges at the Laboratory. **Action 51**

At the request of DOE, the Laboratory prepares and annually updates, as coordinated by ESH Division, the *ES&H Management Plan.* This five-year planning document covers projected tasks, milestones, and costs associated with managing risks and achieving safety expectations. The document includes budget forecasts for core institutional safety activities, planned compliance, and unfunded compliance/improvement items in both the G&A and direct budget categories.

APPENDICES

Appendix A
Current Safe Work Practices and Facility Documents

The following is a list of current safe work practices used individually or jointly, as appropriate, for authorizing work and establishing activity-level safety expectations.

- Facility Work Control— enhanced work planning process usually associated with facility-controlled structures, systems, or components to define the scope of activities and coordinate its planning, hazard analysis, and actual work conduct.
- Safe Operating Procedure (SOP)— defines the scope of routine activities, discusses its hazards, and identifies necessary controls.
- Special Work Permit (SWP)—defines the scope of nonroutine activities, discusses its hazards, and identifies necessary controls. Examples of SWPs include radiation work permits (RWPs), excavation permits, and SWP for Spark-/Flame-Producing Operations.
- Organization-specific requirement—identifies expectations established by a specific division, group, or other organization.
- Experimental plan— developed by research teams to define the scope of work, hazards, and controls for a research activity.
- Engineering design review—used to identify and evaluate engineered configuration and controls.
- Health and safety plan (HASP)— used mainly by Laboratory contractors to define the scope of activities and coordinate its planning, hazard analysis, and actual work conduct.
- Hazard analyses (HA)—used by JCI, the Laboratory's major crafts contractor, and the Laboratory to define the scope of activities, discuss its hazards, and identify necessary controls.
- ES&H Identification (ESH-ID) Process— used to define the scope of work, analyze hazards, and identify controls for relatively major construction, facility modifications, or new Laboratory programs. Emphasizes the identification of controls, applicable permits, and requirements relating to NESHAPS, RCRA, NEPA, or other environmental laws.
- Facility manager/tenant agreement
- Facility manager/support agreement; and
- Line manager/support agreements.
- Facility-level processes for implementing LPRs for facility
- Facility-related documents
- Facility implementing requirements and/or guidance— identifies facility-specific expectations and processes
- Facility work control— usually associated with facility-controlled structures, systems, or equipment work to define the scope of activities and coordinate its planning, hazard analysis, and actual work conduct
- Emergency preparedness plan—identifies facility/building hazards and addresses emergency readiness and response
- Facility-specific permit, e.g., NPDES, NESHAPS, NEPA

- Configuration management/change control processes for managing changes to operations, including engineered and administrative controls
- Maintenance management plan— identifies maintenance and surveillance requirements for safety-class and safety-significant controls
- Quality management plan— identifies systems for effectively managing work
- Authorization basis document—DOE-prescribed documents for identifying the work at a facility, its hazards, and required controls
- Facility manager/tenant agreement—identifies FM/tenant operating boundaries and interactions required to maintain the facility safety envelope
- Facility manager/support agreement—establishes the number, type, and roles of support personnel that are deployed from the institutional support organizations to the FMUs
- Line manager/support agreement— establishes the number, type, and roles of support personnel that are deployed from the institutional support organizations to line organizations

Appendix B
Authorization Agreement List

Chemistry and Metallurgy Research (CMR) Facility (TA-3-29)
Weapons Engineering Tritium Facility (WETF) (TA-16-450)
Appaloosa Project
Tritium Science and Fabrication Facility (TSFF) (TA-21-209)
Radioactive Materials Research, Operations, and Demonstration (RAMROD) Facility (TA-50-37)
Plutonium Facility (TA-55-4)
Los Alamos Neutron Scattering Science Center (LANSCE) (TA-53) SAD
Los Alamos Critical Experiment Facility (LACEF) and Hillside Vault (TA-18)
Radioactive Liquid Waste Treatment Facility (TA-50-1)
Waste Characterization Reduction and Repackaging Facility (TA-50-69)
Waste Storage and Disposal Facility (TA-54-G)
Transuranic Waste Inspectable Storage Project (TWISP) (TA-54)
Explosives Facilities (DX and ESA)
SWISH (WWTF at TA-46)
PTLA Firing Site
Radioactive Analysis and Nondestructive Testing (RANT) (TA-54 West)
Tritium Systems Test Assembly (TSTA) (TA-21)

Appendix C

Institutional ES&H Documents

Index by Document Number

These policy documents are those in effect at the time of this report's publication ; however, some may currently be in the process of being revised or deleted. If you have any questions about any of the documents, please contact the organization listed in the document.

Number	Title
AR 1-1	Accident and Occurrence Reporting
AR 1-2	Emergency Preparedness
AR 1-3	Standard Operating Procedures and Special Work Permits
AR 1-4	Environment, Safety, and Health Training
AR 1-5	Environment, Safety, and Health Audits and Appraisals
AR 1-6	Safety Analysis and Review System
AR 1-8	Working Alone
AR 1-9	Hazard Communication
AR 1-10	Environment, Safety, and Health Questionnaire
AR 1-11	Work Request Review
AR 1-12	Excavation or Fill Permit Review
AR 1-14	Environment, Safety, and Health Facility Design Review
AR 2-1	Occupational Medicine Program
AR 3-4	Radioactive Source Control
AR 3-5	Shipment of Radioactive Materials
AR 5-1	Radio-Frequency/Microwave (RFMW) Radiation and Fields (3 kHz to 300 GHz)
AR 5-2	Lasers
AR 5-3	Static Magnetic Fields
AR 6-1	Chemicals
AR 6-2	Workplace Monitoring for Chemical, Physical, and Biological Hazards
AR 6-4	Biological Monitoring for Hazardous Materials
AR 6-5	Flammable and Combustible Liquids
AR 6-6	Explosives
AR 6-7	Beryllium
AR 6-9	Safe Handling of Hazardous Gases
AR 6-10	Asbestos (November 1, 1993)
AR 7-1	Electrical Safety
AR 8-1	Confined Spaces
AR 8-2	Hearing Conservation
AR 8-3	Ventilation
AR 8-4	Welding, Cutting, and Other Spark-/Flame-Producing Operations

AR 8-5 Staff Shop Safety
AR 8-7 Landlords and Building Managers
AR 9-2 National Environmental Policy Act (NEPA) Documentation
AR 9-3 Water Supply and Distribution Systems
AR 9-4 Accidental Oil, Chemical, and Airborne Releases
AR 9-5 Cultural Resources
AR 9-6 Water Pollution Control
AR 10-1 Radioactive Liquid Waste
AR 10-2 Low-Level Radioactive Solid Waste
AR 10-3 Hazardous and Mixed Waste
AR 10-4 Polychlorinated Biphenyls
AR 10-5 Transuranic (TRU) Solid Waste
AR 10-6 Excess Government Personal Property
AR 10-7 Managing Infectious Waste
AR 10-8 Waste Minimization
AR 10-9 Waste Profile Form
AR 11-1 Exits and Fire Doors
AR 11-2 Fire Protection
AR 12-1 Personal Protective Equipment
AR 12-2 Seat Belts
AR 13-1 Fork Lifts and Powered Industrial Trucks
AR 13-2 Cranes, Hoists, Lifting Devices, and Rigging
AR 14-1 Pressure Systems Including Compressed Gas Systems
AR 15-1 Field Work

DP 101 ES&H Operating Policy
DP 102 Formality of Operations
DP 103 Environment, Safety, and Health
DP 104 Environmental Protection and Restoration
DP 105 Hazardous & Radioactive Waste Management & Minimization
DP 106 Occupational Health and Safety Management
DP 107 Radiological Protection
DP 108 Nuclear Facility/Reactor Safety
DP 109 Emergency Management
DP 110 Quality
DP 111 Assessments and Audits
DP 112 Configuration Management
DP 113 Training
DP 114 Operational Risk Management
DP 115 Records Management and Document control
DP 116 Stop Work and Restart
DP 117 Packaging and Transportation
DP 118 Fire Protection
DP 119 Occupational Medicine
DP 120 Occurrence Reporting I
DP 121 Maintenance

DP 122 Public Participation
DP 123 Safeguards and Security
DP 124 LANL Director's Policy for Facility Management

LM101-01 Environment, Safety and Health
LM107-01 LANL Radiological Control Manual (Open manual to access documents by chapter titles)
LM107-02 Radiation Protection Program Documents
- LP107-01.0 Notification and Reporting of Radiological Incidents
- LP107-02.1 Handling Radiological Work Permits
- LP107-03.0 Requesting Deviations from LANL Radiological Control Manual "Should Provisions"
- LP107-04.0 Documenting Equipment and Item Removal
- LP107-12.1 Reviewing Radiological Engineering Designs
- LP107-13.0 ALARA Reviews of Radiological Designs
- LS107-01.0 Accelerator Access-Control Systems
- LS107-02.2 Radiological Posting
- LS107-03.0 X-Ray-Generating Devices
- LS107-05.0 Radiological Performance Goals Program
- LS107-08.0 Radiological Administrative Control Levels
- LS107-09.0 Radiological Protective Clothing
- LS107-11.1 Radiation Dosimetry Monitoring
- PED107-01.0 Occupational ALARA Program

LM118-01 Fire Protection Program

LP106-01.2 Lockout/Tagout for Control of Hazardous Energy Sources for Personnel Safety (Red Lock Procedure)
LP106-02.1 Lockout/Tagout for Control of Equipment and Systems Status (Blue Lock Procedure)
LP106-03.0 Tagout for Removing Unsafe Equipment from Service
LP107-04.1 Releasing Materials and Equipment
LP107-09.0 ALARA Reviews of Radiological Jobs
LP107-09.1 Formal ALARA Review Determination
LP107-09.2 Formal ALARA Review Checklist
LP107-09.3 Pre-Job Briefing Summary
LP107-09.4 Job Progress ALARA Review
LP107-09.5 Post-Job ALARA Review
LP107-14.0 Employee ALARA Suggestion Program
LP107-15.0 ALARA Program Assessment
LP107-16.0 Optimizing ALARA Protection Measures (APMs)
LP107-18.0 Planning and Documenting "Planned Special Exposures"
LP110-01.0 Suspect/Counterfeit Fasteners: Identification, Removal, and Disposal
LP115-12.0 Administration of Controlled Documents
LP116-01.0 Stop Work and Restart

LS104-01.0 Air Pollution Control

LS105-01.0 Waste Management Coordinator Program
LS105-05.0 Removing Waste from Radiological Controlled Areas
LS106-01.0 Chemical Hygiene Plan
LS106-03.0 Carcinogen Use
LS106-05.1 Cryogenic Fluids or Cryogens
LS106-15.0 Subradiofrequency Electric and Magnetic Fields
LS107-19.0 Fetal Radiation Protection
LS113-01.0 LIST: Layer for Instructional Systems for Training
LS113-08.0 Acquiring Vendor Training
LS113-12.0 LANL Worker Qualification/Certification
LS113-13.0 On-The-Job Training
LS113-14.0 Test Development
LS113-15.0 Training Staff Qualification/Certification
LS114-01.0 Unreviewed Safety Question Determination
LS114-01.0 A Unreviewed Safety Question Determination Process Flow Diagram
LS114-02.0 Technical Safety Requirements Implementing Document
LS114-03.0 Technical Safety Requirements Implementing Guidance Document
LS120-01.1 Occurrence Investigation and Reporting
LS121-01.1 Categorization of Systems & Equipment via the Graded Approach III

PED108-04.0 Tritium Operations Safety Committee
PED114-05.0 Technical Safety Requirements

PRD102-02.0 Conduct of Operations Program
PRD108-01.0 Nuclear Criticality Safety
PRD110-01.0 Quality Assurance Management Plan
PRD112-01.0 Configuration Management
PRD115-01.0 Document Control
PRD115-02.0 Records Management
PRD120-01.0 Occurrence Investigating and Reporting Program
PRD121-01.0 Maintenance Management

TB 101 Emergency Preparedness
TB 303 Leak-Testing Radioactive Sources
TB 401 Nuclear Criticality Safety
TB 501 Laser Safety
TB 602 Flammable Gases
TB 603 Solvents
TB 604 Epoxies
TB 607 Beryllium
TB 701 Electrical Safety
TB 1001 Radioactive Liquid Waste Collection System
TB 1002 Radioactive Liquid Waste Treatment and Disposal
TB 1101 Fire Extinguishers
TB 1101 Fire Extinguishers
TB 1201 Eye and Face Protection

TB 1202 Protective Clothing
TB 1203 Respiratory Protective Equipment
TB 1402 Compressed Gases
TB 1403 Gaseous and Liquid Hydrogen
TB 1404 Inspection and Testing of Pressure Systems

Appendix D

Acronyms

BUS—LANL Business Operations Division
DIR— the LANL Director's Office. The Laboratory Director is the senior Laboratory official.
DOE—United States Department of Energy
ESH—Environment, Safety, and Health Division
FM—Facility Manager. An individual appointed by a knowing division director to manage an FMU.
FMU—Facility Management Unit. The Laboratory is subdivided into a number of facilities based largely on geographic locale to provide more effective administration of risk and support services.
FSAR—Final Safety Analysis Report, required for DOE nuclear facilities.
FSP— Facility Safety Plan,
FSS—LANL Facilities, Security and Safeguards Division
G&A—General and Administrative. The principal overhead, indirect cost account funding of Laboratory support activities.
ISM—Integrated Safety Management. The principal safety management framework for LANL and DOE.
JCI—Johnson World Services Controls, Incorporated. LANL's primary support services contractor.
LAAO—the DOE's Los Alamos Area Office.
LANL— Los Alamos National Laboratory. A DOE Laboratory operated by the University of California.
LC—LANL Office of Legal Council
LIG—Laboratory implementing guidance. Nonmandatory guidance on how to meet Laboratory requirements.
LIR— Laboratory implementing requirement. Mandatory requirements for implementing the array of Laboratory performance requirements.
LLC—Laboratory Leadership Council, the LANL senior management group composed of the Director's Office, division and program directors, and certain office, DOE, and subcontractor representatives.
LPR— Laboratory performance requirement. Lab-wide requirements that govern the conduct of specific types of work.
M&O—Management and operations. The type of contract under which the University of California operates LANL for DOE.
OIC— Office of Institutional Coordination. Offices assigned to coordinate Lab-wide response to external requirements.
OWG—Operations Working Group. A subgroup of the LLC that focuses on safety and operational issues of the Laboratory.
PTLA—Protection Technology of Los Alamos. The primary security services contractor to LANL.
QP—LANL Quality and Planning Office

R&D— Research and Development
RWG—LANL Resource Working Group. A subgroup of the LLC that focuses on fiscal and manpower issues of the Laboratory.
SAD—Safety Analysis Document. A document required by DOE for certain classes of facilities.
SAR— Safety Analysis Report.
SR—Surveillance requirements. Monitoring activities required in nuclear and high-hazard facilities.
TA—Technical area. A geographic subdivision of the Laboratory.
TSR—Technical safety requirement. Operating conditions required in nuclear and high-hazard facilities.
UC—University of California. The institution that operates LANL for DOE.
USQD—Unreviewed Safety Question Determination. A process that addresses safety issues at specified nuclear facilities.
WWW, WEB—World Wide Web. A computer-based information resource.

Los Alamos National Laboratory
Integrated Safety Management Implementation Plan

	Comments (Bridge to Actions)	Activities (Actions)	Estimated Person-days or FTE effort
	Roles & Responsibilities - McAtee (ISM Steering Team) When the Laboratory restructured in 1993, several layers of management were eliminated and the roles and responsibilities were divided among the remaining line management layers. In addition, the Laboratory decided to adopt the Facility Management Model of business for operations of its facilities. The Facility Management Council has adopted standards as interim guidance on roles and responsibilities until the Laboratory Standards Project Team (LSPT) issues their requirements. As part of Integrated Safety Management (ISM), specific roles, responsibilities and authorities need to be clearly established for major functions and to differentiate between line and support activities. Also, the LSPT will clarify roles and responsibilities as the internal requirements system is overhauled (see action #15).	1. Established interim Roles and Responsibilities in Rev 0 Standards for Facility Managers - **Completed - 3/15/96** 2. Continue to develop, clarify, communicate and document roles, responsibilities, and authorities for achieving safety expectations at each of the three levels: institutional, facility & activity - ISM Steering Team - **Draft - to be Completed by - 12/24/96** 3. Submit draft to OWG for review and action - **to be Completed by - 12/24/96**	Complete 11 7.5
	Improve Requirements Implementation - McAtee (ISM Team) Currently, the Laboratory lacks formal and effective mechanisms to ensure institutional and facility level expectations are implemented. This action will establish requirements for such mechanisms.	4. Establish mechanisms for ensuring implementation of facility and institutional level expectations - LSPT/Division Directors - **to be Completed by - 12/24/96**	0.25 FTE
	Continue Standards Project - OWG Activity No. 1 - Erickson Objective - Partnering with DOE, ~~and using~~ the Necessary and Sufficient Closure Process to establish Laboratory-wide (institutional) ES&H expectations that each facility and activity must meet in establishing their specific requirements and controls for working safely, consistent with integrated safety management. Strategy - Briefly, these institutional ES&H expectations will be established in two major steps:	5. With DOE (LAAO/AL/HQ) jointly examine and modify, as appropriate, the direction of the Laboratory's Standards Project - LSPT and OWG - **Completed - 11/7/96** 6. Conduct impact assessment of draft facility LPRs at TA-53 - LSPT/AOT Division Director - **Completed - 11/22/96**	10 150

	Comments (Bridge to Actions)	Activities (Actions)	Estimated Person-days or FTE effort
	Standards Project (continued) - Erickson		
	1. Based on the Laboratory's work and associated hazards, identify the set of Work Smart Standards (i.e., applicable local, state, and federal laws and regulations, and value-adding industrial standards, national and international consensus standards, and DOE standards) to replace, in part or whole, the current Appendix G requirements and then modify the contract. A new standard will be developed for Appendix G only when it is judged to be needed by the Laboratory but cannot be found in the external domain. The goal is to seek industrial solutions (standards) for industrial problems (hazards).	7. Evaluate the potential impacts and implications of the radiation protection (RP) LPRs upon the existing Laboratory RP program - LSPT/RPO/selected Division Directors - **Completed - 11/15/96**	16
		8. Review impacts of Rad LPRs and make recommendations to LSPT - OWG - **to be Completed by - 12/24/96**	3.5
	2. Consistent with the contractual Work Smart Standards and based on the Laboratory's work and associated hazards, develop the internally owned and approved Laboratory performance requirements (LPRs) and Laboratory implementing requirements (LIRs) that are written in Laboratory "speak" to ensure their understanding, buy-in, implementation, and integration. Note that many of these LIRs will derive from existing Laboratory administrative requirements (ARs). Also, the Appendix F performance measures will be derived from the LPRs and LIRs.	9. Compare Appendix G with draft Facility LPRs, identify differences, and as appropriate, modify draft LPRs or ass appropriate, seek modifications to the Appendix G requirements - LSPT - **to be Completed by - 12/24/96**	20
		10. Approve Facility LPRs - OWG - **to be Completed by - - 1/31/97**	7.5
		11. Implement Facility LPRs/LIRs - FMs/Directors - **to be Completed by - 12/24/98**	4 FTEs
		12. Develop ES&H Work Smart Standards and LPRs - LSPT/Lab/DOE - **to be Completed by - 9/31/97**	2,500
		13. Review and acceptance of ES&H Work Smart Standards by the Convened Group, approval by approval authorities, and submitted for inclusion in Appendix G. Review & approval of ES&H LPRs by OWG - **to be Completed by - 12/24/97**	30
		14. Implement approved ES&H Work Smart Standards & LPRs/LIRs - cognizant Division Directors - **to be Completed by - 12/24/98**	TBD

	Comments (Bridge to Actions)	Activities (Actions)	Estimated Person-days or FTE effort
	Establish Offices of Institutional Coordination (OICs) - Erickson In the past, new institutional level requirements were established by Offices of Primary Responsibility (OPRs), However, OPRs sometimes did not exist or were unclear. Also, the name, OPR, inferred responsibilities that belong to line management. This action will change the term OPR to OIC, will ensure that an OIC is assigned for all institutional documents.	15. Review all institutional level safety expectation documents and ensure that OICs are identified - LSPT - **to be Completed by - 12/24/96**	1
	Overhaul of Existing Institutional Requirements System - Erickson In an overall effort to update and simplify existing Laboratory requirements, a team is in the process of taking a complete inventory of current documents, updating them with most current information, looking at repackaging for simplicity, making them accessible by electronic media and improving change control, etc.	16. Critically review and improve the Laboratory's internal directive system (simplify, restructure, control changes, computerize, etc.) - ESH-OIO/LSPT/OWG - **to be Completed by - 12/24/97** 17. Develop and document process used to control document entries into the WWW - LSPT - **to be Completed by - 1/30/97**	2,500 3
	Continue Facility Management Implementation - OWG Activity No. 3 - van der Hoeven In 1993, the Laboratory began to develop and implement a facility management model to improve operation of management of diverse activities. In 1995, the Laboratory's Operations Working Group accelerated the implementation of the Facility Management Model by establishing facility requirements (Rev 0 Standards) and starting evaluations against them. This effort will continue with the formalization of the facility LPRs and their implementation. The dates indicated for completion of actions #24 through # 26 are optimistic and might have to be changed depending on progress made by the R&D Working Group.	18. Define Rev 0 Standards FSS/FMC - **Completed - 3/15/96** 19. Maintenance zones to be agreed upon at hybrid facilities - **Completed - 10/1/96** 20. Complete all FMU Rev 0 evaluations and Agreements - cognizant Division Directors/FSS/ESH - **to be Completed by - 12/24/96** 21. Complete schedule for closure of Rev 0 institutional gaps identified in action 23. - Cognizant DDs, IFMPO, FMC - **to be Completed by - 2/28/97** 22. Establish FM-tenant agreements at all facilities - FM's/DDs - **to be Completed by - 6/30/97** 23. Complete implementation of approved Facility LPRs (see action #11) - cognizant Division Directors/FMs - **to be Completed by - 12/24/98**	Complete Complete 120 2 2,500 +

	Comments (Bridge to Actions)	Activities (Actions)	Estimated Person-days or FTE effort
	Continue Authorization Basis improvements - OWG Activity No. 2 - Burick The Laboratory is working with the R&D Working Group comprised of the DOE, LANL, LLNL, and SNL, to establish terms for "Authorization Basis" and "Authorization Agreements". A major part of this effort will be establishment of Facility Safety Plans (FSPs) for all facilities. Until the R&D Working Group completes the development of guidance for authorization agreements, the Laboratory has agreed with the DOE to establish agreements for those facilities requiring Safety Analysis Reports (SARs) per DOE Order 5480.23, LANSCE, high explosives operations, and SWISH. This list of facilities and operations (see LANL ISM Appendix C) is subject to change in the future, based upon the DOE and Laboratory adopting guidance from the R&D Working Group, or other negotiations. Until such time, agreements for the above facilities and operations will be based upon current safety documentation and/or commitments by the Laboratory to the DOE. Such documentation includes current SARs, Technical Safety Requirements (TSRs), Operational Safety Requirements (OSRs), Basis for Interim Operations (BIOs), Safety Analysis Documents (SADs), the DOE Explosive Safety Manual, or other relevant safety documentation agreed to by the Laboratory and DOE.	24. Develop and approve Authorization Agreement matrix R&D Working Group/ ESH-3/LSPT - **to be Completed by - 6/30/97** 25. Identify facilities/activities for each of the hazard categories - FMs - **to be Completed within six weeks of completion of action #24.** 26. Establish risk-based priority schedule for completion of Facility Safety Plans - FMs - **to be Completed by - 11/27/96** Submit authorization agreements for CMR TA-3-29), WETF (TA-16-450), Appaloosa Project, TSFF (TA-21-209), RAMROD (TA-50-37), Plutonium Facility (TA-55-4), LACEF & Hillside Vault (TA-18), RLWTF (TA-50-1), WCRRF (TA-50-69), WSDF (TA-54-G), TWISP (TA-54), RANT (TA-54), Explosives Facilities (DX & ESA), PTLA Firing Range & TSTA - **to be Completed by - 12/24/97.** Submit authorization agreements for LANSCE (TA-53) SAD and SWISH (WWTF at TA-46) - **to be Completed by - 12/24/98** 27. Complete Facility Safety Plans for all facilities - FMs/Directors - **to be Completed by - 12/24/98**	20 5 1 TBD TBD 2,500 +
	Continue Enhanced Work Planning - van der Hoeven The Laboratory is in the process of a major overhaul of its work control process to change from an accounting tracking system to one that focuses on safety first. The new process will entail DOE's concept of Enhanced Work Planning. ALL work will have proper review for hazards and be tracked electronically through completion. The design of the process is essentially complete and is scheduled to begin piloting at selected facilities in the near future.	28. Develop a site hazard analysis procedure for use by facility managers in analyzing site hazards associated with work performed in their facilities - FSS - **to be Completed by - 12/6/96** 29. Develop an institutional work control process for facility-related work, tailored to individual facilities based on graded approach to risk - FSS - **to be Completed by - 11/29/96** 30. Operate in accordance with Facility Work Control - FFS/FMC - **to be Completed by - 3/31/97**	50 50 700

	Comments (Bridge to Actions)	Activities (Actions)	Estimated Person-days or FTE effort
	Simplify/Improve/Clarify use of safe work practices - Lemons The Laboratory currently has dozens of processes, called safe work practices, used to evaluate hazards and identify controls for different Laboratory activities. These need to be clarified and simplified for better understanding and application that will support an enhanced safety culture. Costs for implementation can not be determined until recommendations are known.	31. Establish team to review all existing safe work practices - OWG - **to be Completed by - 12/13/96** 32. Complete team review and issue recommendations to OWG - **to be Completed by - 6/1/97** 33. Implement recommendations as appropriate - LSPT/cognizant Division Directors - **to be Completed by - 12/24/98**	1 150 TBD
	Develop common computer tools, training, etc. - Lemons Development of such user friendly systems will improve utilization and effectiveness of standardized safe work practices. This effort will complement actions # 31 through # 33	34. Establish team to review safety information management and recommend computer based improvements - OWG - **to be Completed by - 3/1/97** 35. Complete team review and issue recommendations to the OWG - **to be Completed by - 6/1/97** 36. Implement recommendations as appropriate - cognizant Division Directors - **to be Completed by - 12/24/98**	1 150 TBD
	Continue Awareness and Accountability - OWG Activity No. 5 Directors Office/Gancarz During the past year, the Laboratory has taken a number of actions to improve safety awareness, communications and accountability. Part of this effort has been development of an accountability matrix and establish quarterly reviews of certain Appendix F PMs and safety communications. The Laboratory will continue these efforts with actions # 37 through #40.	37. Further communicate and implement the Accountability Matrix - DIRs Office - **Completed - 11/15/96** 38. Continue quarterly review of Appendix F ES&H measures and, as appropriate, pursue modifications to ensure maximum benefit as a management tool - UC/OWG/QP - **Ongoing** 39. Continue quarterly communication cycle - OWG/PA - **Ongoing**	2 - -
	Evaluate adopting the OSHA-based Voluntary Protection Program (VPP) - Erickson	40. Place on OWG Agenda for discussion and action - OWG - **to be Completed by - 12/24/96**	7.5

	Comments (Bridge to Actions)	Activities (Actions)	Estimated Person-days or FTE effort
	Improve Laboratory Assessment Processes - Brittin In the past, Laboratory self-assessments have been done primarily by the Audit and Assessments Office. The Laboratory needs to shift primary responsibility for assessment of safety performance to line management. Facility owners and safety personnel must also be more actively involved in assessments. Therefore, LPRs/LIRs are being developed and implemented to make this shift.	41. Form team to develop institutional requirements (LPRs) for Performance Assurance - LSPT - **Completed - 10/96** 42. Complete development of performance assurance LPR - **Completed - 11/15/96** 43. Issue and implement performance assurance requirements - OWG/LSPT - **to be Completed by - 4/30/97**	Complete 15 TBD
	Strengthen Programs for addressing Employee Concerns, Lessons Learned, and Issues Management - Erickson/Brittin During the past several years, the Laboratory's employee concerns, lessons learned, and occurrence reports programs have been consolidated in the Occurrence Investigation Group (ESH-7). For FY97, ESH Division has committed to increasing the funding and level-of-effort for these activities to strengthen their effectiveness. Other actions are also currently underway to improve issues management and corrective actions.	44. Strengthen the Laboratory's Occurrence Investigation Group to support Employee Concerns, Lessons Learned and Occurrence Corrective Actions - ESH-7 - **to be Completed by - 3/31/97** 45. Develop a Laboratory Wide system for issues management by electronic integration of current existing data bases - AA/CIC - **to be Completed by - 12/24/97** 46. Benchmark safety programs at "best in class" corporations and conduct focus groups on LANL safety culture to develop recommendations for improving lessons learned, employee concerns and corrective action program - DDESH - **Ongoing**	4 FTEs 30 10
	Currently Appendix F performance measures and Laboratory requirements are developed independently of one-another. These efforts need to be combined and cross walked to ensure they are mutually supportive and compatible. The schedule for this effort will depend upon the schedule for development of the LPRs (see actions # 13 and # 14).	47. Cross-walk Appendix F to operations LPRs (as LPRs are developed) - ESH-OIO/LSPT - **to be Completed by - 3/31/98**	4
	Continue ES&H deployment and market-driven funding - Erickson Historically, many of the ESH experts have been located centrally away from the field operations they support. Integrating the ES&H skill base into the workplace is necessary to improve their support function and for continued success in meeting performance expectations by the DOE and our other customers. By the end of 1997, deployed ESH personnel will be direct funded by the customer to ensure their ESH needs are met.	48. Complete standard contract language for generic contract between ESH Division Teams and their customers - ESH Division Director - **to be Completed by - 3/31/97** 49. Complete deployment of ESH personnel per customer need - ESH Division - **to be Completed by - 6/30/97** 50. Transition to direct funding of deployed ESH personnel - ESH/BUS - **to be Completed by - 10/1/97** 51. Develop guidance for coordination of Performance Appraisals and SIA process between ESH Division and the cognizant Division Director - ESH Division Director - **to be Completed by - 9/30/97**	2 5 5 2

	Comments (Bridge to Actions)	Activities (Actions)	Estimated Person-days or FTE effort
	Pilot behavioral-based approaches to safety - Matthews/Gancarz Huseonica/Burick The Laboratory is exploring several behavioral-based approaches to safety to complement the development of ISM. Resources required for the pilots can not be estimated until actual approaches are identified. Several ongoing pilots will be evaluated for results and incorporated Laboratory wide, if appropriate.	52. JCI • Establishment of a Safety Leadership team - **Completed - 8/8/96** • Leadership workshop - **Completed - 10/9-10/96** • Supervisor/Foreman workshops - **to be Completed by - 11/30/96** • On going mentoring through **July 97**. NMT • Management Walk-Around implemented - **Completed** • Krause assessment and proposal on safety approaches - **to be Completed by - 1/31/97** CMR • CMR personnel receive overview of behavior-based safety by BST INC. - **Completed - 9/96** • BST interviews personnel and reviews incident data - **Completed - 10/96** • Manager Training - **Completed - 11/96** • Observation Process Development/Training - **to be Completed by - 1/97** • Steering Committee training in coaching - **to be Completed by - 4/97** • Steering Committee training in data analysis and problem solving - **to be Completed by - 6/97** • Evaluation done by BST - **to be Completed by - 9/97** ESA • Complete review of first 27 ESH subject cards for walk-around - **Completed - 9/30/96** • Complete next set of ESH subject cards - **to be Completed by - 11/30/96** • Begin walk-around - **Completed - 10/96** • Complete ESA Management review of program results - **to be Completed by - 4/30/97** 53. OWG review of findings from the pilot behavioral based safety approaches - **to be Completed by - 4/30/97** 54. Review overall integration of the ISM elements developed as part of this implementation plan and revise ISM document as appropriate to reflect their integration - ISM Steering Team - **to be Completed by 6/30/98**	Complete Complete TBD Complete TBD Complete TBD TBD TBD TBD Complete TBD Complete TBD

	Comments (Bridge to Actions)	Activities (Actions)	Estimated Person-days or FTE effort
	As high priority facilities identified by the DNFSB and the DOE, additional action for implementing ISM specific to these 2 facilities have been identified and submitted to the DOE and the DNFSB.	**CMR Specific**	
		1. Complete actions required in DOE-approved CMR Training Implementation Plan to meet requirements of DOE Order 5480.20A - **to be Completed by - 4/30/97**	TBD
		2. Begin implementation of Management Self-Assessment Program in the CMR Facility based on model program at TA-55 - **to be Completed by - 3/31/97**	TBD
		3. Complete Service Agreements with support organizations providing support to the CMR facility. Include roles and responsibilities for worker health and safety - **Completed - 10/31/96**	Complete
		4. Enhance the employee involvement program in the CMR facility by encouraging proactive efforts and rewarding positive behavior - **to be Completed by - 6/30/97**	TBD
		5. Develop meaningful and measurable performance measures to determine the effectiveness of the CMR safety management program at the facility and activity levels - **begin tracking - 1/2/97**	TBD
		6. Complete CMR "Conduct of Operations" Manual and issue as Controlled Document to all CMR resident personnel. Include elements of safety management program to assist personnel in understanding facility expectations for activities in the CMR facility - **to be Completed by - 5/30/97**	TBD
		7. Develop integrated program plan for CMR facility management activities and commitments to assist with balancing priorities - **In Process**	-
		8. Complete assessment of CMR Facility to Lab Facility Mgt. Standards and develop Facility Agreement - **to be Completed by - 12/24/96**	TBD
		9. Ensure that "operational work plans" are in place for all facility hazardous activities that identify the hazards of those activities and the controls necessary to ensure worker health and safety and compliance with facility and institutional expectations - **to be Completed by - 12/31/97**	TBD
		10. Complete SAR/TSR Implementation - **TBD**	TBD

	Comments (Bridge to Actions)	Activities (Actions)	Estimated Person-days or FTE effort
	Completion of actions #'s 4, 9, 13, 14, & 16 by the dates indicated depends upon resources prioritization decisions to be made jointly by the Laboratory (NMT and NMSM) and the DOE program sponsor. While these actions are currently scheduled on the TA-55 Integrated Program Plan, funding is currently insufficient to complete all actions per the existing schedule. Any changes will be the result of negotiations regarding balancing of priorities between the Laboratory and DOE.	**TA-55 Specific**	
		1. Develop/Implement Phase I of Issues Management Program & Reporting - **to be Completed by - 12/24/96**	TBD
		2. Develop Fundamentals & Core Training Programs - **to be Completed by - 12/31/96**	TBD
		3. Complete Training/Qualifications on Safety Class & SSS - **to be Completed by - 8/29/97**	TBD
		4. Implement Fundamentals & Core Training - **to be Completed by - 12/31/97**	TBD
		5. Develop NMT Division Tactical Goals - **to be Completed by - 1/15/97**	TBD
		6. Implement Non-DCP Work Request Prioritization - **Completed - 10/15/96**	Complete
		7. Implement Work Control Process Improvements - **Completed - 11/22/96**	TBD
		8. Complete Annual Update of TA-55 SAR - **to be Completed by - 6/30/97***	TBD
		9. Complete Augmentation of PHA Staffing/Training - **to be Completed by - 9/30/97**	TBD
		10. Develop Safety Manual Emergency Plan - **to be Completed by - 12/16/96**	TBD
		11. Develop TA-55 Safety Manual Document - **Completed - 11/1/96**	Complete
		12. TA-55 FSAR Approved by DOE - **TBD**	-
		13. TSR Plant modifications - **to be Completed by - 8/28/97**	TBD
		14. TSR Management Review/TSR transition - **to be Completed by - 12/1/97**	TBD
		15. Obtain Authorization Agreement - **to be Completed by - 3/31/98***	TBD
		16. Complete interim S/RIDs - **to be Completed by - 3/31/97**	TBD

Attachment 2

DOE M 450.3-1

1-25-96

THE DEPARTMENT OF ENERGY CLOSURE PROCESS FOR NECESSARY AND SUFFICIENT SETS OF STANDARDS

U.S. DEPARTMENT OF ENERGY

Department Standards Committee

Distribution:
All Departmental Elements

Initiated By:
Department Standards Committee

SUBJECT: THE DEPARTMENT OF ENERGY CLOSURE PROCESS FOR NECESSARY AND SUFFICIENT SETS OF STANDARDS

1. PURPOSE. In 1994, the Department Standards Committee (DSC) established an integrated standards-based management system, which is reflected in the "Criteria for the Department's Standards Program" (DOE/EH/0416). The Criteria's primary objective is to promote a culture based on Environment, Safety, and Health (ES&H) standards tailored to work and to move away from a "one size fits all" approach. The Criteria establishes the expectations of how DOE personnel, contractors, and other interested parties should interact in defining standards necessary for performing work, integrating those standards into the process for planning and accomplishing work, evaluating the efficacy of the standards in light of current missions, and continuously assessing the effectiveness of the standards in providing adequate protection to the worker, the public, and the environment.

One of the DSC's first tasks was to encourage a common understanding that the Department's work should be planned, performed, and appropriately documented in accordance with a set of agreed-upon standards to ensure adequate protection of the safety and health of workers, the public, and the environment. The DSC recognized that a key to the success of the Department Standards Program is the availability of a process that provides a disciplined and collaborative analysis of the work to be performed and the potential hazards associated with that work.

The DSC charged a Standards Process Action Team (SPAT 3/4) to develop a Department-wide process for identifying the standards necessary and sufficient to ensure adequate protection against the hazards associated with the work of the Department. The draft Closure Process produced by the Standards Process Action Team was successfully demonstrated by several pilots at a variety of activities, facilities, and sites throughout the DOE complex.

2. SUMMARY. This Manual describes the six elements established for the "Closure Process for Necessary and Sufficient Sets of Standards," herein referred to as the Process, and summarizes "lessons learned" from the pilots. The Process can be applied at any organizational level and by any organization within the DOE complex, and can be used to establish contractual commitments between the Department and its contractors.

The pilots demonstrated that several intangible benefits accrue when the Process is conducted properly to tailor sets of standards to specific work and hazards. One benefit is the enhanced communication among DOE, contractors, and Stakeholders, fostering a better understanding of the work and the hazards and acceptance of a set of standards. Feelings of synergy, team spirit and empowerment were created among the various team members and teams. In the longer term, more tangible benefits will include measurable improvements in the performance of Department work.

The pilots also demonstrated that the following aspects of the Process required clarification:

a. The role of the Process needs to be understood within the larger context of the Department's Standards Program. In the "big picture," the Process provides for the establishment of an agreed upon, necessary and sufficient set of standards, which then must be implemented in the performance of work. Responsibility for implementation will be addressed by the management infrastructure already in place. Likewise, the responsibility for oversight to confirm effective performance is defined by current management systems.

b. If conducted properly, the Process is intended to produce a set of necessary and sufficient standards appropriately tailored to specific work to be performed and the hazards associated with that work. The set will include all applicable requirements in Federal, State, and local laws and regulations. Other sources of potential standards are DOE directives, DOE Technical Standards, and nationally and internationally recognized industry consensus standards.

c. The six Process Elements, when followed, ensure the integrity of the Process and provide a readily defensible response if the set of standards is challenged. Because these elements were intentionally written in performance-based terms, they do not form a prescriptive checklist. Therefore, the conduct of the Process and the approaches followed to implement the elements will vary. This is to be expected. However, inherent in these Process Elements are five principles that should guide all users of the Process.

   (1) To establish a basis for agreement, all parties who must agree on the set of standards shall participate in the Process planning.

   (2) Additional Stakeholders (i.e., parties who are materially affected by or who can materially affect the outcome) are always invited to contribute to the Process.

   (3) People properly qualified by experience and training identify and confirm the set of standards.

   (4) The Process shall be documented and the necessary and sufficient set of standards confirmed to demonstrate that the Process has been applied properly.

   (5) The approved set of standards shall be accepted by all Departmental Elements as the basis for the performance of work and of oversight.

Experience shows that approval of the necessary and sufficient set of standards is readily obtained if the Process Elements are followed and the principles are fulfilled.

d. The justification of the necessary and sufficient set includes identification of any implementation assumptions and interfaces. Implementation assumptions are a mechanism by which uncertainties in the work process are addressed. These assumptions may deal with management issues such as the availability of resources, hardware issues such as the availability of control systems, or process issues such as the compatibility of materials used in accomplishing the work. Interfaces relate to the relationship between the requirements associated with the work to be performed and others beyond the scope of that work. These requirements may be organizational as in the case of work specific training requirements as a subset of a larger set of requirements, hardware requirements as in the case of a Heating Ventilation and Air Conditioning (HVAC) system serving the work area as a segment of a larger HVAC system, or programmatic requirements as in the case of quality assurance requirements for the work in the context of a larger quality assurance program. These interface requirements must be identified and satisfied before work can proceed.

e. Depending on the complexity or controversy surrounding a particular situation, the Convened Group responsible for planning and conducting a particular necessary and sufficient process may decide that confirmation by an independent team is needed to support approval of the set. This is a matter of judgment to be exercised by the Convened Group.

To provide as much flexibility as possible, the Process permits the Convened Group to designate the level and identity of the Approval Authority during the initiation of the Process. The Approval Authority will approve the set as adequate on the basis of a determination that the Process has been correctly implemented.

f. The value of affording all appropriate Stakeholders an opportunity to contribute to the Process cannot be overemphasized. The value of inviting Stakeholders to provide their views, even when they decline, has been proven by experience. Because acceptance of the set is one of the underlying goals of the Process, the appropriate Stakeholders should always be informed of the intent to conduct the Process and be invited to contribute input. Consistent with guidance related to the Federal Advisory Committee Act, Stakeholders (i.e., individuals who are not Federal employees or Department contractor or subcontractor employees) provide their individual views on issues raised by the Process, but may not be members of the consensus seeking groups. The Convened Group must ensure that Stakeholders are provided with appropriate opportunities for input, and that their views are shared in a manner consistent with the Federal Advisory Committee Act.

TABLE OF CONTENTS

CHAPTER I - INITIATING THE NECESSARY AND SUFFICIENT PROCESS

1. OBJECTIVE....I-1
2. DISCUSSION....I-1

CHAPTER II - PRODUCING A NECESSARY AND SUFFICIENT SET OF STANDARDS

1. OBJECTIVE....II-1
2. PROCESS ELEMENT 1: DEFINING THE WORK AND HAZARDS....II-1
   a. Objective....II-1
   b. Discussion....II-1
   c. Responsibilities....II-2
3. PROCESS ELEMENT 2: CREATING THE TEAM(S)....II-3
   a. Objective....II-3
   b. Discussion....II-3
   c. Responsibilities....II-4
4. PROCESS ELEMENT 3: DEFINING AND AGREEING TO PROTOCOLS AND DOCUMENTATION REQUIREMENTS FOR THE TEAM(S)....II-5
   a. Objective....II-5
   b. Discussion....II-5
   c. Responsibilities....II-5
5. PROCESS ELEMENT 4: IDENTIFYING THE NECESSARY AND SUFFICIENT SET OF STANDARDS....II-6
   a. Objective....II-6
   b. Responsibilities....II-6
6. PROCESS ELEMENT 5: CONFIRMING THE NECESSARY AND SUFFICIENT SET OF STANDARDS....II-7
   a. Objective....II-7
   b. Responsibilities....II-7
7. PROCESS ELEMENT 6: APPROVING THE NECESSARY AND SUFFICIENT SET OF STANDARDS AND AUTHORIZING WORK TO THE SET....II-8
   a. Objective....II-8
   b. Discussion....II-8
   c. Responsibilities....II-8

CHAPTER III - USE OF THE APPROVED SET OF STANDARDS....III-1

CHAPTER I

INITIATING THE NECESSARY AND SUFFICIENT PROCESS

1. OBJECTIVE. To determine whether to initiate the Process and to assign responsibility for conducting the Process.

2. DISCUSSION.

   a. Agreement Parties may initiate the Process if one or more of the following criteria is satisfied.

      (1) A set of standards does not exist, as in the case of a new activity.

      (2) An existing set of standards (e.g., the current set of all applicable Department directives) is no longer appropriate due to changes in mission, regulatory environment, degree of hazards, performance expectation, or knowledge.

      (3) The applicable contract requires that the Process be used.

      (4) A Stakeholder demonstrates to the satisfaction of the Agreement Parties that the existing set of standards is either not necessary or not sufficient to provide adequate protection. Evidence provided should be based on the set of standards, not on the way the standards are implemented.

   b. When the Agreement Parties determine that at least one of the criteria is satisfied, they:

      (1) jointly designate, preferably within the Responsible Organization, a Process Leader who will be responsible for conducting the Process,

      (2) designate individuals within their respective organizations to serve as members of the Convened Group,

      (3) identify Resource Authorities and any other Federal officials to be approached for participation as members of the Convened Group, and

      (4) identify interested Stakeholders to be approached to provide input to the Convened Group.

      The value of inviting Stakeholder contribution, even when it merely provides them with an opportunity to decline, has been proven by experience. Because acceptance of the set is one of the underlying goals of the Process, the appropriate Stakeholders should always be informed of the intent to conduct the Process and be invited to contribute.

c. The designation of individuals as members of the Convened Group should be guided by Criterion 6 of the "Criteria for the Department's Standards Program" (DOE/EH/0416), which states that identification, approval, and maintenance of necessary and sufficient sets of standards will be at the organizational level appropriate for effective management. In general, members of the Convened Group shall be selected from the lowest level of management responsible for allocating resources and managing the work affected by the necessary and sufficient set of standards. Members of the Convened Group must be empowered to make the necessary commitments on behalf of their organizations.

d. The Process Leader will convene the first meeting of the Convened Group. The first business of the Convened Group will be to decide on the protocols for its ongoing meetings and to identify individuals who have agreed to act as the Approval Authority for Process Element 6 (Chapter II, paragraph 7), "Approving the Necessary and Sufficient Set of Standards and Authorizing Work to the Set."

CHAPTER II

PRODUCING A NECESSARY AND SUFFICIENT SET OF STANDARDS

1. OBJECTIVE. To produce and reach closure on a necessary and sufficient set of standards to meet performance expectations and objectives for providing adequate protection to workers, the public, and the environment.

   a. This phase consists of the following six major Process Elements.

      (1) Defining the work and hazards.

      (2) Creating the team(s).

      (3) Defining and agreeing to protocols and documentation requirements for the team(s).

      (4) Identifying the necessary and sufficient set of standards.

      (5) Confirming the necessary and sufficient set of standards.

      (6) Approving the necessary and sufficient set of standards and authorizing work to the set.

      As understanding is gained through use of the Process, it will often be necessary to repeat the various elements to incorporate changes to the scope, expectation, team(s), or set of standards.

   b. The level of detail and effort required for each of the elements will vary depending on the particular application and experience in applying the Process. For example, the element on "defining work and hazards" will require less effort for established and ongoing activities than for a new startup.

2. PROCESS ELEMENT 1: DEFINING THE WORK AND HAZARDS.

   a. Objective. To define the work and performance expectations to which the standards apply.

   b. Discussion. A clear definition of the work performance expectations, work environment, and associated hazards and uncertainties is critical to the successful identification of a necessary and sufficient set of standards. Tailoring a necessary and sufficient set of standards to the work and hazards ensures that the desired level of protection is achieved efficiently.

      The definition of the work and hazards provides an opportunity to determine if any of the identified hazards can be reduced or eliminated (e.g., by the use of alternative materials or methods).

Such redefinition of the work should occur prior to starting Process Element 4, "Identifying the Necessary and Sufficient Set of Standards."

c. Responsibilities.

(1) Process Leader has the following responsibilities.

(a) Acquires relevant information on the work to be performed from the members of the Convened Group.

(b) Organizes information received from the Convened Group as an initial basis for identifying the necessary and sufficient set of standards, in terms of the following initial conditions.

1 Performance expectation and objectives (for example, goals for safety, quality, and operations).

2 What actions will be performed.

3 Physical conditions within which the work will be performed.

4 Materials and conditions that could cause adverse consequences.

5 Uncertainties about the work.

6 Organization and management.

7 Resource availability and constraints.

8 Stakeholder concerns.

(c) If necessary, re-evaluates the work definition on the basis of feedback obtained during the Process.

(2) The Convened Group has the following responsibilities.

(a) Establishes appropriate channels of communication with Stakeholders; provides Stakeholders with information concerning process activities; and obtains Stakeholder views as input to the Process.

(b) Provides information on initial conditions as follows:

1 Agreement Parties, with the assistance of Technical and Operational Experts, provide information on:

a Performance expectations and objectives (for example, goals for safety, quality, and operations).

b What actions will be performed.

c Physical conditions within which the work will be performed.

d Materials and conditions that could cause adverse consequences

e Uncertainties about the work.

f Organization and management

2 Resource Authorities provide information on Resource availability and constraints.

(c) Endorses the initial definition of the work, hazards, and performance expectations compiled by the Process Leader. The initial definition is subject to refinement during the application of the Process.

3. PROCESS ELEMENT 2: CREATING THE TEAM(S).

a. Objective. To create one or more teams to identify a necessary and sufficient set of standards and confirm that the set is adequate and feasible.

b. Discussion.

(1) The identification of a necessary and sufficient set of standards for a defined scope of work relies on the collective judgment of a team of knowledgeable people. The team must establish that implementation of the set is feasible and that the set provides a basis for adequate protection.

(2) Confirmation of the adequacy and feasibility of the necessary and sufficient set of standards strengthens the credibility of the Process and confidence in the set of standards. The level of formality and independence of the confirmation process will depend on the specific circumstances. For complex or controversial issues, it will be necessary to use relatively rigorous methods for confirmation, perhaps even a formal, independent peer review.

(3) The nature of the work, its complexity, hazards, and uncertainties will determine the breadth of knowledge needed within the identification and confirmation team(s). It is important that the criteria for selecting team members reflect

the full breadth of issues to be addressed, and that qualified individuals are made available for assignment of the team(s). The confirmation team may include members of the identification team or be an entirely independent group.

(4) When the relevant expertise is not available in the organizations directly involved, it will be necessary to seek input from experts from other organizations inside or outside of the DOE complex. Input from experts from other organizations has the benefit of enhancing the credibility and defensibility of the Process and of the resulting set of necessary and sufficient standards. When consulting with experts from outside the DOE complex, individual viewpoints must be sought.

(5) Based on consideration of the Federal Advisory Committee Act, membership on the Identification Team and Confirmation Team is limited to DOE and other Federal employees and DOE contractor and subcontractor employees. Stakeholder input to the Process will be managed by the Convened Group.

c. Responsibilities. The Convened Group has the following responsibilities.

(1) Define the specifications for the identification and confirmation team(s) that will be formed.

(a) Establish the functions, relationships, and composition of the team(s) based on:

1 the complexity of the work or the existing set of standards to be reviewed;

2 the number of disciplines (technical and otherwise) involved; and

3 the extent to which the relevant communities (i.e., technical, scientific, programmatic, and Stakeholder) are known to hold differing opinions on the issues under review.

(b) Establish team member qualifications.

(2) Arrange for individuals to be assigned to the team(s), consistent with the membership criteria. Individuals assigned to the team(s) must be able to participate fully in all team meetings and team decision making.

4. PROCESS ELEMENT 3: DEFINING AND AGREEING TO PROTOCOLS AND DOCUMENTATION REQUIREMENTS FOR THE TEAM(S).

a. Objective. To establish protocols, agreements, and documentation requirements for a credible and efficient Process.

b. Discussion. The degree of formality and the extent of documentation required will depend on the work and the following considerations: (1) the potential impact of the identified hazards and associated uncertainties of the work, (2) the complexity of the work, and (3) the quality and rigor required to provide confidence that the standards selected meet the performance expectations and objectives of the work.

The protocols should reflect the intention that the team(s) will perform most of their deliberations in face-to-face group meetings. If subgroups must be used, coordination responsibilities of the subgroups must be adequately defined.

c. Responsibilities.

(1) The Convened Group has the following responsibilities.

(a) Establish protocols and agreements for:

1 schedules and time limitations;

2 resolution of differing opinions within the Convened Group and the team(s);

3 interactions between the Convened Group and the team(s); and

4 interactions between the Convened Group and the Stakeholders

(b) Establish documentation requirements for:

1 definition of the work, hazards, and performance expectations and objectives;

2 the necessary and sufficient set of standards;

3 justification for the set's adequacy:

a team member names, responsibilities, and qualifications;

b results of the confirmation process;

c differing opinions and their resolution;

4 implementation assumptions and interfaces necessary for reaching closure on the set (e.g., any unique resource requirements, or any time constraints for the use of certain selected standards); and

5 justifications to support exemptions from legal requirements;

(2) The Process Leader, with the participation of team members, has the following responsibilities.

(a) Establish team protocols, as necessary for:

1 establishing team members' roles and responsibilities;

2 orienting team members on the Necessary and Sufficient Process;

3 developing plans and procedures, including schedules and cost estimates;

4 resolving team comments within the team (differing opinions that cannot be resolved within the team will be handled in accordance with the protocol established by the Convened Group); and

5 interacting with non-members when it is necessary to clarify information included in the definition of work and hazards.

(b) Establish any additional team documentation requirements necessary.

(3) Team members will provide qualifications information to the Convened Group. Team members must conduct the Process in accordance with the protocols and documentation requirements.

5. PROCESS ELEMENT 4: IDENTIFYING THE NECESSARY AND SUFFICIENT SET OF STANDARDS.

a. Objective. To identify and reach team consensus on the necessary and sufficient set of standards by drawing on the team's collective experience.

b. Responsibilities. The Identification Team has the following responsibilities.

(1) Identify any additional information needed to define the work.

(2) Evaluate relevant sources of existing international, national, State, local, and work-specific standards including laws, regulations, orders, and procedures.

(3) Identify which standards constitute a necessary and sufficient set, including those standards that are legally required and other standards that are necessary to provide adequate protection of workers, the public, and the environment. The set must be feasible for implementation.

(4) If needed, request additional resources, such as additional Technical or Operational Experts.

(5) Reach consensus on and justify the necessary and sufficient set of standards.

(6) Identify any implementation assumptions and interfaces used by the team.

(7) Identify those applicable Federal, State, and local laws and regulations that must be included in the necessary and sufficient set of standards but are judged not to add value to the achievement of adequate protection, and provide a justification for the team's view that can be used as the basis for pursuing exemption from these requirements.

(8) If it is not possible to identify a necessary and sufficient set to meet the current performance expectations and objectives, recommend revisions to the work definition, development of new standards, or both, that would allow a necessary and sufficient set of standards to be identified.

(9) Document:

(a) the necessary and sufficient set of standards,

(b) the justification for the set,

(c) implementation assumptions and interfaces, and

(d) a justification to support an exemption from regulatory requirements that are judged by the team not to add value to the achievement of adequate protection.

6. PROCESS ELEMENT 5: CONFIRMING THE NECESSARY AND SUFFICIENT SET OF STANDARDS.

a. Objective. To confirm the adequacy and feasibility of the necessary and sufficient set of standards identified by the Identification Team.

b. Responsibilities. The Confirmation Team has the following responsibilities.

(1) Review the documentation produced by the Identification Team and any other documentation required for confirmation.

(2) Determine whether the proposed set of standards is adequate and feasible.

(3) Document the confirmation activities and their results.

7. PROCESS ELEMENT 6: APPROVING THE NECESSARY AND SUFFICIENT SET OF STANDARDS AND AUTHORIZING WORK TO THE SET.

a. Objective.

(1) To accept the level of protection provided by implementation of the necessary and sufficient set of standards.

(2) To accept and authorize the use of the necessary and sufficient set of standards, subject to any implementation assumptions.

b. Discussion.

(1) Approval constitutes agreement with the adequacy of the set and a commitment by the Resource Authorities to provide, or seek through the normal budget process, the resources necessary to implement the standards.

(2) Approval does not constitute approval of exemptions from standards in applicable laws and regulations that have been judged not to add value to the achievement of adequate protection. Exemption from those standards must be sought and granted in accordance with the applicable provisions for such exemptions. For DOE nuclear safety regulations, an exemption request, and the justification contained therein, will be processed in accordance with 10 CFR 820.

c. Responsibilities. The Approval Authority designated by the Convened Group has the following responsibilities.

(1) Establish the adequacy of the necessary and sufficient set of standards by determining whether:

(a) the Process has been correctly implemented and has been documented in conformance with the protocols established by the Convened Group;

(b) the Identification Team has endorsed and justified the set of standards as necessary and sufficient to provide adequate protection when implemented; and

(c) the Confirmation Team has confirmed the adequacy and feasibility of the set of standards.

(2) Approve or disapprove the set of standards for use in performing the defined work, within any time limitations established by the Convened Group.

(3) Inform the Convened Group of the approval or disapproval.

CHAPTER III

USE OF THE APPROVED SET OF STANDARDS

To ensure that the expectations and agreements established between the Responsible Organization and the Customer Organization are successfully implemented, the Responsible Organization:

1. ensures that the necessary and sufficient set of standards and associated implementation assumptions become part of the operating basis for all activities covered by the set; and

2. performs any agreed upon actions approved with the set.

Planning and performing work in accordance with the approved set of standards requires an adequate system for managing the work. This includes an organization with defined roles and responsibilities, performance evaluation systems, and management information and reporting systems that include configuration and change controls. An implicit assumption for all necessary and sufficient sets of ES&H standards is that such a management system exists. Characteristics of a desirable integrated management system are addressed in the "Criteria for the Department's Standards Program" (DOE/EH/0416).

DEFINITIONS

1. Agreement Party. Any party, including at a minimum the Responsible Organization and the Customer Organization, that must agree to the necessary and sufficient set of standards for the work; for example, parties to a contract, as in the case of DOE and an M&O contractor.

2. Approval Authority. One or more Department and contractor employees designated by the Convened Group to determine the adequacy of the necessary and sufficient set of standards and to approve or disapprove a set of standards.

3. Confirmation Team. A group of individuals who meet the membership criteria and qualifications defined by the Convened Group with responsibility for confirming the adequacy and feasibility of the necessary and sufficient set of standards based on documentation provided by the Identification Team.

4. Convened Group. A steering committee for the conduct of the Process, which represents the Agreement Parties, the Resource Authority, and other appropriate Federal organizations. The Convened Group establishes the criteria for approval of the set of standards identified by the Identification Team and must, therefore, consist of organizational representatives empowered to make the necessary commitments.

5. Customer Organization. The organization with direct responsibility, accountability, and authority for having the work performed subject to the agreed-upon set of standards.

6. Identification Team. A group of individuals who meet the membership criteria and qualifications defined by the Convened Group and are responsible for identifying and justifying the necessary and sufficient set of standards based on the work, the performance expectations, and the associated hazards and uncertainties defined in Process Element 1.

7. Operational Experts. Individuals with knowledge and expertise relevant to the work and the site, facility, and activities addressed by the necessary and sufficient set of standards.

8. Resource Authorities. Organizations or individuals with control over and authority to commit the equipment, facilities, personnel, and budget necessary to accomplish the work. For example, line managers are typical resource authorities in classical organizations. Program and project managers are typical resource authorities in matrix organizations. Some organizations may have resource managers who are independent of programs and projects.

9. Responsible Organization. The organization with direct responsibility, accountability, and authority for performing the work subject to the agreed-upon set of standards.

10. Stakeholder. Any party other than Federal employees or DOE contractor or subcontractor employees that will be materially affected by, or can materially affect, the outcome of the work, either favorably or unfavorably (for example, representatives of State, and local governments, labor unions, and citizens' groups.

11. Technical Experts. Individuals with knowledge and expertise relevant to the work or to one of the environment, safety and health disciplines (for example, industrial hygiene, criticality control, or industrial safety).

Attachment 3

Los Alamos National Laboratory Work

Complex Experimentation and Measurement

- Instrumentation & measurement
- Engineering
- Integration of data from large-scale experiments
- Measurements in high-density physics
- Special pulsed-powered sources (e.g., DARHT, NHFML)
- Special nuclear materials handling
- Extensive high-explosive capabilities for hydrodynamic and pulsed-magnetic-field studies
- High-energy capacitor bank and explosive pulsed-power sources
- Proton and neutron radiography
- The Los Alamos Neutron Scattering Center
- The Dual-Axis Radiographic Hydrodynamic Test Facility
- Chemical sensors
- Radiation detectors and infrared sensors
- Physical sensors (for temperature, pressure, acceleration, and gas composition)
- Laser systems (flow cytometry and lidar)
- Laboratory instrumentation (such as detectors for nuclear and particle physics experiments)
- Rugged instrumentation for use in hostile or remote environments
- Software for instrument control and data acquisition, image analysis, and graphics
- Materials science
- Nuclear instrumentation and sensors
- Neutron spectrometers
- Neutron target and moderator systems
- Safety systems and interlocus
- Particle accelerators
- High-power RF and microwaves
- Accelerator production of tritium (APT) low-energy demonstration accelerator (LEDA)

Theory, Modeling, and High-Performance Computing

- Development of high-performance computing and communications
- Atomic, molecular, and nuclear particle interaction modeling
- Numerical turbulence and transport modeling
- Fundamental materials equation of state calculation
- Numerical techniques for solutions of partial differential equations
- Astrophysics and plasma behavior modeling
- Applied mathematics for chaos and complex systems analysis
- Computations for theoretical biology
- Materials by design
- New fabrication methods for the semiconductor industry
- New methods to predict, diagnose, and treat genetic defects and disease
- New designer drugs to fight disease and suffering
- More efficient and cleaner internal combustion engines
- New miniature, nanoscale, devices capable of self-assembly
- Better methods to model and understand global atmospheric and ocean behavior
- Information management and technology
  - mail distribution
  - records management
  - office automation
  - libraries
  - networks

Los Alamos National Laboratory Work (continued)

Analysis and Assessment

- Systems analysis
- Simulation and modeling
- Operations optimization
- Process analysis
- Data synthesis
- Human factors analysis
- Statistical analysis
- Quantification of risk
- Analysis of safety system
- Cost/benefit analysis
- Analytical soft technology development
- Integrate basic theory and experimental data across multiple disciplines into realistic simulation models
- Validate the models through comparison with experiments and other expert information
- Integrate the models into computer programs for independent and unbiased analysis and assessment of complex systems
- Nuclear weapons and nuclear facility physics
- Space, plasma, accelerator, and laser physics
- Materials science and solid-state physics
- Bioscience
- Thermal hydraulics
- Radiation transport
- Nuclear chemistry models and theory
- Chemical and geological science
- Aerosol behavior
- Combustion and flame propagation
- System processes and operations
- Seismic, acoustic, optical, and stress wave propagation
- Examining the cost-effectiveness of new and emerging technology options
- Evaluating trade-off of competing concept options objectively
- Assessing safety and risk
- Assessing the environment, including waste streams
- Improving system efficiencies
- Supporting comprehensive decision analysis
- City air pollution modeling
- National transportation systems modeling
- Examination of special nuclear materials disposition options
- Nuclear facility safety and process modeling
- Advanced manufacturing process modeling
- Simulations in military force deployment and war fighting
- New technology systems assessments

Infrastructure

- Environmental restoration
- Waste management
- Decontamination & decommissioning
- Utilities
- Traffic
- Roads
- Security
- Maintenance
- Construction
- Communications
  - voice
  - data
  - video
  - networks

Los Alamos National Laboratory Work (continued)

Nuclear Weapons Science & Technology

- Physics of nuclear weapons design
- Design & integration of weapons components
- Large-scale calculations of weapons phenomena
- Technologies of weapons materials
- Measurement, testing, & diagnostics of weapons phenomena
- Weapon systems analysis & assessment
- Nuclear weapons intelligence & treaty support
- The physics of nuclear weapons design includes skills in hydrodynamics of implosions and explosions, nuclear and thermonuclear reactions, transport and interaction of energy, atomic and plasma physics, and properties of materials under extreme pressures and temperatures
- Large-scale calculations of weapons and weapons phenomena incorporates one-, two-, and three-dimensional radiation hydrodynamics calculations, calculations of nuclear safety and performance, and calculation of weapons output, including detailed spectra
- Engineering design, specification, and integration of weapons components draws on skills in development and engineering of components, reliability and performance testing, manufacturing and assembly, disassembly and repair, and safety assessments
- Science of weapons materials and material properties emphasizes energetic materials, nuclear materials, specialized organic and inorganic materials, and processing and joining methods
- Experimental measurement, testing, and diagnostics encompasses measurement of dynamic phenomena, special test facilities and sites, ultra high-speed electronics and electro-optic imaging devices, and pulsed-power and laser facilities for achieving special conditions
- Weapons system analysis and assessment includes vulnerability, lethality, and effects, as well as war-fighting applications analysis and collateral damage assessment
- Threat analysis and assessment comprises intelligence assessment, nonproliferation, and counterproliferation
- Treaty support/verification and accident response through expert advice, sensor development, and policy analysis
- Neutron scattering
- Proton and neutron radiography

Los Alamos National Laboratory Work (continued)

Earth & Environmental Systems

- Analytical litegration of sensors, instruments, and diagnostic systems
- Fluid, mass, and energy transport
- Space Sciences
- Explosion seismology & acoustics
- Radiochemistry & aqueous geochemistry
- Handling and processing of radioactive materials and mixed waste
- Risk assessment: ecological and human
- Radiological worker protection
- Arid lands ecology
- New and more effective means for waste site characterization and remediation (treatment, storage, and disposal technologies)
- A stronger scientific basis for understanding global change and climate dynamics
- New knowledge necessary to assess and mitigate the impact of energy production and national defense activities on ecological systems
- New means for remotely observing the earth and near-earth environment (including air and water pollution characterization) and imaging the earth's interior

Nuclear and Advanced Materials

- Actinide chemistry & materials science
- Actinide materials synthesis & processing
- Analysis of natural materials
- Hazardous metals processing
- Materials behavior in intense magnetic Ffelds
- Characterization by neutron scattering
- Modeling at atomistic and mesoscopic scales
- Novel electronic materials technology
- Plutonium handling and processing
- Structural materials modeling & characterization
- Thin film technology
- Process technology
- Nuclear fuel research and fabrication
- Radioisotope thermoelectric generators
- Waste management, treatment, and reduction
- Chemical and physical characterization
- Environmental protection and behavior of these materials in the environment
- Material control and accountability technologies
- Nuclear criticality
- Preparation of certified reference materials
- Safe storage methodology
- Nuclear facility operations
- Disposition and destruction technology options

Los Alamos National Laboratory Work (continued)

Bioscience & Biotechnology

- Molecular & cell biology
- Genomics
- Bimolecular structures & dynamics
- Advanced medical diagnostics & therapeutics
- Medical isotopes
- Medical imaging & analysis
- Biomedical engineering
- Biomaterial development
- Biomechanics
- Biosensors
- Health care systems modeling
- Close collaborations between experimentalists and theorists
- Strong interdisciplinary interactions between the physical sciences, life sciences, and engineering
- Outstanding computer facilities and expertise
- Unique large-scale facilities that support biotechnology research and development within Los Alamos and the biomedical community at large

- Biomedical research and technology, including optics and imaging, sensors, stable isotopes, lasers, biomechanics, robotics, modeling/simulation, computation, and informatics
- Cellular analysis, including flow cytometry, digital fluorescence microscopy and other spectro-microscopies, cell growth and cell cycle control, DNA damage and repair, cell transformation and carcinogenesis, and transgenic mouse facilities
- Biomolecular structure, dynamics, and functional analysis, including scanning tunneling and transmission electron microscopy, x-ray and neutron scattering, high-field nuclear magnetic resonance, ultra-fast kinetic techniques, and optical infrared spectroscopies

- Genome analysis, including chromosome sorting, clone libraries, robotics, genome mapping and sequencing, positional cloning, protein/DNA interactions, modeling and simulation, computing tools, and databases
- Single-molecule detection techniques for biomolecules
- Dynamic laser spectroscopic techniques for studying biomolecular structure
- Techniques for noninvasive functional imaging of the human brain
- Flow cytometry
- Stable-isotope labeling
- Neutron scattering diffractometers
- High-field nuclear magnetic resonance techniques
- Chromosome-specific genome libraries

- Molecular medicine, a field to which the Laboratory contributes an understanding of diseases at the molecular level and a rational approach to the design of drugs and other therapies to cure these diseases—involves capabilities in genomics, structural biology, and theoretical and computational biology that are not matched in the industrial laboratory environment
- Applications of defense technology to the biomechanical modeling of the human body—contributes to an understanding of surgical and injury phenomena, for which analysis is computationally demanding
- New techniques for noninvasive imaging of the human brain—includes neuroscience, low-temperature physics, computer science, electrical engineering, and state-of-the art signal processing

Los Alamos National Laboratory Work (continued)

Nuclear Science, Plasmas, & Beams

- Weapons physics
- Nuclear, gamma & neutron physics
- Plasma, fusion, & high-energy-density physics
- Aboveground experiments
- Physics & optics of beams
- Theory, design & fabrication of RF accelerators structures
- Systems engineering
- Physics & engineering of beam targets
- Pulsed power engineering
- RF power

  Ion source physics & engineering
- The Los Alamos Meson Physics Facility proton accelerator for medium-energy nuclear physics
- The Los Alamos Neutron Scattering Center for producing pulse spallation neutrons
- The Weapons Neutron Resource Facility for intense neutron beam physics and applications
- The Center for Materials Science and Bioscience Studies at the Los Alamos Neutron Scattering Center
- The accelerator-driven Dual-Axis Radiographic Hydrodynamic Test Facility for implosion hydrodynamics studies
- Accelerator technologies for application to nuclear transmutation
- Precision experiments to probe the properties of the fundamental electroweak interaction
- Explorations of the quark and gluon structure of nucleons and nuclei with experiments using medium- and high-energy beams
- Use of relativistic heavy-ion collisions to study nuclear matter at high-energy density and to search for the deconfinement of quarks and gluons
- Application of experimental techniques developed in nuclear science to fundamental problems in astrophysics
- Accelerator-based experiments that probe nuclear structure and modification of fundamental degrees of freedom by the nuclear medium

Crosswalk of Los Alamos Work-Related ES&H Issues and Organizations

Work-Related ES&H Issues	AA	AOT	BUS	CIC	CST	DX	DoD	EES	ESA	EM	ESH	ET	FSS	HR	IP	LANS	LS	MST	NIS	NMSM	NMT	NWT	P	QP	STB	T	TSA	X	PTLA	JCI
Aboveground Storage Tanks (includes non-PCB transformers)						X		X	X	X	X		X					X	X		X		X							X
Accelerators - On Site Exposure									X		X					X		X	X				X							X
Acids, Solvents, Toxic Agents & Hazardous Liquids					X	X		X	X	X	X		X			X	X	X	X		X		X						X	X
Air Emissions - Non Radioactive & Radioactive					X	X		X	X	X	X					X		X	X		X		X						X	X
Allergens								X		X	X					X		X							X				X	X
Animal Research											X						X													X
Aquifer Monitoring								X		X																				
Archeological Requirements						X		X		X									X											X
As-Builts				X		X		X		X			X			X		X			X		X				X			X
Asbestos and other fibers - Worker and Environmental Protection				X		X	X	X	X	X	X		X					X	X		X		X		X				X	X
Aviation (including Mechanical Hazards)								X															X							
Bacteria (water)								X					X						X						X					X
Battery (including charging station)			X	X		X		X	X	X	X		X			X		X	X		X		X				X		X	X
Biological Ecology								X		X									X											
Biological, Blood-Borne Pathogens								X		X							X		X		X								X	X
Biological, Human Subjects											X						X						X							X
Biological, Infectious Agents																	X													X
Biosafety practices (eqpt, PPE, dsinfection, sterilization, etc.)											X						X													
Blast Fragments						X		X	X	X						X		X					X							X
Boating											X																			
Boiler Chemicals						X		X	X		X		X					X	X		X		X							X
Boilers and Heaters	X			X		X		X	X		X	X	X	X	X			X	X	X	X	X	X	X		X		X		X
Burns						X		X		X	X					X		X			X		X						X	X
Carcinogens (including Chemical)					X	X		X		X	X					X	X	X	X		X		X							X
Chemical - Vapor Leak/Spill						X		X		X	X					X	X	X	X		X		X						X	X
Chemical Contamination						X		X	X	X	X		X			X	X	X			X		X							X
Chemical Exposure - Exceeding PEL								X	X	X						X	X	X			X		X						X	X
Chemical Reactions						X		X	X	X	X					X	X	X			X		X							X
Chemical/Liquid Leak/Spill						X		X	X	X	X		X			X	X	X	X		X		X						X	X
Chlorine Handling		X								X			X			X		X	X		X									X
Combustibles						X		X	X	X	X		X	X			X	X	X		X		X		X				X	X
Communication (telephone lines, network systems)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Compressed Natural Gas			X			X			X		X		X			X			X		X		X							X
Confined Space				X		X		X	X	X	X		X			X	X	X	X		X		X							X
Construction			X	X		X		X	X	X	X		X			X		X			X		X							X
Contaminated Soil						X		X	X	X	X								X				X							X
Contamination Area								X	X	X	X					X			X				X							X
Controlled Substances											X																			
Conveyor Systems			X							X	X										X									X

Crosswalk of Los Alamos Work-Related ES&H Issues and Organizations

Work-Related ES&H Issues	AA	AOT	BUS	CIC	CST	DX	DoD	EES	ESA	EM	ESH	ET	FSS	HR	IP	LANS	LS	MST	NIS	NMSM	NMT	NWT	P	QP	STB	T	TSA	X	PTLA	JCI
Corrosives						X		X	X	X	X		X			X	X	X	X		X		X							X
Cranes & Hoists			X			X		X	X	X	X		X			X	X	X	X		X		X							X
Criticality									X	X	X							X	X		X									X
Cryogenic Materials and Use			X			X		X	X	X	X					X	X	X	X		X		X							X
Cultural Resources						X		X	X	X	X								X										X	X
Decommissioning and Decontamination								X	X	X	X		X			X		X	X				X							X
Demolition								X	X	X	X		X																	X
Design and Review				X		X		X	X	X	X		X			X		X	X		X		X							X
Drills/Exercises				X		X		X	X	X	X		X			X			X		X		X						X	X
Domestic Terminal Water Storage Tanks (Testing, cleaning, maintenance)						X		X		X			X								X									X
Drains and Sinks Plumbing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Drains and Drain Labels				X		X		X	X	X	X		X			X	X	X	X		X		X				X			X
Dredge and Fill Work						X		X	X		X		X																	X
Drilling											X		X																	X
Drinking Water - Quality & Quantity	X		X	X		X	X	X		X	X	X	X		X	X			X	X	X	X	X	X	X	X	X	X	X	X
Electrical	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Electrical Design Standards				X		X		X		X	X		X			X	X		X		X		X							X
Electrical Outages			X	X		X		X	X	X			X			X	X	X	X		X		X		X		X			X
Electrical Utilities Tie-In Stds.				X		X		X		X	X		X			X	X	X	X		X		X							X
Elevators used for Hazardous Materials																X		X	X		X									X
Emergency Generators				X		X		X	X	X	X		X			X	X	X	X		X		X							X
Emergency Management						X		X		X			X			X		X	X		X						X			X
Emergency Planning				X		X		X	X	X			X			X		X	X		X		X		X					X
Emergency Preparedness			X	X		X		X	X	X			X			X		X	X		X				X				X	X
Emergency Response/Spill (including Cleanup)						X		X	X	X	X		X			X		X	X		X		X							X
Endangered Species						X		X		X																				X
Engulfment								X								X		X			X		X							X
Environmental Radiation Protection						X		X		X						X		X	X		X		X							X
Environmental Restoration						X		X	X	X									X											X
Erosion Control						X		X	X	X			X						X		X		X						X	X
Evacuations and Means of Egress	X		X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X			X	X
Excavation						X		X	X	X	X		X					X	X		X		X							X
Explosive & Blasting Agents						X		X	X	X	X					X		X					X							X
Explosive Chemicals					X	X		X	X		X		X			X	X	X	X		X		X							X
Explosives (dust/gas/liquids/vapors)								X	X	X	X					X		X					X							X
Explosives Transportation			X																											
Facility Maintenance/upgrades			X	X		X	X	X	X	X			X	X		X	X	X	X		X		X		X				X	X
Falling & Loose Objects	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fatigue	X		X			X	X	X		X		X		X		X		X	X	X	X	X	X	X	X	X		X	X	X

Crosswalk of Los Alamos Work-Related ES&H Issues and Organizations

Work-Related ES&H Issues	AA	AOT	BUS	CIC	CST	DX	DoD	EES	ESA	EM	ESH	ET	FSS	HR	IP	LANS	LS	MST	NIS	NMSM	NMT	NWT	P	QP	STB	T	TSA	X	PTLA	JCI
Fences						X		X	X	X			X						X		X		X				X		X	X
Field Work - animal trapping, bites, stings											X						X													
Filters				X		X		X	X	X			X			X	X	X	X		X		X		X					X
Fire/Explosion	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Firearms & Ammunition						X					X		X						X		X								X	X
Fissile Material									X	X						X		X	X		X		X							X
Flammable and Combustible Solids, Liquids, & Gases			X		X	X		X	X	X	X			X		X	X	X	X		X		X						X	X
Floodplains and Wetlands						X		X	X	X			X																	X
Food chain			X							X																				
Food Sanitation			X											X							X		X							
Forestry								X					X																	X
Freeze Protection			X	X		X		X	X	X			X		X	X	X	X	X				X						X	X
Friction						X		X								X			X		X		X							X
Fringe Fields						X										X		X					X							X
General Office	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geological								X		X			X																	X
Ground Water Monitoring & Protection						X		X		X			X						X				X							X
Hazard Communication						X		X	X	X						X		X	X		X		X						X	X
Hazardous Material Handling			X			X		X	X	X	X					X	X	X	X		X		X						X	X
Hazardous Material Transportation - Offsite						X		X	X	X						X			X		X		X							X
Hazardous Material Transportation - Onsite			X			X		X	X	X						X		X	X		X		X							X
Hazardous Tools, Equipment & Machinery						X		X	X	X	X					X	X	X	X		X		X						X	X
Hazardous and Toxic Materials						X		X	X	X	X					X	X	X	X		X		X						X	X
Hazardous Waste					X	X		X	X	X	X					X	X	X	X		X		X							X
Health-Hazard Gas			X			X		X		X	X					X	X	X	X		X		X							X
Heat/Cold Stress & Work Environments			X			X		X	X	X						X		X	X		X		X		X		X		X	X
Heavy Metals (such as lead)						X		X	X	X	X					X	X	X	X		X		X						X	X
High Energy Charged and Neutral Particle Beams																X														
High Magnetic Fields						X		X								X		X	X		X		X							X
High-Pressure Steam Systems						X		X	X	X	X		X				X	X	X		X									X
High-Radiation Area						X			X	X						X	X	X	X		X		X							X
High-Temperature Equipment						X		X		X	X					X		X	X		X		X							X
High-Voltage ≥ 50 V				X	X	X		X	X	X	X		X			X	X	X	X		X		X						X	X
Historic/Traditional Use						X		X		X							X	X					X							X
Hydraulic Systems			X			X		X	X	X			X			X		X	X		X		X							X
Impact/Shock						X		X	X	X	X							X			X		X						X	X
Inadvertant Motion						X		X		X						X		X					X							X
Industrial Holding Tanks					X			X	X				X					X			X									
Industrial Effluent Discharges					X			X	X				X					X			X									X

Crosswalk of Los Alamos Work-Related ES&H Issues and Organizations

Work-Related ES&H Issues	AA	AOT	BUS	CIC	CST	DX	DoD	EES	ESA	EM	ESH	ET	FSS	HR	IP	LANS	LS	MST	NIS	NMSM	NMT	NWT	P	QP	STB	T	TSA	X	PTLA	JCI
Industrial Hygiene			X	X		X		X	X	X							X	X	X		X		X				X		X	X
Industrial Treatment Sludge										X	X		X																	
Industrial Waste								X	X	X								X											X	X
Inert/Flammable/Toxic Gas			X			X		X	X	X	X		X			X	X	X	X		X		X							X
Insects			X			X		X		X			X	X					X		X		X						X	X
Investigation of Material Failures						X		X	X	X						X		X	X		X									X
Irradiators Using Radioactive Material									X	X						X	X		X				X							X
Lab animals																	X													X
Laboratory Airborne Radioactivity Monitoring						X		X	X	X	X					X			X		X		X							X
Land Use Planning (land transfer)						X		X	X	X			X		X				X											
Laser Systems					X	X		X			X					X	X	X	X		X		X						X	X
Legacy Contamination						X		X	X	X	X		X			X	X	X	X		X		X							X
Lifting	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lighting (exterior light pollution)				X		X		X									X		X		X		X							X
Lighting (Illumination) of Work Areas	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lightning Strike (Protection)			X	X		X		X	X	X			X			X		X	X		X		X						X	X
Loading/Unloading			X	X		X		X	X	X	X			X		X	X	X	X		X		X		X				X	X
Local Exhaust Ventilation (Includes HEPA Filtration Systems)			X			X		X	X	X	X					X		X	X		X		X				X		X	X
Lock Out/Tag Out			X	X		X	X	X	X	X	X		X			X	X	X	X		X		X		X				X	X
Low-Level Waste				X				X	X	X	X		X			X	X	X	X		X		X							X
Machine Guarding			X	X		X		X	X	X	X		X			X	X	X	X		X		X						X	X
Machine Shop Safety Practices			X			X		X	X	X	X					X	X	X	X		X		X							X
Machinery and Rotating Parts			X			X		X	X	X	X		X			X	X	X	X		X		X						X	X
Material Grinding, Cutting, Drilling			X			X		X	X	X	X					X		X	X		X		X						X	X
Material Handling			X			X		X	X	X				X		X	X	X	X		X		X		X				X	X
Mechanical Hazards - Tools, Equipment and Pressurized Containers				X		X		X	X	X	X	X				X	X	X	X		X		X						X	X
Medical Waste										X	X								X											X
Mixed Waste						X		X	X	X						X	X	X			X		X							X
Mobil Equipment						X		X	X	X			X			X		X	X		X		X							X
Motors				X		X		X	X	X			X			X		X	X		X		X						X	X
Moving Vehicles, Carts, Forklifts			X	X		X		X	X	X	X		X			X	X	X	X		X		X		X		X		X	X
Natural Gas Systems			X			X			X	X			X					X	X		X		X				X			X
Natural Phenomena Hazards													X																	
NEPA				X		X		X	X	X						X	X	X	X		X		X							X
Noise Levels				X		X		X	X	X	X		X			X	X	X	X		X		X		X				X	X
Non-hazardous Waste - Including Pollution Prevention, Waste Minimization			X	X		X		X	X	X						X	X	X	X		X		X						X	X
Non-point-Source Discharge						X		X	X	X								X			X									X
NPDES			X	X		X		X	X	X			X			X		X	X		X						X			X
Nuclear Facility Safety					X	X			X									X	X		X		X							

Crosswalk of Los Alamos Work-Related ES&H Issues and Organizations

Work-Related ES&H Issues	AA	AOT	BUS	CIC	CST	DX	DoD	EES	ESA	EM	ESH	ET	FSS	HR	IP	LANS	LS	MST	NIS	NMSM	NMT	NWT	P	QP	STB	T	TSA	X	PTLA	JCI
Nuisance Dusts	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Occupational Safety			X	X		X		X	X	X			X			X	X	X	X		X		X		X		X		X	X
Offsite Radiation Exposure						X		X	X	X						X		X	X				X							
One-Call System--Underground utility locating				X		X		X		X			X					X			X									X
Ovens (includes laboratory furnaces)			X			X		X	X					X		X		X	X		X		X		X		X			X
Oxidizers						X		X		X						X		X	X		X		X							X
Oxygen Deficiency						X		X	X	X							X	X			X		X							X
Ozone Depleting Substances								X		X			X					X	X				X							X
Packaging Hazardous Materials			X			X		X	X	X						X		X	X		X		X							X
Painting						X		X	X	X						X		X	X		X		X							X
PCB-Containing Equipment						X		X		X			X			X		X					X							X
Personnel Accountability (during emergencies)	X		X	X		X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Personnel Protection Equipment			X	X		X		X	X	X	X		X			X	X	X	X		X		X						X	X
Pest Control (insects, animals, vegetation)			X	X		X		X	X	X			X	X			X		X		X						X		X	X
Pesticide Application and Use						X			X				X										X							X
Pesticide Storage & Disposal										X			X																	X
Piping Pressure Tests						X		X	X				X			X		X	X		X		X							X
Planned Liquid Releases								X	X							X		X	X											X
Poison Plants								X		X							X		X											X
Potable Water Distribution Facilities								X					X				X				X									X
Potable Water Plumbing, Monitoring, Supply, & Treatment			X			X		X	X				X	X			X		X		X						X			X
Powered Platforms						X		X		X						X		X	X		X		X							X
Pressure Equipment - Compressed Gas Cylinders, Glass or Other Brittle Components, Pressure Vessels, Containers & Lines			X		X	X		X	X	X	X		X			X	X	X	X		X		X						X	X
Prolonged Periods of Driving						X		X											X				X							X
Pyrophoric Gases, Solids, Liquids						X			X	X						X		X			X		X							X
Quench Effects																		X			X		X							X
Radiant Heat, Closed Systems and Open Flame						X		X	X	X						X		X	X		X		X		X					X
Radiation - Ionizing		X			X	X		X	X	X	X					X	X	X	X		X								X	X
Radiation - Non-Ionizing (Intense Light Sources, Microwaves, other Electromagnetic Radiation)		X		X	X	X		X	X	X	X					X	X	X	X		X		X						X	X
Radiation Area (including Posting & Labels)					X	X		X	X	X	X					X	X	X	X		X		X						X	X
Radiation Dose Limits & Dose Assessments						X		X	X	X						X	X	X	X		X		X						X	X
Radiation Protection Human Subjects								X		X						X	X	X	X											X
Radiation Protection Program (including Training)				X	X	X		X		X						X	X	X	X		X		X						X	X
Radioactive and Non-Hazardous Portion of Mixed Waste						X		X	X	X						X	X	X			X		X							X
Radioactive Sealed Sources, Control of						X		X	X	X						X	X	X	X		X		X							X
Radiography - Equipment and Parts						X		X	X	X						X		X	X		X		X						X	
Radiological Emergency Response						X			X	X			X			X	X	X	X		X								X	

Crosswalk of Los Alamos Work-Related ES&H Issues and Organizations

Work-Related ES&H Issues	AA	AOT	BUS	CIC	CST	DX	DoD	EES	ESA	EM	ESH	ET	FSS	HR	IP	LANS	LS	MST	NIS	NMSM	NMT	NWT	P	QP	STB	T	TSA	X	PTLA	JCI
Radiological Instrumentation						X		X	X	X						X	X	X	X		X								X	X
Recombinant DNA																	X													
Release of Potentially Radioactive Contaminated Material and Property						X		X	X	X	X					X	X	X	X		X		X						X	X
Release of Hazardous Substances						X			X	X						X	X	X			X		X						X	X
Repetitive Motion: Ergonomics			X	X		X		X	X	X			X		X	X	X	X	X		X		X	X	X		X		X	X
Reproductive Toxin						X		X		X							X	X			X		X							X
Roadkill						X		X		X				X									X						X	X
Roadways			X			X		X	X	X	X		X	X		X	X	X	X		X		X		X		X		X	X
Rotating Equipment - Centrifuges, Motors, etc.				X		X		X	X	X			X			X	X	X	X		X		X							X
Sanitary Sewer/Effluent Discharges			X	X				X		X			X				X	X	X		X						X			X
Sanitary Holding/Septic Tanks						X		X	X	X			X						X											X
Sanitary Treatment/Sludge-Land Application										X			X																	X
Seismic Ground Wave						X		X					X										X							
Sensitizers/Chemical			X					X			X					X		X			X		X							X
Slips/Trips/Falls/Working at Heights & Housekeeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Solid Waste						X		X	X	X	X					X	X	X			X		X							X
Solid Waste Management Units						X		X	X	X	X					X	X	X	X		X									X
Solid Waste Recycling						X		X	X	X						X	X	X												X
Solvent Cleaning						X		X	X	X						X		X	X				X						X	X
Spark-Producing Tools						X		X	X	X						X		X	X		X		X							X
Special Hand Tools (Power-Driven Nail Guns, etc.)						X		X	X	X						X	X	X	X		X		X							X
Spills/Chemical Releases				X		X		X	X	X	X					X	X	X	X		X		X						X	X
Spontaneous Combustion						X		X	X									X	X		X		X							X
Stacks (Radiological)									X		X					X		X					X							X
Static Magnetic Field> 5 gauss						X		X								X		X			X		X							X
Storage of Combustibles						X		X	X	X	X			X		X	X	X	X		X		X		X					X
Stored Energy (Capacitors & Inductors)						X		X	X				X			X		X	X		X		X						X	X
Storm Water Monitoring & Discharges						X		X	X	X			X					X	X		X		X				X		X	X
Structural Design													X																	
Sub-surface Discharges								X		X																				X
Surface Water Monitoring, Discharges & Protection						X		X	X	X			X				X		X				X				X			X
Surveillance & Monitoring											X																		X	
Suspect/Counterfeit Parts			X			X		X	X									X	X				X							X
Tissue & Cell Culture											X						X													
Tourists/Recreational use						X		X		X													X							X
Toxicity in Smoke or Fumes						X		X								X					X		X						X	X
Traditional Cultural Properties						X		X		X																				X
Traffic Hazards			X			X		X	X	X	X		X	X		X		X	X		X		X		X		X		X	X
Transformer Oil (non-PCB)						X		X	X	X			X			X	X	X	X		X		X							X

Crosswalk of Los Alamos Work-Related ES&H Issues and Organizations

Work-Related ES&H Issues	AA	AOT	BUS	CIC	CST	DX	DoD	EES	ESA	EM	ESH	ET	FSS	HR	IP	LANS	LS	MST	NIS	NMSM	NMT	NWT	P	QP	STB	T	TSA	X	PTLA	JCI
Transformer Oil (PCB)						X		X		X			X			X	X	X												X
Transportation (vehicle, fueling)			X			X		X	X	X	X		X	X					X		X		X				X			X
Transportation of DOT Hazardous Materials Outside Buildings			X			X		X	X	X						X	X	X	X		X		X							X
Transportation of Radioactive Materials						X		X	X	X						X	X	X	X		X		X							X
Trapping/Hunting																														X
Tribal Use								X		X																				X
TRU Waste					X	X			X	X								X	X		X		X							
Ultraviolet Radiation (including sun exposure)						X		X		X									X		X		X							X
Underground Storage Tanks				X		X			X	X			X			X														X
Used Oil						X		X	X	X	X						X	X	X		X		X							X
Utilities (including Power Distribution & Design Criteria)			X	X		X		X	X	X			X	X		X	X	X	X		X		X				X			X
Vacuum Equipment - Back-Filled From Pressure Source								X								X	X	X			X		X							X
Vegetation and Soil Removal						X		X	X	X									X											X
Ventilation	X					X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		X
Vermin (TOSCA, FIFRA, etc.)						X		X		X			X																	X
Vibrations								X	X				X			X	X		X		X		X							X
Visual Resources								X		X						X		X	X		X									X
Waste Streams						X		X	X	X	X							X	X		X		X				X		X	X
Wastewater Collection & Discharge Systems						X		X	X	X			X					X			X		X						X	X
Wastewater Pre-treatment/Treatment Facilities						X			X				X																	X
Water Wellhead Protection						X		X					X																	X
Welding, Torch Cutting, Brazing						X		X	X		X					X	X	X	X		X		X						X	X
Wildfire						X		X	X	X			X								X		X						X	X
Wildlife						X		X	X	X											X		X						X	X
X-Ray Machines and Electron Microscopes (Non-Medical)						X		X	X	X	X						X	X	X				X						X	X

Crosswalk of Los Alamos Work-Related ES&H Issues and Specific ID Team/Focus Group Issue Sheets

	Worker Health & Safety															Environmental Protection						Emergency Preparedness & Management				Facilities		
Work-Related ES&H Issues	Bio	Chem	Cons	Crit	Elec	Energ	ER	Fire	Food	Gen	Mat	Occ	Phy	Rad	Traf	Air	NR	P & T	SGW	Waste	P2	EMng	EPlan	EPrep	ERes	Desi	Accel	Nuc
Aboveground Storage Tanks (includes non-PCB transformers)																			04							01		
Accelerators - On Site Exposure														01													01	
Acids, Solvents, Toxic Agents & Hazardous Liquids		01								03																		
Air Emissions - Non Radioactive & Radioactive																01												
Allergens	01																											
Animal Research	01																											
Aquifer Monitoring																			02									
Archeological Requirements																	02											
As-Builts																										01		
Asbestos and other fibers - Worker and Environmental Protection		01					01			01										02 05								
Aviation (including Mechanical Hazards)															02													
Bacteria (water)																			03									
Battery (including charging station)					01					02																01		
Biological Ecology																	01											
Biological, Blood-Borne Pathogens	01						01																					
Biological, Human Subjects												02																
Biological, Infectious Agents	01																											
Biosafety practices (eqpt, PPE, dsinfection, sterilization, etc.)	01																											
Blast Fragments						03				01																01		
Boating																	05											
Boiler Chemicals		01																										
Boilers and Heaters						04																				01		
Burns		01																										
Carcinogens (including Chemical)		01								03																		
Chemical - Vapor Leak/Spill		01														01												
Chemical Contamination		01					01																					
Chemical Exposure - Exceeding PEL		01								03																		
Chemical Reactions		01																										
Chemical/Liquid Leak/Spill		01																	04									
Chlorine Handling		01																										
Combustibles		01						01																				
Communication (telephone lines, network systems)																										01		
Compressed Natural Gas						04																						
Confined Space													01															
Construction			01																									
Contaminated Soil																	04											
Contamination Area							01							01						04								
Controlled Substances												01																

Crosswalk of Los Alamos Work-Related ES&H Issues and Specific ID Team/Focus Group Issue Sheets

	Worker Health & Safety															Environmental Protection						Emergency Preparedness & Management				Facilities		
Work-Related ES&H Issues	Bio	Chem	Cons	Crit	Elec	Energ	ER	Fire	Food	Gen	Mat	Occ	Phy	Rad	Traf	Air	NR	P & T	SGW	Waste	P2	EMng	EPlan	EPrep	ERes	Desl	Accel	Nuc
Conveyor Systems										01 02 03	01																	
Corrosives		01																										
Cranes & Hoists										02	01																	
Criticality				01																								
Cryogenic Materials and Use						04																						
Cultural Resources																	02											
Decommissioning and Decontamination							01																					
Demolition			01							01																		
Design and Review																										01	01	01
Drills/Exercises																								01				
Domestic Terminal Water Storage Tanks (Testing, cleaning, maintenance)																			03									
Drains and Sinks Plumbing																										01		
Drains and Drain Labels																				05						01		
Dredge and Fill Work																			01									
Drilling							02			02																		
Drinking Water - Quality & Quantity																			03									
Electrical					01																							
Electrical Design Standards					01																					01		
Electrical Outages					01																							
Electrical Utilities Tie-In Stds.					01																					01		
Elevators used for Hazardous Materials										02 03	01																	
Emergency Generators					01					02																01		01
Emergency Management																						02						
Emergency Planning																03							03					
Emergency Preparedness																								01				
Emergency Response/Spill (including Cleanup)																			04						04			
Endangered Species																	04											
Engulfment													01															
Environmental Radiation Protection																02	04											
Environmental Restoration																				04								
Erosion Control																			01							01		
Evacuations and Means of Egress										01																01		

Crosswalk of Los Alamos Work-Related ES&H Issues and Specific ID Team/Focus Group Issue Sheets

	Worker Health & Safety															Environmental Protection						Emergency Preparedness & Management				Facilities		
Work-Related ES&H Issues	Bio	Chem	Cons	Crit	Elec	Energ	ER	Fire	Food	Gen	Mat	Occ	Phy	Rad	Traf	Air	NR	P & T	SGW	Waste	P2	EMng	EPlan	EPrep	ERes	Desl	Accel	Nuc
Excavation			01														01 02									01		
Explosive & Blasting Agents						03				01																		
Explosive Chemicals		01				03				01																		
Explosives (dust/gas/liquids/vapors)		01				03																						
Explosives Transportation																		01 02										
Facility Maintenance/upgrades																										01	01	01
Falling & Loose Objects										03																		
Fatigue										03																		
Fences																										01		
Field Work - animal trapping, bites, stings	01																											
Filters										03																01		01
Fire/Explosion								01																		01		
Firearms & Ammunition						01																						
Fissile Material				01																								01
Flammable and Combustible Solids, Liquids, & Gases		01						01																				
Floodplains and Wetlands																	01											
Food chain																	04											
Food Sanitation									01																			
Forestry																	01											
Freeze Protection																										01		
Friction										02																		
Fringe Fields										02			05															
General Office										03																		
Geological																										01		
Ground Water Monitoring & Protection																			02									
Hazard Communication		01								03																		
Hazardous Material Handling											01																	
Hazardous Material Transportation - Offsite																		01										
Hazardous Material Transportation - Onsite																		02										
Hazardous Tools, Equipment & Machinery										02																		
Hazardous and Toxic Materials		01																										
Hazardous Waste																				09								
Health-Hazard Gas		01																										
Heat/Cold Stress & Work Environments													03															
Heavy Metals (such as lead)		01								01																		
High Energy Charged and Neutral Particle Beams														01													01	
High Magnetic Fields													05														01	

Crosswalk of Los Alamos Work-Related ES&H Issues and Specific ID Team/Focus Group Issue Sheets

	Worker Health & Safety															Environmental Protection						Emergency Preparedness & Management				Facilities		
Work-Related ES&H Issues	Bio	Chem	Cons	Crit	Elec	Energ	ER	Fire	Food	Gen	Mat	Occ	Phy	Rad	Traf	Air	NR	P & T	SGW	Waste	P2	EMng	EPlan	EPrep	ERes	Desl	Accel	Nuc
High-Pressure Steam Systems						04																				01		
High-Radiation Area														01														
High-Temperature Equipment										03																		
High-Voltage ≥ 50 V					01																					01		
Historic/Traditional Use																	02											
Hydraulic Systems						04																						
Impact/Shock													02															
Inadvertant Motion										03																		
Industrial Holding Tanks																			06									
Industrial Effluent Discharges																			06									
Industrial Hygiene		01								03																		
Industrial Treatment Sludge																			06									
Industrial Waste																				05								
Inert/Flammable/Toxic Gas		01						01																				
Insects																	01											
Investigation of Material Failures																										01		
Irradiators Using Radioactive Material														01														
Lab animals	01																											
Laboratory Airborne Radioactivity Monitoring														01														
Land Use Planning (land transfer)																	03 04											
Laser Systems						02																						
Legacy Contamination							01							01						04								
Lifting											01																	
Lighting (exterior light pollution)																										01		
Lighting (Illumination) of Work Areas										04																01		
Lightning Strike (Protection)																										01		
Loading/Unloading											01																	
Local Exhaust Ventilation (Includes HEPA Filtration Systems)										01 02																01		01
Lock Out/Tag Out						04																						
Low-Level Waste																				02								
Machine Guarding										02																		
Machine Shop Safety Practices										02																		
Machinery and Rotating Parts										02																		
Material Grinding, Cutting, Drilling										02																		
Material Handling											01																	
Mechanical Hazards - Tools, Equipment and Pressurized Containers						04				02																		
Medical Waste																				05								

Crosswalk of Los Alamos Work-Related ES&H Issues and Specific ID Team/Focus Group Issue Sheets

	Worker Health & Safety															Environmental Protection						Emergency Preparedness & Management				Facilities		
Work-Related ES&H Issues	Bio	Chem	Cons	Crit	Elec	Energ	ER	Fire	Food	Gen	Mat	Occ	Phy	Rad	Traf	Air	NR	P & T	SGW	Waste	P2	EMng	EPlan	EPrep	ERes	Desi	Accel	Nuc
Mixed Waste																				07								
Mobil Equipment											01																	
Motors					01																							
Moving Vehicles, Carts, Forklifts											01																	
Natural Gas Systems																										01		
Natural Phenomena Hazards																										01		
NEPA																	04											
Noise Levels													04															
Non-hazardous Waste - Including Pollution Prevention, Waste Minimization																				05	01							
Non-point-Source Discharge																			01									
NPDES																			01 06									
Nuclear Facility Safety																												01
Nuisance Dusts		01								03																		
Occupational Safety										03																		
Offsite Radiation Exposure																02	04											
One-Call System--Underground utility locating			01																									
Ovens (includes laboratory furnaces)										03			05															
Oxidizers		01																										
Oxygen Deficiency		01																										
Ozone Depleting Substances																01												
Packaging Hazardous Materials																		01 02										
Painting										01 03																		
PCB-Containing Equipment		01																		02 03								
Personnel Accountability (during emergencies)																						02						
Personnel Protection Equipment		01								03																		
Pest Control (insects, animals, vegetation)	01	01																	05									
Pesticide Application and Use		01																	05									
Pesticide Storage & Disposal		01																	05									
Piping Pressure Tests						04																						
Planned Liquid Releases																			01 06									
Poison Plants	01																											
Potable Water Distribution Facilities																			03							01		
Potable Water Plumbing, Monitoring, Supply, & Treatment																			03									
Powered Platforms										03	01																	

Crosswalk of Los Alamos Work-Related ES&H Issues and Specific ID Team/Focus Group Issue Sheets

	Worker Health & Safety															Environmental Protection						Emergency Preparedness & Management				Facilities		
Work-Related ES&H Issues	Bio	Chem	Cons	Crit	Elec	Energ	ER	Fire	Food	Gen	Mat	Occ	Phy	Rad	Traf	Air	NR	P & T	SGW	Waste	P2	EMng	EPlan	EPrep	ERes	Desi	Accel	Nuc
Pressure Equipment - Compressed Gas Cylinders, Glass or Other Brittle Components, Pressure Vessels, Containers & Lines						04																						
Prolonged Periods of Driving															01													
Pyrophoric Gases, Solids, Liquids		01																										
Quench Effects										01			05															
Radiant Heat, Closed Systems and Open Flame						04		01					05													01		
Radiation - Ionizing														01														
Radiation - Non-Ionizing (Intense Light Sources, Microwaves, other Electromagnetic Radiation)													05															
Radiation Area (including Posting & Labels)														01														
Radiation Dose Limits & Dose Assessments														01		02												
Radiation Protection Human Subjects												02		01														
Radiation Protection Program (including Training)														01														
Radioactive and Non-Hazardous Portion of Mixed Waste																				07								
Radioactive Sealed Sources, Control of														01														
Radiography - Equipment and Parts														01														
Radiological Emergency Response														01											04			
Radiological Instrumentation														01														
Recombinant DNA	01																											
Release of Potentially Radioactive Contaminated Material and Property														01														
Release of Hazardous Substances		01								03																		
Repetitive Motion: Ergonomics													02															
Reproductive Toxin		01																										
Roadkill																	04											
Roadways															03											01		
Rotating Equipment - Centrifuges, Motors, etc.										02																		
Sanitary Sewer/Effluent Discharges																			06									
Sanitary Holding/Septic Tanks																			06									
Sanitary Treatment/Sludge-Land Application																			06									
Seismic Ground Wave																										01		
Sensitizers/Chemical		01																										
Slips/Trips/Falls/Working at Heights & Housekeeping										03																		
Solid Waste																				05								
Solid Waste Management Units																				04								
Solid Waste Recycling																					01							
Solvent Cleaning		01																										
Spark-Producing Tools										01																		
Special Hand Tools (Power-Driven Nail Guns, etc.)										02																		
Spills/Chemical Releases		01														03			04									

Crosswalk of Los Alamos Work-Related ES&H Issues and Specific ID Team/Focus Group Issue Sheets

	Worker Health & Safety															Environmental Protection						Emergency Preparedness & Management				Facilities		
Work-Related ES&H Issues	Bio	Chem	Cons	Crit	Elec	Energ	ER	Fire	Food	Gen	Mat	Occ	Phy	Rad	Traf	Air	NR	P & T	SGW	Waste	P2	EMng	EPlan	EPrep	ERes	Desi	Accel	Nuc
Spontaneous Combustion								01																				
Stacks (Radiological)																01										01		
Static Magnetic Field> 5 gauss													05															
Storage of Combustibles		01						01																				
Stored Energy (Capacitors & Inductors)					01					02																	01	
Storm Water Monitoring & Discharges																			01									
Structural Design																										01		
Sub-surface Discharges																			02									
Surface Water Monitoring, Discharges & Protection																			01 04 06									
Surveillance & Monitoring																02	04		01 02									
Suspect/Counterfeit Parts																										01		
Tissue & Cell Culture	01																											
Tourists/Recreational use																	03											
Toxicity in Smoke or Fumes		01																										
Traditional Cultural Properties																	02											
Traffic Hazards															01													
Transformer Oil (non-PCB)																				06								
Transformer Oil (PCB)																				02 03								
Transportation (vehicle, fueling)															01													
Transportation of DOT Hazardous Materials Outside Buildings																		01 02										
Transportation of Radioactive Materials																		01 02										
Trapping/Hunting	01																04											
Tribal Use																	02											
TRU Waste																				01								
Ultraviolet Radiation (including sun exposure)												01	05															
Underground Storage Tanks																				08						01		
Used Oil																					01							
Utilities (including Power Distribution & Design Criteria)					01					02																01		
Vacuum Equipment - Back-Filled From Pressure Source						04																						
Vegetation and Soil Removal																	01											
Ventilation		01								02	03															01		01
Vermin (TOSCA, FIFRA, etc.)	01																		05									
Vibrations										02			02															

Crosswalk of Los Alamos Work-Related ES&H Issues and Specific ID Team/Focus Group Issue Sheets

	Worker Health & Safety															Environmental Protection						Emergency Preparedness & Management				Facilities		
Work-Related ES&H Issues	Bio	Chem	Cons	Crit	Elec	Energ	ER	Fire	Food	Gen	Mat	Occ	Phy	Rad	Traf	Air	NR	P & T	SGW	Waste	P2	EMng	EPlan	EPrep	ERes	Desl	Accel	Nuc
Visual Resources																	03											
Waste Streams																			06									
Wastewater Collection & Discharge Systems																			06									
Wastewater Pre-treatment/Treatment Facilities																			06							01		
Water Wellhead Protection																			02									
Welding, Torch Cutting, Brazing										01	02 03																	
Wildfire								01																				
Wildlife																	01											
X-Ray Machines and Electron Microscopes (Non-Medical)														01														

Attachment 4

'nited States Government

Department of Energy
Albuquerque Operations Office
Los Alamos Area Office
Los Alamos, New Mexico 87544

memorandum

DATE: FEB 25 1997

REPLY TO ATTN OF: LAM:9JV-174

SUBJECT: DOE Work Smart Standards for Environment, Safety and Health (ES&H)

TO: Those on Attached List

This is to inform you of a new process we have started that relates to improved safety management at LANL. At the same time, I want to offer the opportunity to you or your organization for the DOE to present a more detailed discussion, if you feel that it would be helpful. I am doing this because I am interested in benefitting from stakeholder feedback by taking your comments and concerns into account as we progress through this issue.

The process we have undertaken is a critical relook at the work performed at LANL and the associated hazards. From this information we are reidentifying the appropriate standards (laws, regulations, national consensus standards, DOE Orders, etc.) that upon effective implementation will protect the public, the workers, and the environment. These standards will be the updated contractual set of commitments that LANL will be required to meet in all of its day to day operations. This relook at the standards under which we operate is expected to reaffirm the basis of our safety standards and will assist in reinvigorating our commitment to safe operations.

We have begun the process and are well on our way to identifying the DRAFT set of "work smart" standards appropriate for the work and the hazards at LANL. Within the next 45 days we expect to have a DRAFT set of ES&H standards that we would like to share with you or your organization and obtain your feedback for our consideration. If you are interested in obtaining more information or scheduling a more detailed discussion, please contact Mr. Joseph Vozella at (505) 665-5027. This effort is one of many that are underway to improve LANL's safety management systems and I will continue to keep you informed of its progress.

G. Thomas Todd
Area Manager

MAR 3 1997

5	DIV. DIR.	
4	DEP DIV. DIR.	
2	CHIEF OF STAFF	
1	REVIEWER	
	ACTION TO:	
3	CYS TO:	
	ROUTE TO:	

cc:
Bruce Twining, Manager, AL
Richard Glass, Assistant Manager, OTMO, AL
Siegfried Hecker, Director, LANL, MS-A100
Dennis Erickson, Director, ESH-DO, LANL, MS-K491
Karen Boardman, Director, PAD, AL

Addressees - Memorandum dated _____

The Honorable Lawrence Herrera
Governor
Pueblo of Cochiti
P. O. Box 70
Cochiti Pueblo, New Mexico 87072

The Honorable Joseph Leonard Loretto
Governor
Pueblo of Jemez
P. O. Box 100
Jemez Pueblo, New Mexico 87024

The Honorable Walter Dasheno
Governor
Pueblo of Santa Clara
P. O. Box 580
Española, New Mexico 87532

The Honorable Elmer Torres
Governor
Pueblo of San Ildefonso
Route 5, Box 315-A
Santa Fe, New Mexico 87501

Dr. Ed Kelley, Director
Water and Waste Management Division
New Mexico Environment Department
1190 St. Francis Drive
P. O. Box 26110
Santa Fe, New Mexico 87502

Gedi Cibas, Ph.D.
New Mexico Environment Department
1190 St. Francis Drive
P. O. Box 26110
Santa Fe, NM 87502

Steve Yanicak, Point of Contact
Oversight Bureau
New Mexico Environment Department
LANL, MS-J993

Mr. Michael Jansky
EPA Office of Planning
and Coordination
Mail Code 6EN-XP
1445 Ross Avenue
Dallas, TX 75202-2733

Addressees - Memorandum dated _____

Ms. Bernadette Chavira-Merriman
Dr. Antonio Delgado
Co-Chairs
Northern New Mexico Citizens' Advisory Board
c/o Northern New Mexico Community College
1002 N. Oñate Street
Española, NM 87532

Mr. Albert B. Jordan, Program Manager
Defense Nuclear Facilities Safety Board
625 Indiana Ave., NW., Suite 700
Washington, DC 20004

Mr. Greg Mello
Los Alamos Study Group
212 East Marcy Street
Santa Fe, NM 87501

Mr. Jay Coghlan
Concerned Citizens for
Nuclear Safety
107 Cienega Street
Santa Fe, NM 87501

Mr. William Paul Robinson
Southwest Research and Information
Center
P. O. Box 4524
Albuquerque, NM 87106

Mr. Victor O. Lujan
Executive Director
Eight Northern Indian
Pueblos Council
P. O. Box 969
San Juan Pueblo, NM 87566

Mr. Juan Montes
Rural Alliance for
Military Accountability
P. O. Box 855
Questa, NM 87556

Ms. Dorelen Bunting
Albuquerque Center for Peace
and Justice
144 Harvard Street
Albuquerque, NM 87106

FEB 25 1997

Addressees - Memorandum dated _____

Mr. Doug Meiklejohn
Executive Director
New Mexico Environmental Law
Center
1405 Luisa Street, Suite 5
Santa Fe, NM 87505

Ms. Janna Rolland
Physicians for Social Responsibility
New Mexico Chapter
P. O. Box 4096
Albuquerque, NM 87196

Ms. Garland Harris
Citizens for Alternatives to
Radioactive Dumping
144 Harvard SE
Albuquerque, NM 87106

Mr. Steven Schmidt
New Mexico Green Party
535 Cordova Road
Santa Fe, NM 87501

Mr. Lorenzo Valdez
New Mexico Alliance
P. O. Box 3933
Fairview, NM 87533

Mr. Gilbert Sanchez
Executive Director
Tribal Environmental Watch
Alliance
Route 1, Box 442-B
Española, NM 87532

Ms. Jean Nichols
La Communidad
P. O. Box 237
Peñasco, NM 87553

Ms. Alice Roos
The Sanctuary Foundation
109 Victoria Street
Santa Fe, NM 87501

Addressees - Memorandum dated _____

Ms. Virginia Miller
People for Peace
125 Calle Don Jose
Santa Fe, NM 87501

Mr. Alex Georgieff, Administrator
Incorporated County of
Los Alamos
2300 Trinity Drive
Los Alamos, NM 87544

Mr. Kevin Fenner
Community Development Dept.
Incorporated County of Los Alamos
P. O. Box 30
Los Alamos, NM 87544

Mr. Lorenzo Valdez
Rio Arriba County Manager
1800 N. Riverside Drive
Suite A
Española, New Mexico 87532

Mr. Roy Weaver
Superintendent
Bandelier National Monument
HCR-1, Box 1, Suite 15
Los Alamos, NM 87544

Mr. Robert Remillard
U. S. Forest Service
475 20th Street, Suite B
Los Alamos, NM 87544

Santa Fe County Administrator
P. O. Box 1985
Santa Fe, NM 87504

Santa Fe City Administrator
P. O. Box 909
200 Lincoln Ave.
Santa Fe, NM 87504

City of Española Administrator
404 North Paseo de Oñate
Española, NM 87532

Addressees - Memorandum dated _____

Ms. Sandra Martinez
LANL Outreach Center and Reading Room
1350 Central Avenue, Suite 101
MS-C314
Los Alamos, New Mexico 87544

Ms. Salley Lindsey
DOE Public Reading Room
Technical Vocational Institute
Montoya Campus Library
4700 Morris NE
Albuquerque, NM 87123

Ms. Jennifer Fowler-Propst
State Supervisor
U. S. Fish and Wildlife Service
Ecological Services
2105 Osuna Rd., NE
Albuquerque, NM 87113

Mr. David Simon
National Parks and Conservation
Association
Southwest Regional Office
823 Gold Ave., SW
Albuquerque, NM 87102

Attachment 5

Los Alamos & DOE Participants on Joint Focus Groups of ES&H Work Smart Standards Identification (ID) Teams

Focus Groups of Worker H&S ID Team (ID Team Leaders—Barbara Hargis, Steve Schreiber, Kim Thomas)	Lab Workers	Lab SME	DOE SME
Biological Safety (blood-borne pathogens, infectious agents, etc.) **WHS/Bio-1**	Hugh Smith, ESH Ernie Vigil, DX Julie Wilson, LS	Lisa Iverson, ESH	John Ryan, LAAO
Chemical, Toxic, and Hazardous Materials Safety **WHS/Chem-1**	Jim McKee, NMT Jon Nielsen, MST Mike Palmer, NMT Bill Tumas, CST John Watkin, CST Julie Wilson, LS	Helena Whyte, ESH	Mike Garcia, AL
Construction Safety **WHS/Cons-1**	Robert Bruhn, JCI John Fellers, FSS Samuel Montoya, JCI Pat Osterburg, BUS Roger Stutz, NIS	Tom Crespin, ESH	Ralph Fevig, AL Julian Biggers, AL (sub)
Criticality Safety **WHS/Crit-1**	R. Anderson, NIS S. Hale, NMT	Tom McLaughlin, ESH	Bill Bell, LAAO
Electrical Safety **WHS/Elec-1**	Jon Cross, CST Ray Jermance, NIS Mike Thuot, AOT Members of the Electrical Safety Task Force: James Anderson, ESA Richard Bartsch, P Darrell Fong, AL Steve Francis, CST Theodore Karki, NMT Jerry Paul, DX Randy Torres, JCI	Terry Fogle, ESH	Susan Mathews, LAAO
Energetic Systems (explosives, firearms, cryogens, compressed gases, magnetic fields, lasers, pressure, etc.) **WHS/Energ-1 (Firearms)** **WHS/Energ-2 (Lasers)** **WHS/Energ-3 (Explosives)** **WHS/Energ-4 (Pressure Safety)**	Mary Campbell, DX James Hoffer, MST Richard Larson, ESA Johnny Lovato, BUS Jerilyn Mosso, CST Bart Olinger, ESA Randy Putt, PTLA Steve Rivera, PTLA Ed Rodriquez, TSA Victor Sandoval, DX Bill Sprouse, FSS Jim Stapleton, ESH Dan Thomas, EES Jimmy Valdez, JCI	Roger Goldie, ESH Ron Hyer, ESH Paula Whitehead, ESH	Ed Christie, LAAO Allan Herrbach, ALO
Environmental Restoration and Decontamination & Decommissioning **WHS/ER-1** (Decontamination and Decommissioning) **WHS/ER-2** (Drilling)	Deba Daymon, EES Alan Pratt, EM Miguel Salazar, EM Miguel Velasquez, JCI	Oliver Wilton, ESH	Veronica Martinez, LAAO

Los Alamos & DOE Participants on Joint Focus Groups of ES&H Work Smart Standards Identification (ID) Teams

Focus Groups of Worker H&S ID Team (ID Team Leaders—Barbara Hargis, Steve Schreiber, Kim Thomas)	Lab Workers	Lab SME	DOE SME
Fire Protection/Life Safety **WHS/Fire-1**	Robert Bollman, NIS Charles Rense, NMT Tom Trezona, CIC Patrick Valerio, ESH	Jim Gourdoux, FSS	Tom Rush, LAAO
Food Sanitation **WHS/Food-1**	Todd Buonasera, Aramark Nancy Hall, Aramark Kimberly Zeilik, BUS	Debbie Baca, ESH	Kim Delman, AL
General Safety (burns, falling objects, falls, machine tools, etc.) **WHS/Gen-1 (Welding)** **WHS/Gen-2 (Machines)** **WHS/Gen-3 (Occupational Safety)** **WHS/Gen-4 (Lighting)**	Ignacio Medina, NIS John Palmer, JCI Bob Schuch, ESA	Phil Romero, ESH Jeff Hansen, ESH	Rudy Valdez, LAAO
Materials Handling (cranes, hoists, forklifts, etc.) **WHS/Mat-1**	Staley Hadden, P Dexter Lyerly, NIS Norris Martinez, JCI Robert Travis, BUS	Phil Romero, ESH	Tom Rush, LAAO
Occupational Medicine and Human Subjects (special medical surveillance [Be, Pb, etc.], PSAP, etc.) **WHS/Occ-1 (Occ Medicine)** **WHS/Occ-2 (Human Subjects)**	Angel Clark, JCI Ken Huff, PTLA	Hugh Smith, ESH Jerry Williams, ESH	John Ryan, LAAO
Physical Hazards (confined spaces, non-ionizing radiation, ergonomics, etc.) **WHS/Phy-1 (Confined Spaces)** **WHS/Phy-2 (Ergonomics)** **WHS/Phy-3 (Heat/Cold Stress Hazards)** **WHS/Phy-4 (Noise Hazards)** **WHS/Phy-5 (Nonionizing)**	Lee Bussolini, ESH Ann Collery, CST Gerry Edwards, CIC Grant Guymon, JCI Bill Hodges, ESH-WMM Jerry Langner, ESH John Lyles, ESA Dory Ryan, ESH John K. Vance, ESH Larry Lee Vaughn, AOT	Jeff Hollander, ESH Greg Rowell, ESH Gary Whitney, ESH	Kim Delman, AL

Radiation Safety **WHS/Rad-1**	Concha Collier, CST Glenn Bentley, CST Terry Vergemini, NIS Members of the Rad Prot. Pilot ID Team: Gordon Bergman, LC Thomas Buhl, ESH Joel Dahlby, CST Robert Devine, ESH Olin Van Dyck, AOT Kenneth G. Fellers, JCI Joseph M. Graf, ESH Steven J. Green, P Jimmy Harris, DOE Suzanne Helfinstine, CST Roger Huchton, ESH Sarah Hoover, ESH Jack J. Johnson, ESH Jerome A. Kunzman, ESH James Low, DOE/AL Thomas K. Marshall, CST J. Lee McAtee, ESH Robert McKaye, DOE Tom Mills, NMT Ron Morgan, ESH Evelyn M. Mullen, NIS Tom Pyburn, JCI Jennie Richardson, CST Louis Shulte, NMT Bruce Takala, DX Peter G. Veverka, ESH Jeff Whicker, ESH Roger Wisham, ESH	Richard Smale, ESH	Jimmy Harris, LAAO
Traffic, Vehicles, Special Purpose Vehicles, and Aviation **WHS/Traf-1 (Traffic Vehicles)** **WHS/Traf-2 (Aviation)** **WHS/Traf-3 (Traffic Design)**	Bruce Baca, NIS Ed Hoth, FSS Dexter Lyerly, JCI Dave McCollum, BUS B. J. Melloy, JCI Leroy Sanchez, FSS Bob Travis, BUS	Ron Hyer, ESH	Tom Rush, LAAO

Los Alamos & DOE Participants on Joint Focus Groups of ES&H Work Smart Standards Identification (ID) Teams

Focus Groups of Environmental Protection ID Team (ID Team Leaders— Doris Garvey, Wayne Hansen)	Lab Workers	Lab SME	DOE SME
Air (radioactive and nonradioactive emissions, etc.) **EP/Air-1 (Radioactive)** **EP/Air-2 (Public Health)** **EP/Air-3 (Emergency)**	Robert Keys, LANSCE Robert Romero, CST	Doug Stavert, ESH	Shiv Goel, AL S. Fong, LAAO
Natural Resources (NEPA, ecology, archeology, etc.) **EP/NR-1 (Ecology)** **EP/NR-2 (Cultural)** **EP/NR-3 (Environmental)** **EP/NR-4 (Soils)** **EP/NR-5 (Boating)**	Carey Bare, ESH Phil Fresquez, ESH R. Huchton, ESH David C. Keller, ESH T. Ladino, ESH Margaret A. Powers, ESH Bill Schueler, NMT Ann Sherrard, ESA	Bev Larson, ESH Rueben Rangel, ESH Bob Vocke, EM Diana Webb, ESH	Dean Triebel, LAAO
Packaging and Transportation (hazardous/chemical, radioactive, waste, classified, etc.) **EP/P&T-1 (Off-Site)** **EP/P&T-2 (Intra-Site)**	Dan Oakley, EM Randy Rowan, ESA Diana Sena, NMT	Tim Cash, BUS D. McCollum, BUS Pat Myers, BUS Tim Stone, BUS	James Nunz, LAAO Roy, Lybarger, NSD Carey Loflin, AL
Surface and Groundwater (NPDES, stormwater, etc.) **EP/SGW-1 (Surface Water)** **EP/SGW-2 (Ground Water)** **EP/SGW-3 (Drinking Water)** **EP/SGW-4 (Liquid Releases)** **EP/SGW-5 (Pesticides)** **EP/SGW-6 (Waste Water Discharge)**	Mike Alexander, ESH Bob Beers, ESH Charlie Barnett, JCI Michael Brown, JCI Charlie Nylander, ESH Mike Saladen, ESH Ann Sherrard, ESA	Steve Rae, ESH	Karen McAda, AL
Waste (hazardous/chemical, biological/medical, low-level and mixed low-level radioactive, TRU, classified, "legacy," etc.) **EP/Waste-1 (TRU)** **EP/Waste-2 (Low-Level)** **EP/Waste-3 (Polychlorinated)** **EP/Waste-4 (Environmental)** **EP/Waste-5 (Industrial)** **EP/Waste-6 (Waste Oil)** **EP/Waste-7 (Mixed Waste)** **EP/Waste-8 (Underground)** **EP/Waste-9 (Hazardous)**	Larry Maassen, EM Johnny Harper, CST Juan Corpion, CST Scott Downing, LS Charles Foxx, NMT Mandy Fuehrer, EM Charles Peper, EM-SWO	Jim White, ESH	James Nunz, LAAO
Waste Minimization and Pollution Prevention **EP/P2-1**	Sam Pillay, NMT Tony Grieggs, ESH David Jamriska, CST Ron Morgan, ESH Mandy Fuehrer, EM Richard Perkins, JCI	Tom Starke, EM	Ron Dobbs, AL Patty Bergland, DOE/LAAO

Los Alamos & DOE Participants on Joint Focus Groups of ES&H Work Smart Standards Identification (ID) Teams

Focus Group of Emergency Preparedness & Management ID Team (ID Team Leaders— Bill Flor, George VanTiem)	Lab Workers	Lab SME	DOE SME
Emergency Preparedness and Management **EP&M/EPrep-1** **EP&M/EMng-2** **EP&M/EPlan-3** **EP&M/ERes-4**	Gene Darling, FSS Manny L'Esperance, JCI Paul Nelson, ESH Nick Nicholson, NWT Gerry Ramsey, FSS Mike Terrill, PAO David Volz, ESH	Bill Flor, ESH George VanTiem, FSS	Rudy Valdez, LAAO

Los Alamos & DOE Participants on Joint Focus Groups of ES&H Work Smart Standards Identification (ID) Teams

Focus Groups of Facilities ID Team (ID Team Leaders— Wayne Fisher, Rich Mah)	Lab Workers	Lab SME	DOE SME
Facility Design **FAC/Des-1**	Robert Gonzales, NMT Mike Nicolini, FSS Emilio Racinez, FSS Richard Roybal, JCI Jeff Schroeder, FSS	John Tegtmeier, DX	Bruce Elsner, AL
Facility Operations **FAC/Ops-1**	Robert Gonzales, NMT Mike Nicolini, FSS Emilio Racinez, FSS Richard Roybal, JCI Jeff Schroeder, FSS Emilio Racinez, FSS Rick Rivera, CIC Mike Ziehmn, MST Martha Zumbro, AOT	John Tegtmeier, DX Scott Walker, ESH	Bruce Elsner, AL Steve Payne, AL
Accelerator Facilities **FAC/Accel-1**	Emilio Racinez, FSS Rick Rivera, CIC Mike Ziehmn, MST Martha Zumbro, AOT	Scott Walker, ESH	Steve Payne, AL
Nuclear Facilities **FAC/Nuc-1**	Jay Boettner, DX Martin A. Bowidowicz, ESH Terry Buxton, ESA Mike Chochoms, EM Evelyn Mullen, NIS Christine Nelson, ESH David Post, NMT	H.Howard, ESH	Chris Steele, LAAO

Attachment 6

Attachment 6a

Confirmation Team Results

To: rglass@doeal.gov, grunkle@doeal.gov, gwerkema@doeal.gov, cooper@nv.doe.gov, paulrice@ix.netcom.com, rllong@msn.com, herbertd@nsc.org, jack_bartley@ehssmtp.lbl.gov, phil_thullen@lanl.gov, day_r@lanl.gov, tgunderson@lanl.gov, palmer_p_john@lanl.gov, pselde@lanl.gov
From: Carl Ostenak <carlo@lanl.gov>
Subject: SUCCESSFUL CONFIRMATION OF LOS ALAMOS ES&H WORK SMART STANDARDS
Cc: sh@lanl.gov, btwining@doeal.gov, ttodd@doe.lanl.gov, vozella@doe.lanl.gov, kboardman@doeal.gov, dennis.miotla@hq.doe.gov, maggie.sturdivant@hq.doe.gov, howard_hatayama@laobridge.ucop.edu, jlmcatee@lanl.gov, bstine@lanl.gov, derickson@lanl.gov, waynef@lanl.gov, mah@lanl.gov, dgarvey@lanl.gov, hansen_wayne_r@lanl.gov, kwthomas@lanl.gov, sschreiber@lanl.gov, hargis_barbara_c@lanl.gov, wjflor@lanl.gov, vantiem_george_a@lanl.gov, torig@lanl.gov, lspteam@lanl.gov
Bcc:

Dear Confirmation Team Members,

As of late last Friday, all 13 of you have now given your "thumbs up" on confirmation of the Los Alamos ES&H Work Smart Standards. Soon the "package" will be sent for two weeks of external stakeholder review and then, upon comment disposition, approval by Sig Hecker, Tom Todd, and Bruce Twining for contract modification. This confirmation achievement, with its far-reaching positive implications, reflects your enormous effort and steadfast commitment to the success of Los Alamos National Laboratory. You have contributed substantially to accomplishing the Laboratory Standards Project and thereby to performing all Laboratory work safely through Integrated Safety Management. Because of your strong continued interest, I'll keep you posted on our progress and will provide you with a copy of the approved final package. You're truly an exemplary team!

My sincerest thanks to each of you!

Very best regards,
Carl, Leader
Laboratory Standards Project

To: rglass@doeal.gov, grunkle@doeal.gov, gwerkema@doeal.gov, cooper@nv.doe.gov, paulrice@ix.netcom.com, rllong@msn.com, herbertd@nsc.org, jack_bartley@ehssmtp.lbl.gov, phil_thullen@lanl.gov, day_r@lanl.gov, tgunderson@lanl.gov, palmer_p_john@lanl.gov, pselde@lanl.gov
From: Carl Ostenak <carlo@lanl.gov>
Subject: CONFIRMATION OF LOS ALAMOS ES&H WORK SMART STANDARDS
Cc: jvozella@doe.lanl.gov, kboardman@doeal.gov, dennis.miotla@hq.doe.gov, maggie.sturdivant@hq.doe.gov, howard_hatayama@laobridge.ucop.edu, jlmcatee@lanl.gov, bstine@lanl.gov, derickson@lanl.gov, waynef@lanl.gov, mah@lanl.gov, dgarvey@lanl.gov, hansen_wayne_r@lanl.gov, kwthomas@lanl.gov, sschreiber@lanl.gov, hargis_barbara_c@lanl.gov, wjflor@lanl.gov, vantiem_george_a@lanl.gov, torig@lanl.gov, lspteam@lanl.gov
Bcc:

Dear Confirmation Team Members,

I wish to convey, once again, my sincere gratitude to each of you for your thorough and thoughtful review of the "Integrated Response to Confirmation Team Issues," dated May 20, 1997, which was developed and sent to you following your April 22 meeting in Los Alamos. As you well know, the Laboratory Standards Project is vital to achieving Integrated Safety Management (ISM) at Los Alamos and thereby performing all Laboratory work in a manner that protects the workers, the public, the environment, and facilities. Your continued commitment to help us achieve our ISM goal is greatly appreciated and essential to the Laboratory's success.

Seven of you -- Jack Bartley, Tim Cooper, Bob Day, John Palmer, Pete Selde, Phil Thullen, and George Werkema -- agreed with the "Integrated Response to Confirmation Team Issues" and expressed your readiness to confirm the proposed set of institutional ES&H Work Smart Standards for Los Alamos. The rest of you offered the comments shown below and then, following discussion, agreed with their resolution as also shown. All of you have now requested that we try to bring "electronic" closure to confirmation. Hence, please review the comments below, and then review the confirmation language proposed by some of your teammates (next paragraph). If this confirmation language is satisfactory, please affirm your confirmation simply by adding your name directly below it as shown. If you feel strongly that certain changes should be made to the confirmation language, please indicate those changes needed to obtain your confirmation. Finally, please e-mail your response to me by July 11.

Proposed confirmation language:
"Subject to effective implementation of Integrated Safety Management, including effective application of standards in the work place and preparation of those standards needed that do not yet exist, we believe this set of institutional ES&H Work Smart Standards can reasonably be expected to provide adequate protection of the workers, the public, the environment, and facilities at Los Alamos."
(Your Name)

Many thanks and... !!!Happy 4th of July!!!

Very best regards,
Carl, Leader
Laboratory Standards Project

Final Comment Resolution

1. Rick Glass offered the following comments:
Regarding all issue sheets: Delete the terms "as applicable," "as appropriate," and "as required" where they appear in Blocks 6, 10, and 13 of the individual issue sheets because these are umbrella terms that apply to the entire institutional set of ES&H Work Smart Standards.
Resolution: Agree.

Regarding issue sheet WHS/Bio-1: The scope of Block 1 appears larger than the scope of identified Work Smart Standards.
Resolution: The WHS ID Team reexamined the work and associated biosafety issues/hazards and reaffirmed that there are no applicable legal requirements that establish specific issue/hazard controls. They also concluded that Block 10 should cite only the OSHA General Duty Clause and that, in the absence of applicable industry standards, the Lab's Biosafety Plan should be cited in Block 13 to provide sufficiency.

Regarding issue sheet WHS/Elec-1: For accelerator operations, are the selected industry standards shown in Block 10 sufficient?
Resolution: Yes. The WHS and FAC ID Teams have reaffirmed the adequacy of the selected standards as implemented through the new Los Alamos Electrical Safety Program.

Regarding issue sheet WHS/Gen-1: In view of the recent Oak Ridge fatality, are the selected industry standards shown in Block 10 sufficient for welding, brazing, and cutting?
Resolution: Yes. The WHS ID Team has reaffirmed the adequacy of the selected OSHA and NFPA standards. However, effective implementation of Integrated Safety Management is crucial to identifying work-specific hazards and implementing appropriate hazard controls for meeting multiple safety expectations, e.g., radiation and fire safety. Inadequate hazard assessment and failure to post a fire watch contributed significantly to the Oak Ridge tragedy. Current Lab practices address these concerns.

Regarding issue sheet WHS/Rad-1: Have the two exemption requests referenced in Block 8 been approved yet?
Resolution: No. Though the Los Alamos Radiation Protection Program that implements 10 CFR 835 was recently approved by DOE, the two exemption requests submitted to DOE are still under review.

Regarding issue sheet EP/Air-1: Why call out "...and Stacks (Radiological)" in Block 1?

Resolution: The Laboratory is required to monitor only radiological (vs. nonradiological) stacks. For clarity, Block 1 now reads, "Radioactive and Non-radioactive Air Emissions, Ozone-Depleting Substances, and Monitoring of Radiological Stacks."

Regarding issue sheet FAC/Des-1: Simplify and clarify Block 1 text, including relationship with accelerator and nuclear facilities.
Resolution: The new Block 1 text reads, "Los Alamos facilities, structures, systems, and components must be designed to meet the standard industrial expectations for the provision of utilities, services, and control and mitigation of hazards. Hazards at Los Alamos are widely varied in both type and potential severity. Examples of issues that must be addressed by facility design include: Aboveground storage tanks (including non-PCB transformers); boilers and heaters; communications (telephone lines, network systems, etc.); drains and sinks plumbing; electrical utilities tie-in; erosion control; fire protection; high-pressure steam systems; means of egress; natural gas systems; underground storage tanks; wastewater; and natural phenomena hazards. Design features that are unique to accelerators or nuclear facilities are supplemental to these design considerations and are addressed by other issue sheets."

Regarding issue sheet FAC/Ops-1: Because DOE Order 5700.6c, Quality Assurance, was selected, modify the Block 13 text by deleting the reference to quality management in the first LPR citation. Also, modify the Facilities Justification so that the subject LPR is not misinterpreted as replacing DOE Order 5700.6c and 10 CFR 830.120.
Resolution: Agree.

Regarding the Facilities Justification: (1) The first paragraph under Section II could be misinterpreted that each SME on the three focus groups had 100 years of experience; and (2) the third sentence of the first paragraph under "Nuclear Facilities" should be clarified with respect to why nuclear explosive safety was not included within the WSS scope.
Resolution: (1) This paragraph has been modified to convey that the combined work experience and subject matter expertise was over 100 person-years on each of the three focus groups; and (2) see the resolution of Paul Rice's last specific comment shown below.

Regarding WHS #7: The real-time response discusses the expectation for an annual review of consensus standards and DOE orders, but this annual review is not captured in the further action statement.
Resolution: The new response reads, "Applicable laws and regulations are automatically included in the contractual set upon their effective date. The Lab and DOE will continue to plan for the implementation of new laws and regulations. The Lab and DOE will also maintain cognizance of changes in DOE orders and consensus standards and will apply an N&S or N&S-like process to determine whether they should be included in the WSS set. The expectation is a joint DOE/Lab periodic (perhaps annual) review; however, either can bring forward new standards or issues at any time. This reflects the philosophy that the WSS set is "living" and will be subject to ongoing review and assessment, through Integrated Safety Management, to ensure its sufficiency for the work and associated hazards at Los Alamos." This response is now compatible with the further action statement that you referenced.

Regarding WHS #10: This issue raises a question about legal liability associated with adopting OSHA, and the answer refers to WHS #9. WHS #9 only addresses court decisions that apply specifically to the Lab and DOE enforcement of DOE-issued regulations. I don't think either 9 or 10 answer the question directly.
Resolution: Agree. The Lab will generally employ OSHA interpretations in meeting OSHA requirements. However, where the Lab and/or DOE disagree with an OSHA interpretation, they will jointly resolve the matter. Note that OSHA currently has no enforcement authority at the Lab.

Regarding WHS #23: The real-time response addresses storage of nuclear material with respect to waste, fire protection, and criticality. The further action discusses DNFSB 94-1, Safe Storage of Plutonium. I remain concerned that the answer does not appear complete. Waste, fire protection, and criticality are not the only technical concerns associated with nuclear material storage, and plutonium is not the only material to be concerned about.
Resolution: Agree. Your comment provided on May 6 contributed to preparing the updated response to WHS #23 included in the "Integrated Response to Confirmation Team Issues," dated May 20.

Regarding WHS #25: The further action states that the Team Leaders will modify their descriptions to implore readers to read the document as a whole. I agree with the philosophy of considering the set as a whole, but consider it the responsibility of the Process and Team Leaders to make a convincing case that this issue is adequately addressed.
Resolution: Agree. Your comment provided on May 6 contributed to preparing the updated response to WHS #25 included in the "Integrated Response to Confirmation Team Issues," dated May 20.

Regarding WHS #32: The further action indicates that the explanations in Block 10 will be revised to be more concise. The comment was that the explanations do not belong in Block 10 at all, and that the explanations do harm when placed in Block 10 because they make the citation ambiguous.
Resolution: Agree. Your comment provided on May 6 contributed to preparing the updated response to WHS #32 included in the "Integrated Response to Confirmation Team Issues," dated May 20.

Regarding EP #3: The further action states that the Team Leaders will coordinate a further response on surface impoundments, but I don't know what question is still open regarding surface impoundments.
Resolution: Agree. Your comment provided on May 6 contributed to preparing the updated response to EP #3 included in the "Integrated Response to Confirmation Team Issues," dated May 20.

Regarding EP&M #6: The further action states that the Team Leaders will describe the Lab's supporting role to FEMA. Sounds like the action relates more to deciding what role the Lab should play relative to FEMA instead of capturing the standard on how to establish the roles (or documenting the need to develop one).
Resolution: Agree. Your comment provided on May 6 contributed to preparing the updated response to EP&M #6 included in the "Integrated Response to Confirmation Team Issues," dated May 20. Further discussion after May 20 resulted in deleting the following two unnecessary sentences: "This system is used regardless of which agency has Incident Command. Federal agencies that could respond and assume Incident Command include the DOD, FBI, FEMA, and several others."

Regarding FAC #3: The issue states that the scope of nuclear facility safety is unclear, but I don't understand what is unclear about it. (I don't disagree with the comment, I would just like more information to better understand the specific issue being raised.)
Resolution: Agree. Your comment provided on May 6 contributed to preparing the updated response to FAC #3 included in the "Integrated Response to Confirmation Team Issues," dated May 20.

2. Tom Gunderson offered the following comment:
Regarding EP #7: The real-time response states that NEPA follow-up action is infrequent and part of the DOE/Lab management system. Does this mean that follow-up reviews to see if NEPA promises have been kept are infrequent? Or, does it mean that NEPA-promised mitigation actions are infrequent? Regardless of the interpretation, just because something is infrequent doesn't mean it should not be done or should be done less frequently. I am not familiar with how the "DOE/Lab management system" provides follow-up assessments to NEPA promises. I have never seen such follow-up. The problem with this response is that not all NEPA-promised mitigation actions are at facilities that have SARs (safety envelopes). Also, some NEPA-promised mitigation actions are not at facilities, but are in open areas that have no safety envelopes. I would still like to see a more formal follow-up process.
Resolution: The new response reads, "Any environmental assessment or environmental impact statement that requires mitigation action plans is tracked by both Laboratory and DOE NEPA subject matter experts. Commitments for mitigation are tracked to closure. Mitigation Action Plan Annual Reports are provided to cognizant management and stakeholders and address progress in meeting mitigation commitments. The Laboratory supports DOE in meeting its NEPA responsibilities." Incidentally, the Laboratory has formally and contractually committed through its DOE-approved Integrated Safety Management document and companion implementation plan to establish and maintain Facility Safety Plans (FSPs), including safety envelopes for all facilities and their surrounding property, for each of its Facility Management Units (FMUs). This commitment is a governing expectation that is vital to performing work safely.

3. Dave Herbert offered the following comment:
Regarding EP #9: The response should indicate that risk management applies not only to air quality, but to process safety and emergency management.
Resolution: The new response reads, "The Environmental Protection Agency's 40 CFR 68, which is included in the Laboratory's set of Work Smart Standards, establishes accidental-release prevention requirements. These risk management requirements apply to process safety, emergency management, and air quality."

4. Bob Long offered the following comments:
I have reviewed the "Integrated Response to Confirmation Team Issues" and the Revised (Rev.1) Goal 1 Focus Group Documentation with accompanying justifications. The Lab's ID Teams/Focus Groups have done a fine job of cleaning up and clarifying the problems with the Goal 1 Focus Group Documentation. Major editing changes were accomplished and the documentation now appears to be consistent and hopefully accurate (with respect to all the citations and references, which I am unable to verify). I have a few specific comments, as follows:

The materials you sent us did not include rewrites of introductory materials nor "revisions" of ..."Concerns from Murder Board", although you do state that all references to "Murder Board" have been deleted. Will the Confirmation Team eventually be given a copy of the final document containing all revised/final versions of WSS?
Resolution: Yes. Thank you for your strong continued interest.

The Table titled "Crosswalk of Los Alamos Work-Related Hazards and Organization" seems to be a mix of "hazards" - e.g., allergens, asbestos, etc. and "activities" - e.g., animal research, biological ecology, etc., which may or may not have hazards associated with them. So I guess the matrix with organizations means these particular organizations are exposed to the hazard or engage in a particular activity. Another example, "machine guarding" is listed, but hardly seems like a "hazard". The "absence of machine guarding" could be a hazard. "Radiological Emergency Response," if done correctly, mitigates the hazard. If not done correctly, it might exacerbate the hazard. Is there need for clarification, e.g., a different title?
Resolution: Yes. We have decided to adopt the term "issue" vs. "hazard," which is more precise and is consistent with the language in Block 1 of the issue sheets. All documentation will be modified to reflect this.

Has every worker at the Lab been given a copy of the ISM document? (If asked, could every worker describe their ISM responsibilities or at least say where they could be found, i.e., in the ISM document? Similarly, could every "supervisor" describe their responsibilities under ISM?)
Resolution: The ISM document has been made available to all employees at the Lab and the Lab Director has required all supervisors to meet with each of their workers to discuss the meaning of ISM and the application of its five core functions -- define the work, identify the hazards, identify/implement hazard controls, perform the work, review/improve performance -- in performing all Lab work. However, it's virtually certain that not all employees fully understand their ISM responsibilities. Hence, the Lab is continuing to develop and implement an ISM communications plan, including safety briefings, safety training, and the ~~1st~~ 2nd Annual Lab-Wide Safety Days (July 16-18, 1997), to achieve this essential goal. Clearly, the success of ISM depends on the entire workforce understanding, implementing, and reinforcing it everyday!

Are all the documents listed in the ISM Appendix C listed in one place or another of the Goal 1 Focus Group issue sheets? If not, have (or will) those not listed be deleted/canceled?
Resolution: The current ISM plan does not call for listing them all on the issue sheets. Instead, many of the institutional ES&H documents listed in the ISM Appendix C are currently being revised in content and format and renamed Laboratory Performance Requirements (LPRs), Laboratory Implementing Requirements (LIRs), and Laboratory Implementing Guidance (LIGs). After confirmation and approval of the institutional set of ES&H Work Smart Standards, the Lab's entire hierarchy of subordinate documentation -- from internally developed/approved institutional LPRs through activity-specific SOPs -- will be further reviewed and, as appropriate, revised to ensure that the safety expectations in these documents are consistent with and support meeting the ES&H Work Smart Standards. Note that, because LPRs are the highest level internal governing documents, they will reference the individual ES&H Work Smart Standards that "drive" them. However, because issue sheets are not governing, they will not list all associated institutional documents. Finally, all institutional documents (LPRs, LIRs, and LIGs) are, upon approval, currently being issued and maintained electronically on the Lab's Home Page under Official Documents (see the Operations Requirements/Guidance web site).

Regarding the Todd memo dated February 5, 1997, addressed to various non-Lab, non-DOE stakeholders, did any of these persons ask to receive copies of the institutional set of ES&H Work Smart Standards? What feedback was provided, if any?
Resolution: Yes. The New Mexico Environment Department requested that a copy of the institutional set of ES&H Work Smart Standards be provided to them following confirmation. This was in response to the referenced Todd memo committing DOE, following confirmation, to notify the identified stakeholders when the institutional set of ES&H Work Smart Standards is placed in public reading rooms for review and comment.

From my reading of revised material, dated 5/19/97, I am uncertain that my questions regarding focus groups were clear. You seemed to have focused on SMEs dominating the groups. I am more concerned about workers dominating the groups. Our utility experience has shown that long-term employed skilled workers may have followed unsafe work practices for years... and they will advocate and defend these practices with great vigor. Hopefully, the workers also "...did not drive the standards identification process."
Resolution: Neither the SMEs nor the workers unilaterally drove the identification of standards. Great effort was taken to ensure a level playing field. This will be stated more clearly.

There are still a few places where "regulations are chosen." I have faxed suggested corrections to these pages, along with one other page having a typo.
Resolution: Thank you. We wish to avoid the term "choose" to prevent the misperception of "picking and choosing" and to reinforce that we are committed to obey all applicable federal, state, and local laws and regulations.

EP/P&T-1, 2 and 3 refer to the Lab Packaging and Transportation Manual. These forms do not say whether this Manual currently exists or needs to be developed.
Resolution: The subject Manual exists and is currently being updated. This will be clearly stated on the referenced issue sheets.

Depending on the language, I am prepared to sign a Confirmation Team affirmation that "Subject to completion of commitments and effective application of the standards in the work place, we believe this institutional set of ES&H Work Smart Standards can reasonably be expected to provide adequate protection of the workers, the public, the environment, and the facilities at Los Alamos."
Resolution: Thank you. This is reflected in the proposed confirmation language shown on the first page of this e-mail.

5. Paul Rice offered the following comments:
General Comments: (for information, not resolution)
I am comfortable with the substantial improvements you and your teams have made in the individual ID team justifications.

Your work to upgrade and clarify the issue sheets has been successful and, with the exception of a couple of specific questions/comments listed below, the issue sheets are now clear, consistent and, I believe defensible.

I am generally satisfied with the "response to issues" subject to the resolution of the related specific comments noted below.

Since the Confirmation Team is diverse in individual members' expertise and rely on each other to insure proper review and resolution of specific and process issues, I consider that the comments/concerns of each member should be provided to all members of the team, along with any changes that resulted from the team member's comments. If this process, along with obtaining consensus on the agreement document (and sign-off), is likely to become very iterative and cumbersome, I would agree to getting together with the team for final reconciliation and sign-off.

Specific Comments:
Regarding WHS #28: The response on accident investigations does not completely satisfy my concern. Few would argue that accident investigations and their outcomes are important elements to any holistic ES&H program. Since you have made the decision to incorporate the accident investigation requirements in another "set", I believe that the "ES&H set" process description or justifications should at least contain a clear description/map of the linkage to other standards/requirements that most safety professionals would consider to be very important to an holistic ES&H program.
Resolution: The new response reads,"The DOE orders on accident investigations and occurrence reporting will continue to be in the UC/DOE contract as governing management expectations and will complement the set of institutional ES&H Work Smart Standards. These DOE orders and the Work Smart Standards will be subject to ongoing review and assessment, through Integrated Safety Management, to ensure their sufficiency for the work and associated hazards at Los Alamos." Their linkage will be reflected in the process documentation. (Also see the "Mapping of Current and Proposed Appendix G Requirements to DOE Orders and Rules of Interest to the DNFSB," which was provided earlier to the Confirmation Team, and the resolution of Gene Runkle's second comment shown below.)

Regarding GEN #5: Responsibilities assigned to line management and facility management leave me with a concern similar to that in the above comment. In this case my concern is more pointed since many failures in the safety arena (including the Lab) boil down to poorly defined or poorly understood expectations in the area of roles and responsibilities. While the scope of roles and responsibilities go far beyond ES&H issues, the governing expectations (standards) for ES&H related roles and responsibilities are crucial for performing work safely. This area is somewhat more complex than in my comment above, in that, many of the individual standards in the ES&H set contain specific and general requirements for roles and responsibilities and the issue would have resolved itself if you had decided to incorporate DOE 5480.19. A satisfactory resolution may be the "clear description" suggestion discussed above.
Resolution: The new response reads,"The Laboratory has formally and contractually committed through its DOE-approved Integrated Safety Management document and companion implementation plan to establish and maintain clear lines of responsibility, authority, and accountability at the institutional, facility-specific, and activity-specific levels so that everyone understands their individual and organizational ES&H roles. This commitment is a governing expectation that is vital to performing work safely." This will be reflected in the process documentation.

Regarding the EP/P&T issue sheets: The statement "The University of California is considered to be an entity of the government of the State of California" is in Block 15. I cannot understand the meaning or significance of these statements that only appear in the packaging

and transportation issue sheets.
Resolution: The referenced statement is factual for the entire UC/DOE contract. Hence, it was deleted from the subject issue sheets.

Regarding the Facilities Justification: I agree in principle with the discussion concerning the strategy for dealing with conduct of operations and facility start/restart as LPRs incorporated into the contract as opposed to incorporating the specific DOE orders. However, since they are yet to be developed, the Confirmation Team agreement document needs to be crafted to take into account that the team agrees in principle but that the sufficiency of these standards will have to be determined by separate means. This comment also applies to several other Lab standards yet to be developed.
Resolution: Thank you. This is reflected in the proposed confirmation language shown on the first page of this e-mail.

Regarding the third sentence in the "Nuclear Facilities" section of the "Facilities Justification": The sentence reads, "Los Alamos did not include in its application of the necessary and sufficient process nuclear explosive safety because there are no industry/academia analogs." The logic of this sentence seems to fail since there are many other places where existing DOE requirements were selected and dealt with in the necessary and sufficient process due to lack of appropriate industry/academia analogs. In addition, lack of analogs should not prevent the examination of the existing DOE requirements against the necessary and sufficient test.
Resolution: We fully agree and have deleted the sentence. Instead, the text now accurately reflects that, though Los Alamos has no nuclear explosives, the DOE orders on nuclear explosive safety will continue to be in the UC/DOE contract as governing expectations to address work in support of other sites. Moreover, though these DOE/DP-promulgated orders were outside the scope of WSS, they will be subject to ongoing review and assessment, through Integrated Safety Management, to ensure their sufficiency. (Again, see the "Mapping of Current and Proposed Appendix G Requirements to DOE Orders and Rules of Interest to the DNFSB.")

6. Gene Runkle offered the following comments:
I have reviewed the input that you have developed as part of our Confirmation Team meeting on April 22, 1997. The package looks complete from my perspective with the following two comments:

Regarding WHS #10: With respect to OSHA interpretations, I might suggest that at least temporarily they be noted in Block 15 of the appropriate issue sheets as additional guidance for implementation.
Resolution: Agree.

Regarding WHS #28: For accident investigation, the response states that a DOE management order will remain for now in the contract. The current version of this order, DOE 225.1, has only a very minor section applicable to contractors, requiring that the accident scene be maintained and that support be provided to the accident investigation processes. Inclusion of these two or three items (see order for completeness) may fulfill your obligation from an accident investigation process.
Resolution: Agree. As noted above in the resolution of Paul Rice's first specific comment, the DOE orders on accident investigations and occurrence reporting will continue to be in the UC/DOE contract as governing management expectations and will complement the set of institutional ES&H Work Smart Standards. These DOE orders and the Work Smart Standards will be subject to ongoing review and assessment, through Integrated Safety Management, to ensure their sufficiency for the work and associated hazards at Los Alamos. During contract modification, the Lab and DOE will identify those DOE orders such as DOE 225.1 (Accident Investigations) that are to be included in the contract by citing their respective contractor requirements documents (CRDs), which define contractor responsibilities. For accident investigation, the Lab will continue to meet all of its CRD responsibilities, including maintaining the accident scene and supporting the accident investigation process. Additionally, the Lab's formal and contractual commitment to implement Integrated Safety Management requires continuous self-assessment to improve performance, including evaluation of incidents/accidents and determination of root causes/lessons learned.

Los Alamos
NATIONAL LABORATORY

Laboratory Standards Project
LSP, MS-C303
Los Alamos, New Mexico 87545
(505) 665-8989, FAX (505) 667-4967

Date: May 20, 1997
Ref: LSP-97-049

SUBJECT: INTEGRATED RESPONSE TO CONFIRMATION TEAM ISSUES

John

Dear Confirmation Team Members,

Once again, I wish to express my sincere appreciation to each of you for your thorough and thoughtful review and value-adding contributions at the April 22, 1997, Confirmation Team Meeting. As you well know, the Laboratory Standards Project is vital to achieving Integrated Safety Management (ISM) at Los Alamos and thereby performing all Laboratory work in a manner that protects the workers, the public, the environment, and facilities. Your strong support is helping us attain our essential ISM goal.

Since the April 22nd meeting, the ID Team Leaders and their respective Focus Groups have been actively and collectively addressing the issues that you raised. The additional feedback that many of you provided during the last few weeks was very helpful for ensuring that we were addressing your issues appropriately. Enclosed is our integrated response, including a full set of updated ID Team justifications and associated issue sheets. Please review our response and, if possible, let me know by Friday, May 30, whether it is to your satisfaction. If convenient for you, an e-mail reply to me at <carlo@lanl.gov> is desired. As soon as I've received your replies, I will inform you all of the outcome so that we can determine the best path forward for bringing closure to confirmation.

Your continued commitment to help us achieve our ISM goal is greatly appreciated and vital to the Laboratory's success.

Many thanks!

Very best regards,

Carl

Carl A. Ostenak, Leader
Laboratory Standards Project

CO/ls

Confirmation Team:
John Bartley, Lawrence Berkeley National Laboratory
Timothy Cooper, DOE/NV
Robert Day, DX-DO, P915
Richard Glass, DOE/AL, A906
Tom Gunderson, ESH-P&MPO, K491
David Herbert, National Safety Council
Robert Long
John Palmer, JCI, A199
Paul Rice, Paul Rice and Associates
Gene Runkle, DOE/AL, A906
Peter Selde, PTLA, G724
Phillip Thullen, DIR-OFC, A100
George Werkema, DOE/AL, WQD

Cy: **Convened Group:**
Karen Boardman, DOE/AL, A906
Howard Hatayama, UC
Lee McAtee, ESH-DO, K491
Dennis Miotla, DOE/HQ, DP-13
Barbara Stine, DX-DO, P915
Maggie Sturdivant, DOE/HQ, EH-10
Joe Vozella, DOE/LAAO, A316
ID Team Co-Leaders:
Wayne Fisher, FSS-DO, M720
Bill Flor, ESH-10, K542
Doris Garvey, ESH-EIS, M889
Wayne Hansen, EES-15, J495
Barbara Hargis, ESH-5, K486
Rich Mah, MST-6, G770
Steve Schreiber, NMT-2, E511
Kim Thomas, P-DO, D434
George Van Tiem, FSS-20, D426
Hillard Howard, LSP, C303
Denny Erickson, ESH-DO, K491
Dan Glenn, DOE/LAAO, A316
LSP File

Los Alamos Confirmation Team Meeting, April 22, 1997
- Responses to Issues -

Worker Health and Safety (WHS)

1. **Issue:** Did line workers participate in the N&S process? Did SMEs drive standards identification? Was balance achieved between them? Did we consider new ways of doing work that would eliminate hazards? (e.g., rad protection)
   Real-Time Response: Yes, knowledgeable workers actively participated in the process. SMEs did not drive parochial positions/decisions. All Focus Group members (Lab workers, Lab SMEs, and DOE SMEs) had an equal voice. Consensus was reached in all cases; no minority opinions were filed. Opportunities for modifying work to reduce and/or eliminate hazards will continue to be actively sought throughout implementation of Integrated Safety Management (ISM).
   Status: Open
   Further Action: Process Leader/ID Team Leaders will enhance language describing worker participation in the overall process description and ID Team justifications.
   Result: Each ID Team justification and the overall process description have been enhanced to better describe the substantial worker participation in the Laboratory's development of ES&H Work Smart Standards.
   Recommendation: ***Close issue.***

2. **Issue:** How did we qualify ID Team members?
   Real-Time Response: ID Team members were selected based on their knowledge and experience with the work and hazards at LANL. A comprehensive notebook of their individual qualifications was made available to the Confirmation Team for review.
   Status: ***Closed***

3. **Issue:** Did any work and/or hazards drop out inadvertently as a result of binning?
   Real-Time Response: No, we were careful in the binning process and where duplication was identified we kept that duplication until the ID Teams completed the identification of their standards and integrated their set. Additionally, matrices showing the "master listing" of work and associated hazards at the Lab and, separately, the hazards and associated Focus Groups were prepared and maintained to ensure that work/hazards/standards were not inadvertently lost or deleted. Note that the terms hazards and issues are used interchangeably.
   Status: ***Closed***

4. **Issue:** Does Los Alamos adequately capture the principles of OSHA's Process Safety Management (PSM) in the institutional set of ES&H Work Smart Standards (WSS)?
   Real-Time Response: The Lab's DOE-approved ISM Plan incorporates PSM principles. In addition, OSHA 29 CFR 1910.119, Process Safety Management, is included in the WSS set for those chemicals and explosives regulated by OSHA. Once approved, the WSS set must be met by all members of the Laboratory workforce irrespective of employer (including subcontractors). This establishes a level playing field for the safety expectations to be met for work performed at Los Alamos. Contractors and subcontractors are not allowed to perform work to lower safety standards than the WSS set.
   Status: Open

Further Action: WHS ID Team Leaders will coordinate/develop further response.
Result: The Laboratory currently has only one process that qualifies by type and scale to be under 29 CFR 1910.119, Process Safety Management. This is the chlorination process at the Sanitary Wastewater Treatment Plant. However, the application of PSM general principles extends far beyond this process and the simple inclusion of 29 CFR 1910.119 in the WSS set. Instead, PSM principles extend to a number of the Lab's existing safety management processes and to new processes currently being developed under formal ISM commitments. In combination, the Lab's existing and new safety management processes will establish a PSM-like approach for all work performed at Los Alamos, consistent with the Lab's DOE-approved ISM Plan, which is a governing document for performing work safely at Los Alamos. For facility-related work, the new Facility Work Control Process coupled with the new Laboratory Performance Requirements for Managing Facilities, the Subcontractor Management Program, Occurrence Investigations, Management Walkarounds, Performance Assessments, Preventive Maintenance, Emergency Management, and other Lab management processes closely mirror the elements of PSM, including hazard analysis, operating procedures, training, contractors, maintenance, QA, change control, incident investigations, emergency planning , and compliance audits. Additionally, the Safe Work Practices initiative defined in the Lab's ISM Plan is addressing the application of PSM principles to all experimental activities at Los Alamos. Also see FAC #4 for PSM application to nuclear facilities.
Recommendation: ***Close issue.***

5. **Issue:** Threshold limit values (TLVs) listed in the WSS are based on ACGIH standards. ACGIH standards are considered guidance not requirements. Why did you choose them as requirements and not guidance?
Real-Time Response: Focus Group deliberations concluded that ACGIH TLVs are the necessary standard to be protective of the workers. LANL is currently working to these standards and does not consider them burdensome. LANL recognizes the need to continually reassess updated external standards (e.g., new or revised consensus standards) and to consider them for inclusion in the WSS set.
Status: ***Closed***

6. **Issue:** Block 15 of the Chemical and Material Handling issue sheets call out NEPA. Do you mean NFPA?
Real-Time Response: Yes
Status: Open
Further Action: WHS ID Team Leaders will verify/list correct citation.
Result: Changed to NFPA to reflect original intent.
Recommendation: ***Close issue.***

7. **Issue:** How will LANL manage its approved WSS set to address changes to standards such as laws, regulations, and consensus standards?
Real-Time Response: Laws and regulations are automatically included in the contractual set upon their effective date. LANL and DOE will continue to plan for the implementation of new laws and regulations. The DOE and LANL will maintain cognizance of changes in DOE Orders and consensus standards and will apply an N&S or N&S-like process to determine whether they should be included in the WSS set. The expectation is a joint DOE/LANL periodic review; however, either can bring forward new standards or issues at any time.
Status: Open

Further Action: Process Leader will update the process description to reflect the philosophy that the WSS set is "living" and will be periodically reviewed and, as appropriate, updated to ensure its sufficiency for the work and associated hazards at Los Alamos.
Result: The process dexcription has been modified.
Recommendation: ***Close issue.***

8. **Issue:** Can LANL work to a higher set of safety standards than the WSS set?
Real-Time Response: Yes, consistent with cost-effective M&O obligations.
Status: ***Closed***

9. **Issue:** How does LANL expect to incorporate "case law" rulings into the application of the WSS set.
Real-Time Response: LANL will comply with all court decisions applicable to its work and hazards. Also, LANL and DOE will use their knowledge in the application of consensus standards. Where DOE is considered the regulator in addition to contract management, interpretation of standards will be jointly developed by LANL and the DOE. If differences occur, DOE will provide direction to LANL.
Status: ***Closed***

10. **Issue:** Does LANL have legal liabilities associated with adopting OSHA. In particular, will we be expected to conform with OSHA interpretations?
Real-Time Response: LANL and DOE will jointly look into this (including Denny Parzyck who suggested DOE/HQ assistance).
Status: ***Closed*** (See #9 above -- Vozella/Ostenak will further coordinate as needed.)

11. **Issue:** WHS/Chem-01.2e issue sheet addresses ventilation at the fume hood, where is the balance of the ventilation system design captured in the WSS set?
Real-Time Response: The nuclear ventilation system design is addressed in the nuclear facility issue sheet by DOE Order 6430.1a. The nonnuclear ventilation system design is addressed in the facility design issue sheet.
Status: Open
Further Action: WHS and FAC ID Team Leaders will confirm that the citations in the WHS/Chem-01.2e and FAC/Des issue sheets together provide the design standards for nonnuclear ventilation system design.
Result: Comprehensive design standards were cited by the FAC ID Team. The Uniform Building Code cited in the WSS set addresses ventilation design by referencing ASHRAE standards (see issue sheet FAC/Des-1).
Recommendation: ***Close issue.***

12. **Issue:** Were there any official minority opinions filed for the WSS set?
Real-Time Response: No official minority opinions were filed. Professional differences were openly and honestly discussed and, in all cases, consensus was achieved.
Status: ***Closed***

13. **Issue:** Do you need to pick up the DOE Fire Protection Manual in the WSS set?
Real-Time Response: No, the Fire Safety Focus Group reviewed the work and hazards and identified the WSS set sufficient for fire protection. The Focus Group acknowledged the value of this manual as guidance and therefore cited it in Block 15.
Status: ***Closed***

14. **Issue:** The WHS/Fire-01.2e issue sheet does not call out any "legal" fire protection requirements. Doesn't OSHA have some fire protection requirements that should be cited in Block 10? Is the Life Safety Code citation listed in Block 10?
Real-Time Response: We will review the OSHA citation for applicability and revise the issue sheet as appropriate. We'll also confirm that the Life Safety Code is included and, if necessary, revise the issue sheet.
Status: Open
Further Action: WHS ID Team Leaders will coordinate/develop further response.
Result: Issue sheet WHS/Fire-1 has been updated to include 29 CFR 1910 along with NFPA, which includes the Life Safety Code.
Recommendation: ***Close issue.***

15. **Issue:** OSHA is cited throughout the issue sheets in both Block 6 as a legal requirement and Block 10 as a consensus standard. Develop a consistent approach.
Real-Time Response: Agree and will correct.
Status: Open
Further Action: Process Leader, in cooperation with the ID Team Leaders, will review/revise issue sheets to show OSHA requirements in Block 10 and, where readily accessible (i.e., previously identified by Focus Groups), will cite specific OSHA sections associated with the issue(s).
Result: All OSHA citations are now shown in Block 10.
Recommendation: ***Close issue.***

16. **Issue:** Block 4 on all issue sheets states that citations listed in Block 6 are enforceable at the Laboratory. Does this include DOE or only other regulatory agencies promulgating the regulations?
Real-Time Response: The citations listed in Block 6 are those enforceable at Los Alamos by the agency(ies) of origin. DOE regulations that have gone through rulemaking are to be cited in Block 6 when applicable to the work and hazards. Similarly, regulations by EPA and other regulatory agencies having enforcement authority at Los Alamos should be cited in Block 6. When identified as necessary for the WSS set, DOE requirements that have not gone through rulemaking and other external (e.g., consensus) standards will be shown in Block 10.
Status: Open
Further Action: Process Leader will update process description and Block 4 and 10 issue sheet language.
Result: Block 4 and 10 language has been modified to reflect the real-time response.
Recommendation: ***Close issue.***

17. **Issue:** How do we manage changes to the issue sheets?
Real-Time Response: LANL is managing changes to the issue sheets on a contolled database and will communicate changes to the Confirmation Team as appropriate.
Status: ***Closed*** (Note: Change control has been further simplified by including in the upper right-hand corner of each issue sheet a single identification number plus the corresponding revision number and date.)

18. **Issue:** WHS/Traf-03.2e doesn't describe a separate New Mexico manual on design. Is there one and, if so, do we need to add it?
Real-Time Response: The State of New Mexico does not have a separate manual and the standards identified are considered necessary and sufficient.
Status: ***Closed***

19. **Issue:** WHS/Traf-02.2e identifies DOE Order 440.2 in Block 14. You identified FAA standards in Block 6. Do you really need to cite the DOE Order?
Real-Time Response: The DOE Order is not required.
Status: Open
Further Action: WHS ID Team Leaders will review/revise issue sheet as appropriate.
Result: The issue sheet was updated to cite only the FAA standards.
Recommendation: ***Close issue.***

20. **Issue:** WHS/Occ-01.2e lists accreditation standards associated with professional certifications, e.g., nurses, doctors, pharmacists, etc. Is this appropriate?
Real-Time Response: No, we believe these are conditions of employment and not ES&H standards.
Status: Open
Further Action: WHS ID Team Leaders will revise issue sheet as appropriate.
Result: The issue sheet was updated to cite accreditation standards only as guidance in Block 15.
Recommendation: ***Close issue.***

21. **Issue:** Does the WSS set address unattended operations?
Real-Time Response: Not specifically. The Lab's ISM Plan and current Laboratory Performance Requirements (LPRs) for Managing Facilities provide coverage in this area. Neither are in the contract.
Status: Open
Further Action: WHS ID Team Leaders will coordinate/develop further response.
Result: The necessary and sufficient controls for unattended and attended operations are identified and implemented through application of the core functions defined in the Lab's DOE-approved ISM Plan. Also, the Lab is developing a contractual standard to address the principles embodied in DOE Order 5480.19, Conduct of Operations, and in DOE Order 5700.6C and 10 CFR 830.120 for nonnuclear and nuclear quality management, respectively (see FAC issues #1 and 7), which will address formality of all Los Alamos operations, attended and unattended.
Recommendation: ***Close issue.***

22. **Issue:** In the development of the WSS set, did we review the Lab's performance history to see if the effective application of the proposed WSS set could/would have prevented occurrences?
Real-Time Response: Focus Group members had-working experience, both line and SME, and knowledge of historical operations and occurrences at LANL to draw upon in identifying the WSS set for performing work safely. For Electrical Safety, there was an explicit tie-back to the history of performance at LANL. The follow-on goal to develop LPRs and Laboratory Implementing Requirements (LIRs) will continue to draw on operating experience, including knowledge of occurrences, to ensure that lessons learned are incorporated.
Status: ***Closed***

23. **Issue:** Where is the storage of nuclear materials addressed in the WSS set?
Real-Time Response: The storage of nuclear materials is addressed by the WHS ID Team (radiation protection, criticality safety, and fire protection), the EP ID Team (storage of waste containing nuclear materials), and the Fac ID Team (design of nuclear materials storage facilities).
Status: Open
Further Action: WHS and FAC ID Team Leaders will review the appropriateness of including DOE-STD-3013-94 (12/94, "Criteria for Safe Storage of Plutonium Metals and Oxides" - DNFSB Recommendation 94-1) in the WSS set.

Result: The standard referenced above has been added to the FAC/Nuc issue sheet because it applies to the long-term storage of plutonium metals and oxides within nuclear facilities. Because this type of storage is unique to nuclear facilities, this standard is above the baseline defined by the sum of the standards identified by the other three WSS ID Teams (WHS, EP, and EP&M) and the design and operations standards identified by the FAC ID Team (see FAC #3 for more baseline discussion). All storage of nuclear materials at Los Alamos must meet the baseline set of WSS and, where storage is in a nuclear facility, the incremental WSS unique to nuclear facilities. As a total set (baseline and incremental standards), the WSS establish the necessary and sufficient expectations for safely storing nuclear materials of all forms, types, and quantities in nuclear facilities. The specific controls for safe storage of nuclear materials will be identified and effectively implemented through application of the core functions defined in the Lab's DOE-approved ISM Plan, consistent with the approved WSS.
Recommendation: ***Close issue.***

24. **Issue:** Can the issue sheets be made more reader friendly?
Real-Time Response: Yes, and should be.
Status: Open
Further Action: Process Leader will review/revise issue sheets to provide additional clarity.
Result: Some global language on the issue sheets, including for Blocks 4, 10, and 13, has been revised to improve clarity.
Recommendation: ***Close issue.***

25. **Issue:** Issue Sheet WHS/ER-01.1 addresses D&D activities. Where is radiation protection or waste management for D&D covered?
Real-Time Response: The Radiation Safety and Waste Focus Groups both cite the WSS to cover this specific concern in their issue sheets. No single issue sheet(s) should be looked at in isolation , but must be considered along with the entire set of issue sheets to determine whether the cited standards are necessary and sufficient for the work and hazards.
Status: Open
Further Action: Process Leader/ID Team Leaders will revise process description and justifications to reflect the importance of looking at the WSS set as a whole in determining whether the standards cited are necessary and sufficient.
Result: The overall process description and ID Team justifications have been revised appropriately. Radiation protection, waste management, and other ES&H functional requirements pertaining to D&D activities at Los Alamos are captured in the baseline standards common to all Laboratory work. The D&D activities for accelerators and nuclear facilities at Los Alamos must also meet the incremental (above-baseline) standards (see FAC/Accel and FAC/Nuc issue sheets) that are necessary, in combination with the baseline standards, to achieve sufficiency for safely performing D&D activities in those facilities. The specific controls for D&D will be identified and implemented through effective application of the core functions defined in the Lab's DOE-approved ISM Plan, consistent with the approved WSS. See FAC #3 for more general discussion on baseline and incremental standards.
Recommendation: ***Close issue.***

26. **Issue:** WHS/Rad-01.2e issue sheet cites no reference to NRC standards, INPO guidance, and other industry standards. Why?
Real-Time Response: DOE 10 CFR 835 in its development took into account applicable external standards, including those cited above.
Status: Open
Further Action: WHS ID Team Leaders will address this in the justification.

Result: The subject issue sheet (see Block 15) and the overall WHS justification (see section titled Radiological Protection) have been modified. They now indicate that NRC standards and INPO guidance provided much of the foundation used to develop 10 CFR 835 and the Lab's DOE-approved Radiation Protection Program (RPP).
Recommendation: ***Close issue.***

27. **Issue:** Block 14 of issue sheets WHS/Gen-02, -03, and -04 do not adequately address the reason that the standards are necessary and sufficient.
Real-Time Response: Agree
Status: Open
Further Action: WHS ID Team Leaders will revise language in Block 14 to strengthen the justification.
Result: Block 14 has been modified to strengthen the justification.
Recommendation: ***Close issue.***

28. **Issue:** How do we address accident investigation?
Real-Time Response: An existing DOE management order will for now remain in the contract.
Status: ***Closed***

29. **Issue:** Issue Sheet WHS/Occ-02.1 addresses human subjects. Why is a DOE Order listed in Block 15? Do you really need it in addition to the legal requirements that are called out?
Real-Time Response: The DOE Order provides guidance helpful for Goal 2 (i.e., developing LPRs).
Status: ***Closed***

30. **Issue:** Issue Sheet WHS/Phy-02.2e addresses ergonomics. Why do you show OSHA's General Duty clause as a legal requirement (Block 6)?
Real-Time Response: Because there is no legal or consensus standard addressing ergonomics, OSHA often uses the General Duty clause to address ergonomic issues. LANL ergonomic program is currently addressing ergonomic issues and the draft LANL Ergonomic Standard is considered necessary and sufficient.
Status: Open
Further Action: Process Leader will move all OSHA citations to Block 10.
Result: See WHS #15.
Recommendation: ***Close issue.***

31. **Issue:** Issue Sheet WHS/Energ-03.2e covers explosives. Do the citations cover the storage of ammunition?
Real-Time Response: We will confirm that the DOE Explosives Safety Manual covers ammunition storage.
Status: Open
Further Action: WHS ID Team Leaders will confirm that storage of ammunition is covered.
Result: The DOE Explosives Safety Manual covers the storage of explosives, including ammunition, from a quantity vs. distance perspective (i.e., distance from operations). We have not identified any additional safety standards for storage of ammunition. However, current security standards address the storage and use of arms and ammunition, including personnel training/certification and access control.
Recommendation: ***Close issue.***

32. **Issue:** Issue Sheet WHS/Chem-01.2e has long explanations in Block 10 that don't appear needed. Also, are there any New Mexico standards that need to be cited?
Real-Time Response: We will confirm need for explanations in Block 10 and for any NM standards.
Status: Open
Further Action: WHS ID Team Leaders will coordinate/develop further response.
Result: The subject issue sheet has been appropriately modified.
Recommendation: ***Close issue.***

33. **Issue:** Issue Sheet WHS/Crit-01.2e covers criticality safety. Did we address the transportation of fissile material, including both plutonium and highly enriched uranium?
Real-Time Response: We believe so under EP/P&T (10 CFR 71) and will confirm.
Status: Open
Further Action: WHS ID Team Leaders will coordinate/develop further response.
Result: Under Packaging and Transportation (EP/P&T), 10 CFR 71 covers the packaging of fissile material and 49 CFR covers the transportation aspects.
Recommendation: ***Close issue.***

34. **Issue:** Block 11 on issue sheet WHS/Rad-01.2e is checked "no." Instead, Block 12 should be checked "no."
Real-Time Response: Agree
Status: Open
Further Action: WHS ID Team leaders will review/revise.
Result: The subject issue sheet has been appropriately modified.
Recommendation: ***Close issue.***

35. **Issue:** Issue sheets WHS/Energ-01.2e, -04.2e, and WHS/Mat-01.2e have language in Block 15 that implies that the guidance documents identified are required to make the WSS set sufficient.
Real-Time Response: Agree
Status: Open
Further Action: WHS ID Team Leaders will revise the language in Block 15 to reflect that the identified guidance documents are not required to be in the WSS set to achieve sufficiency.
Result: The subject issue sheets have been appropriately modified.
Recommendation: ***Close issue.***

36. **Issue:** Chemical process safety management addresses alarms, interlocks, and other safety expectations to control hazards for significant operations. Where do we identify similar safety standards in the WSS set?
Real-Time Response: We believe it is covered in the Facilities ID Team, but the detailed citations are not cited.
Status: Open
Further Action: WHS and FAC ID Team Leaders will coordinate/develop further response.
Result: Issue sheets FAC/Des-1 and FAC/Accel-1 include design standards (in particular, the Uniform Building Code and ANSI N43.3) for alarms, interlocks, and other engineered systems to control hazards in significant operations. Also, see WHS #4 for discussion on the Lab's incorporation of OSHA's Process Safety Management principles into safety management, including the Lab's DOE-approved ISM Plan.
Recommendation: ***Close issue.***

Environmental Protection (EP)

1. **Issue:** Packaging and Transportation is still being worked. Issue sheets need to be updated. For example, on P&T issue sheet 02 (Intra-site), why do we show 10 CFR 871 in Block 10? Shouldn't it be in Block 6?
   Real-Time Response: Agree with need to refine issue sheets.
   Status: Open
   Further Action: EP ID Team Leaders will coordinate/develop response. P&T issue sheets will be updated and provided to the Confirmation Team.
   Result: Three new issue sheets have been developed. They include the standards considered necessary and sufficient to address onsite, offsite, and intrasite packaging and transportation. Citations are shown in the appropriate issue sheet blocks.
   Recommendation: ***Close issue.***

2. **Issue:** How do we address environmental (in fact all ES&H) work done by LANL outside of LANL boundaries? Whose standards do we work to?
   Real-Time Response: We will check and add language as appropriate. Note that no work will be performed that cannot be performed safely--can't simply adopt non-LANL standards without consideration of sufficiency.
   Status: Open
   Further Action: Vozella/Ostenak to coordinate/develop further response working with Legal Counsel et.al. re. NTS ops, domestic ops, overseas ops, and working with industry. The process descriptions and justifications will be revised as appropriate.
   Result: Generally, Lab personel performing work at other sites must comply with the standards of the host site. However, Lab policy prohibits Lab personnel from performing work at any site (at the Lab or elsewhere) that cannot be performed safely. At NTS, the Lab works to Lab standards negotiated with DOE/NV.
   Recommendation: ***Close issue.***

3. **Issue:** Does SGW issue sheet 1.2e cover construction of surface impoundments?
   Real-Time Response: Facilities Design covers stormwater impoundments and EP covers EPA/NMED permitting for regulated impoundments. However, nonregulated impoundments (e.g., Fenton Hill Neutrino pools) might not be covered. -
   Status: Open
   Further Action: EP and FAC ID Team Leaders will coordinate/develop further response to see if surface impoundments are adequately addressed.
   Result: Surface impoundments are governed by New Mexico Water Quality Commission regulations. Specifically, 20 NMAC 6.2 is in the WSS set and addresses this issue. This regulation establishes requirements for groundwater protection plans for both regulated and nonregulated surface impoundments. Nonregulated surface impoundments come under the jurisdiction of regulated impoundments once they are modified or used.
   Recommendation: ***Close issue.***

4. **Issue:** Are Executive Orders required?
   Real-Time Response: No (per Legal Counsel)
   Status: Open
   Further Action: ID Team Leaders will consider dispositioning Executive Orders per Legal Counsel guidance.

Result: Executive Orders were moved to Block 15 as guidance to support development of LPRs and LIRs.
Recommendation: ***Close issue.***

5. **Issue:** Justification language implies "picking and choosing" of laws and regulations versus identifying those that are applicable for the Lab's work/hazards. Be sensitive to public perception.
Real-Time Response: Agree
Status: Open
Further Action: ID Team Leaders will review/revise justification language as appropriate.
Result: Justification language was modified to reflect that all laws and regulations in the WSS set were identified on the basis of their applicability to the work and associated hazards at the Lab.
Recommendation: ***Close issue.***

6. **Issue:** Block 14 of SGW issue sheets 1 and 2 and Waste issue sheet 1 does not cite DOE standards that were identified as necessary for the WSS set.
Real-Time Response: We will review language in Block 14.
Status: Open
Further Action: All ID Team Leaders will review and , as appropriate, revise language in Block 14.
Result: Block 14 was revised to reflect DOE standards that were identified as necessary for the WSS set based on the work and associated hazards at the Lab.
Recommendation: ***Close issue.***

7. **Issue:** Issue sheet NR-3.1 does not require follow-up review of mitigation actions to NEPA action. Is this wise?
Real-Time Response: NEPA follow-up action is infrequent and part of DOE/LANL management system.
Status: ***Closed***

8. **Issue:** Block 14 of EP issue sheets used the term "operating experience." Is this adequate language?
Real-Time Response: We'll update language in Block 14 to exclude the term "operating experience."
Status: Open
Further Action: EP ID Team Leaders will coordinate/develop further response.
Result: The words "operating experience" have been removed.
Recommendation: ***Close issue.***

9. **Issue:** Is there an EPA risk management standard (possibly citation 40 CFR 67?) that applies to waste management or, more broadly, environmental operations?
Real-Time Response: We will review/revise issue sheets as appropriate.
Status: Open
Further Action: EP and EP&M ID Team Leaders will coordinate/develop further response.
Result: The EPA Risk Management Program applies only to air quality, not waste management. The citation is 40 CFR 68. Both EP (Air-1) and EP&M (Prep-3) cite 40 CFR 68 as a necessary standard in the WSS set.
Recommendation: ***Close issue.***

10. **Issue:** Block 15 of Waste Issue Sheet 2.2e has a disclaimer sentence associated with FFCA. Do we need it? Do we need to include FFCA on any issue sheet?
Real-Time Response: We will reexamine.

Status: Open
Further Action: EP ID Team Leaders to coordinate/develop further response with Legal Counsel.
Result: FFCAs were moved to Block 15 as guidance to support development of LPRs and LIRs.
Recommendation: ***Close issue.***

11. **Issue:** Issue Sheet SGW-06.2e discusses tankage. Are septic tanks included?
Real-Time Response: Yes
Status: Open
Further Action: EP ID Team Leaders will add septic tank language (see Block 1) or revise other language to be less inclusive.
Result: Block 1 was revised to include septic tanks.
Recommendation: ***Close issue.***

12. **Issue:** Tom Gunderson provided a list of legal requirements that should be deleted from an EP issue sheet(s) because they're not applicable at LANL. Among these are several wildlife protection laws for game-warden enforcement.
Real-Time Response: We will revise issue sheets as appropriate. Also, LANL, unlike ORNL, does not allow public hunting on LANL property and therefore does not have game-warden enforcement authority for wildlife protection.
Status: Open
Further Action: ID Team Leaders will coordinate/develop further response with Legal Counsel, revising the affected ID Team justifications and issue sheets as appropriate.
Result: The subject legal requirements were deleted as not applicable.
Recommendation: ***Close issue.***

13. **Issue:** Do LANL facilities that operate in commercial space need local standards called out
Real-Time Response: No new standards are required. LANL meets federal or local standards, whichever are more stringent.
Status: ***Closed***

Emergency Preparedness and Management (EP&M)

1. **Issue:** 10 CFR 835 has training requirements embedded in it having to do with Emergency Preparedness. Do we need to add 10 CFR 835 citation in Block 6?
Real-Time Response: We believe there are such training requirements in 10 CFR 835 and will verify.
Status: Open
Further Action: EP&M ID Team Leaders to coordinate/develop further response.
Result: 10 CFR 835 has been added to Block 6. It is also fully invoked by the other EP&M issue sheets.
Recommendation: ***Close issue.***

2. **Issue:** The DOE 10 CFR 835 citation and RPP language need to be clarified. Add 10 CFR 835 citation in Block 6 and identify RPP language as needed.
Real-Time Response: Agree
Status: Open
Further Action: Process Leader/ID Team Leaders will review/revise "RPP" issue sheets as appropriate.

Result: The 10 CFR 835 citation and accompanying RPP language have been clarified as shown in Block 6 of all affected issue sheets.
Recommendation: ***Close issue.***

3. **Issue:** Does EPA have a risk management standard that applies to emergency response (citation might be 40 CFR 67?)?
Real-Time Response: If EPA has value-adding standard, we will add it.
Status: Open
Further Action: EP&M and EP ID Team Leaders will coordinate/develop further response.
Result: See EP #9.
Recommendation: ***Close issue.***

4. **Issue:** The fact that the EP&M scope includes management standards is not reflected in either the process description or the justification.
Real-Time Response: We will update the narrative to better reflect the scope.
Status: Open
Further Action: Process Leader and EP&M ID Team Leaders will coordinate/develop further response.
Result: The EP&M justification has been modified to reflect that management standards were included in the EP&M scope.
Recommendation: ***Close issue.***

5. **Issue:** For EP&M issue sheet 2.1 (ARG deployment), are DoD "loadmaster" requirements included? This has to do with design of equipment and packaging for loading on military aircraft.
Real-Time Response: No, but we'll determine if they need to be.
Status: Open
Further Action: EP&M ID Team Leaders to coordinate/develop further response.
Result: The subject issue sheet (Block 15) has been modified to reflect the interface with the "loadmaster" for determining configuration requirements early in the design of equipment.
Recommendation: ***Close issue.***

6. **Issue:** Regarding Emergency Management interface with FEMA (and other agencies) in preparation for and during an emergency, are there standards or descriptions that should be added to clarify this?
Real-Time Response: The DOE/AL Emergency Operations Center (EOC) coordinates any federal and/or other agency resource requirements for the Lab's EOC. The public generally expects FEMA involvement in any major emergency that could or does impact the public.
Status: Open
Further Action: EP&M ID Team Leaders will modify the justification to describe the Lab's supporting role to FEMA and other agencies during emergencies.
Result: The EP&M written justification has been updated to reflect, in general terms, the Lab's interface with other agencies during emergencies. Arriving federal and/or state agencies may support Los Alamos or, if they assume Incident Command, Los Alamos supports them. The establishment of Incident Command is defined by NFPA 1600 and by 40 CFR 355, both of which are included in the WSS set. The Incident Command System used at LANL is based on the on-scene management structure protocols of FEMA's National Interagency Incident Management System. The Incident Command System provides organizational structure, common terminology, uniform and consistent procedures, and coordinated communications for the on-scene emergency response. This system is used regardless of which agency has Incident Command. Federal agencies that could respond and assume Incident Command include the DOD, FBI, FEMA, and several others. All agencies that

respond to an emergency, and that do not assume Incident Command responsibilities, assume a support role by providing the Incident Command with resources and expertise as requested. This is the basic tenet of the Incident Command System.
Recommendation: ***Close issue.***

Facilities (FAC)

1. **Issue:** DOE Order 425.1 (Startup/Restart of Nuclear Facilities) cancels DOE Order 5480.31 but calls out DOE operations office promulgations (e.g., AL Supplemental Directive 5480.31 - Startup/Restart of AL Facilities [nuclear & nonnuclear]) and cites DOE Order 5480.19 (Conduct of Operations). By selecting all of 425.1, are we also accepting the embedded citations?
   Real-Time Response: We will reexamine.
   Status: Open
   Further Action: All ID Team Leaders to review full DOE Order citations to determine if embedded citations are value-adding or should be explicitly excluded.
   Result: The embedded DOE Orders were reviewed for inclusion in the WSS set and dispositioned as follows:
   1. DOE Order 5480.19 is not included in the WSS set but will be used as guidance in establishing a Laboratory Performance Requirement (LPR) for inclusion in the contract. This LPR will nominally be titled "Management of Operations" and will address the philosophies and principles of DOE Directives 5480.19, 5700.6C, and 10 CFR 830.120 (see FAC/Ops-1 issue sheet).
   2. AL Supplemental Directive 5480.31, "Startup and Restart of AL Facilities," is not included in the WSS set but will be used as guidance in establishing an LPR for inclusion in the contract. The FAC ID Team reviewed DOE Order 425.1 and concluded that it was necessary, but not sufficient, to address the startup and restart of nuclear facilities. They further concluded that sufficiency could be attained by gaining DOE approval of an existing LPR for inclusion in the contract: LPR 270-02, "Perform Assessment of Operating Limits and Startup Tests," applies to both nuclear and nonnuclear facilities (see FAC/Ops-1 issue sheet and the FAC justification).
   Recommendation: ***Close issue.***

2. **Issue:** The Device Assembly Facility (DAF) at Nevada has ES&H operating standards called out in the Nevada contract that require people doing work at DAF to follow (e.g., LANL workers at Nevada are expected to work to LANL standards--is this true?). How do we handle those standards or this issue?
   Real-Time Response: We will look into this.
   Status: Open
   Further Action: Process Leader/ID Team Leaders will address this issue and coordinate/develop further response.
   Result: See EP #2. The DAF ES&H standards are cited in the DOE/NV contract and, for DAF startup, include all of the applicable DOE Orders and Rules of interest to the DNFSB. Los Alamos must comply with all host-site standards, except where otherwise negotiated with NV following startup of DAF operations.
   Recommendation: ***Close issue.***

3. **Issue:** Scope of Nuclear Facility Safety Focus Group is unclear.
   Real-Time Response: We will clarify.
   Status: Open

Further Action: FAC ID Team Leaders and Process Leader to clarify justification and process description.

Result: The scope of nuclear facility safety has been clarified in the Facilities justification. Since the Confirmation Team meeting, the FAC ID Team has restructured its approach to clarify its entire scope. Specifically, there are now four focus group areas: Design, Operations, Accelerators, and Nuclear Facilities. The first two, Design and Operations, include standards that, in combination with the standards identified by the other three ID Teams (WHS, EP, and EP&M), make up the baseline set of ES&H WSS common to all Laboratory work. The Accelerators and Nuclear Facilities Focus Groups identified only the incremental (above-baseline) WSS that are considered necessary, in combination with the baseline standards, to achieve sufficiency for performing work safely in those facilities. Note that each ID Team justification now explains that the Laboratory's set of ES&H Work Smart Standards includes both baseline and incremental standards. For specific Laboratory work, it is essential that the entire institutional set of ES&H WSS be viewed as a whole when identifying the necessary and sufficient subset that is applicable and must be met. When effectively applied, the Laboratory's ES&H WSS can reasonably be expected to provide adequate protection of the workers, the public, the environment, and facilities. See Attachment I.

Recommendation: ***Close issue.***

4. **Issue:** How does the process safety management system work with respect to nuclear facility safety? Where do periodic reviews come into play and are there policies at the institutional level?
Real-Time Response: We will further examine this.
Status: Open
Further Action: All ID Team Leaders will coordinate a general response to process safety management at LANL, especially standards. The Nuclear Facilities Focus Group will describe how DOE Orders 5480.21, .22, and .23 combined with ISM address this issue for nuclear facilities.
Result: See the new FAC ID Team justification (Nuclear Facility section). Also see WHS #4.
Recommendation: ***Close issue.***

5. **Issue:** Where did we identify nonnuclear design criteria?
Real-Time Response: It is embedded in the WHS and EP issue sheets as appropriate for the design activity.
Status: Open
Further Action: FAC ID Team Leaders will cite nonnuclear design standards on the FAC/Des-1 issue sheet. The Process Leader and FAC ID Team Leaders will also reformat the Facilities issue sheets to include only design, operations, accelerator facilities (incremental standards only), and nuclear facilities (incremental standards only).
Result: Nonnuclear design standards are cited on issue sheet FAC/Des-1. The standards identified for facility design address ES&H issues normally encountered in the course of designing new or upgraded facilities at Los Alamos. These standards include the federal OSHA safety standards (29 CFR 1910), OSHA construction industry standards (29 CFR 1926), Uniform Building Code (UBC), Life Safety Code (NFPA 101), and the cited legal requirements. The DOE Standard 1020-94 and DOE Manual 440.1-1 are also included to address natural phenomena hazards and explosives hazards mitigation, respectively, to achieve a sufficient set of standards for facility design. These DOE documents provide requirements that are specific to the location and operations here at Los Alamos

and establish a level of protection equal to or greater than that provided by the UBC and NFPA when applied at Los Alamos. Note that the UBC and NFPA are cited instead of the cancelled DOE Order 6430.1A because the UBC and NFPA have similar content, but are kept current. The DOE Order 6430.1A provides a user-friendly reference to those commercial standards and therefore is cited as guidance. The Facility Design Focus Group determined that these standards, in combination with the other standards cited, are necessary and sufficient to provide adequate protection to workers, the public, the environment, and facilities.
Recommendation: ***Close issue.***

6. **Issue:** What are the current Appendix G DOE Orders and Rules of interest to the DNFSB relative to nuclear facilities and what will drop as a result of the WSS set.
Real-Time Response: We will assemble the list and show what drops.
Status: Open
Further Action: Vozella/Ostenak to coordinate/develop further response.
Result: See Attachment II mapping the subject DOE Orders and Rules to the Los Alamos WSS set.
Recommendation: ***Close issue.***

7. **Issue:** Why is DOE Order 5480.19 not included? Did we capture the principles in our WSS set?
Real-Time Response: The 18 principles in 5480.19 map directly into the selected QA directives (5700.6C & 10 CFR 830.120). Also, the Lab's ISM Plan is a governing document jointly approved by the Lab and DOE that describes a formal safety management system. Together, these form the basis for not requiring 5480.19.
Status: Open
Further Action: FAC ID Team Leaders will review based on the following comments. There is a view that institutional standards are required on procedures, i.e., if formal operations had been conducted, some of the accidents at LANL would not have occurred. Also, 5480.19 is not prescriptive in its language, but its application has been prescriptive by audit. (Revise justification language relative to prescriptiveness of 5480.19.) The Confirmation Team's recommended alternatives for consideration: 1) Leave 5480.19 in the contract until ISMS and the Facility Safety Plans are in place (12/24/98); 2) reference 5480.19 as guidance in Block 15; 3) utilize Oak Ridge language justifying exclusion of 5480.19 (not favored by majority); 4) develop a LANL standard on Conduct/Formality of Operations tailored to LANL work and hazards (favored); and 5) track formality of operations commitments through ISMS. Provide Confirmation Team with an approach.
Result: See FAC #1. The FAC ID Team agrees with the Confirmation Team regarding the best path forward.
Recommendation: ***Close issue.***

8. **Issue:** Does the proposed set of WSS address the startup of moderate to high-hazard nonnuclear facilities? Is AL Supplemental Directive 5481.1B (Safety Analysis and Review System) needed for nonnuclear facilities? (Note that nuclear facilities are covered by DOE Orders 5480.21, .22, and .23.) Do we need more of a process safety management system approach to start/restart nonnuclear facilities?
Real-Time Response: OSHA 29 CFR 1910.119 covers process safety management (PSM) and the Lab's ISM Plan jointly approved by the Lab and DOE describes a formal safety management system that requires hazard analysis for all operations, nuclear and nonuclear. Moreover, the ISM Plan includes an approved list of current nuclear and nonnuclear facilities requiring joint Lab and DOE authorization agreements. A hazard categories matrix, including criteria for determining when DOE involvement/approval is necessary for startup of a facility and/or activity, is currently being developed by the so-called R&D Working Group, which comprises LANL, LLNL, SNLA, DOE/AL,

and DOE/OAK. (Should also consider site-specific matrix.) Finally, performance criteria for the startup of all facilities is addressed in an existing Laboratory Performance Requirement (LPR).
Status: Open
Further Action: FAC ID Team Leaders to review this issue and coordinate a response. There was general agreement on the Confirmation Team that some form of a standard should be in the contract.
Result: See FAC #1. Issue sheet FAC/Ops-1 was updated to include a standard for the startup and restart of moderate to high-hazard nonnuclear facilities. Also, AL Supplemental Directive 5481.1B was added to address safety analysis and review of nonnuclear facilities. Regarding the Lab's application of PSM, see WHS #4.
Recommendation: ***Close issue.***

9. **Issue:** Do we need to require the training provisions of DOE Order 5480.25 in the contract?
Real-Time Response: QA directives (5700.6C and 10 CFR 830.120) are called out and considered sufficient to cover training.
Status: ***Closed***

10. **Issue:** For R&D/Accel Issue Sheet 1.2e, are high magnetic fields addressed by standards? In particular, ANSI 43.3, "Definitions"?
Real-Time Response: We will confirm.
Status: Open
Further Action: FAC ID Team Leaders to coordinate/develop further response.
Result: Yes, and the full citation for ANSI N43.3 is now shown in Block 10 of the FAC/Accel-1 issue sheet.
Recommendation: ***Close issue.***

11. **Issue:** For R&D/Accel Issue Sheet 10.1, is training covered by Nuclear issue sheet 01?
Real-Time Response: Yes
Status: ***Closed***

12. **Issue:** It is unclear how nuclear and R&D/Accel scopes are related. There are nuclear R&D operations within and outside of nuclear facilities. Where is nuclear addressed? Work the language to better describe the scopes. As written it could be confusing to the public.
Real-Time Response: Agree
Status: Open
Further Action: Process Leader/FAC ID Team Leaders to clarify language.
Result: See FAC #3 and the new WSS justification for the FAC ID Team.
Recommendation: ***Close issue.***

General (GEN)

1. **Issue:** The summary listing of standards includes some laws with titles that haven't been fully cited.
Real-Time Response: Agree
Status: Open
Further Action: Process leader will continue working with Legal Counsel to ensure that all standards are correctly cited.
Result: Lab Legal Counsel is continuing to review and refine the summary listing of the WSS set to ensure that the listing accurately reflects the content of the issue sheets and is not redundant.
Recommendation: ***Close issue.***

2. **Issue:** The draft confirmation signature sheet needs to be revised to reflect the meaning of the Confirmation Team signatures as discussed.
   Real-Time Response: Agree
   Status: Open
   Further Action: Vozella/Ostenak will revise and distribute the draft signature sheet for further review and concurrence by the Confirmation Team members. Per discussion, this redraft will (1) Address review of process, not just product; (2) strike words "reasonable assurance to worker..."; (3) add words that address limitation of scope "appropriate for institutional level" and not entire management system; (4) cite ISM as a major LANL commitment (i.e., Los Alamos is establishing and will continue...) and not as a "major assumption;" (5) reflect that if a standard needs to be developed, the Confirmation Team is simply confirming the need for that standard; and 6) review hardcopy comments.
   Result: Ostenak/Vozella will redraft the signature sheet after the Confirmation Team has reviewed the responses to the issues contained herein.
   Recommendation: ***Open issue.***

3. **Issue:** How do we complete the confirmation process?
   Real-Time Response: The consensus of the Confirmation Team was to address remaining issues through electronic media and/or hardcopy, as practicable. Everyone recognized there might be a need to reconvene, but believed it unlikely.
   Status: Open
   Further Action: Process Leader will facilitate/expedite the completion of confirmation.
   Result: Hardcopies of the updated issue sheets and associated justifications will be sent to all Confirmation Team members along with this package of responses to issues raised during the Confirmation Team Meeting. Feedback will be requested and the Process Leader will determine, based on this feedback, the best path forward for bringing closure to the confirmation process, including the need for another Confirmation Team Meeting.
   Recommendation: ***Close issue.***

4. **Issue:** LANL's one-page ISM "ES&H Commitment" includes language that LANL will "strive to eliminate injuries." Excellent ES&H organizations have a commitment to an "injury-free" workplace and believe that all injuries are preventable.
   Real-Time Response: Agree
   Status: ***Closed*** (Outside scope of WSS development and confirmation; Process Leader referred issue to the ISM Program Manager, Phil Thullen.)

5. **Issue:** Responsibilities assigned to line management and facility management are not clear.
   Real-Time Response: The Laboratory is currently working towards clarifying roles and responsibilities for all of ISM and is addressing the identified issue.
   Status: ***Closed*** (Outside scope of WSS development and confirmation; Process Leader referred issue to the ISM Program Manager, Phil Thullen.)

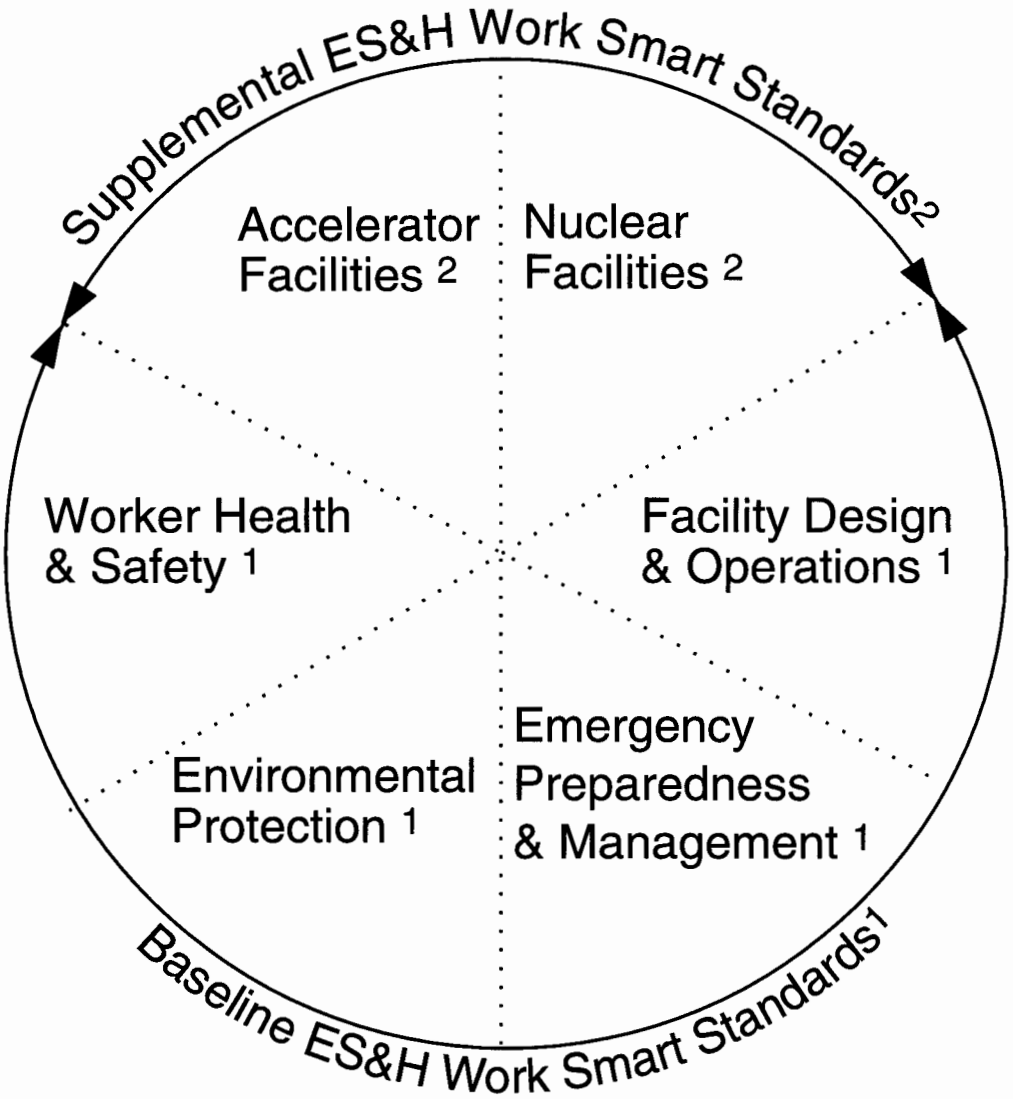
6. **Issue:** There is much discussion on hazards; however, risk is not explicitly addressed and the nuclear industry has learned that the focus should be on risk, which includes both probability and consequence of event.
   Real-Time Response: Agree and LANL and DOE are moving in that direction and believe that the identification of the work and associated hazards is a vital first step.
   Status: ***Closed*** (Outside scope of WSS development and confirmation)

7. **Issue:** The term "Murder Board" in Step 1 of confirmation carries baggage with the public and should be changed.
   Real-Time Response: Agree
   Status: Open
   Further Action: Process Leader will delete the term.
   Result: All documentation has been updated to exclude the term "Murder Board."
   Recommendation: ***Close issue.***

8. **Issue:** How does the WSS set tie to the facility- and activity-specific levels in ISM?
   Real-Time Response: The WSS set represents the institutional (Lab-wide) standards that each facility and activity must meet in establishing their specific requirements and controls for performing work safely.
   Status: ***Closed*** (Outside scope of WSS development and confirmation; Process Leader referred issue to the ISM Program Manager, Phil Thullen.)

Attachment I

Los Alamos Integrated Set of Institutional ES&H Work Smart Standards



1 Baseline ES&H Work Smart Standards common to all Laboratory work

2 Supplemental (above baseline) ES&H Work Smart Standards unique to accelerator facilities and, separately, nuclear facilities, both of which must also meet the baseline standards

Note: The Los Alamos set of ES&H Work Smart Standards will be met through effective implementation of the Laboratory's Integrated Safety Management System.

Attachment II

Mapping of Current and Proposed Appendix G Requirements to DOE Orders and Rules of interest to the DNFSB

Note (1). The same DOE Orders (new, old, or canceled) and Rules of interest to the DNFSB are currently cited in Appendix G. $X_{New\ Order}$ means that the Order in Appendix G addressing the DOE requirement is a new, three-digit Order. $X_{Canceled\ Order}$ means that the Order addressing the requirement is an old four-digit canceled Order. $X_{Old\ Order}$ means that the Order addressing the requirement is an old four-digit Order, not canceled.
Note (2). Those DOE Orders and Rules of interest to the DNFSB that were within the Work Smart Standards (WSS) scope and were deemed necessary to include, in part ($X_{Parts\ of\ New\ Order}$, $X_{Parts\ of\ Old\ Order}$, or $X_{Parts\ of\ Canceled\ Order}$) or whole (X), in the WSS set to achieve sufficiency. $X_{New\ Order}$ has the same meanings as in Note (1).
Note (3). Those DOE Orders and Rules of interest to the DNFSB that were within the WSS scope and were addressed by the WSS set of laws, regulations, and/or consensus standards (other than DOE Orders) deemed necessary to achieve sufficiency.
Note (4). Those DOE Orders and Rules of interest to the DNFSB that were outside the WSS scope and will be retained in Appendix G unless determined otherwise during contract modification. The contract negotiations also provide an opportunity to adopt only the Contractor Requirement Documents for the Orders outside the WSS scope. X_{TBD} means that, during contract negotiations, the determination can be made as to whether the new three-digit Orders should replace the canceled four-digit Orders currently included in Appendix G.

Current (5/2/97) DOE Orders and Rules of Interest to the DNFSB	Addressed by Current (5/97) Appendix G (1)	Addressed by Proposed Appendix G		
		WSS (2)	WSS (3)	Non WSS (4)
DOE O 151.1 COMPREHENSIVE EMERGENCY MANAGEMENT SYSTEM (Cancels 5500.1B, 5500.2B, 5500.3A, 5500.4A, 5500.5A, 5500.7B, 5500.8A, 5500.9A, 5500.10A)	$X_{Canceled\ Order}$	$X_{New\ Order}$	X	
DOE O 210.1 PERFORMANCE INDICATORS AND ANALYSIS OF OPERATIONS INFORMATION (Cancels 5480.26)	$X_{Canceled\ Order}$			X_{TBD}
DOE O 225.1 ACCIDENT INVESTIGATIONS (Cancels paragraphs 1 thru 5, 6a(1) thru (10), both 6f(1) thru (8), & second misnumbered 6f, and Chapters I and II of DOE 5484.1)	$X_{Canceled\ Order}$			X_{TBD}
DOE O 231.1 ENVIRONMENT, SAFETY, AND HEALTH REPORTING (Cancels SPECIFIC paragraphs in the following Orders: 5400.1, 5400.2A, 5400.5, 5440,1E, 5480.3, 5480.26, 5483.1A, 5484.1, 5630.12A, 5634.1B. See DOE O 231.1)	$X_{Canceled\ Order}$			X_{TBD}
DOE O 232.1 Occurrence Reporting and Processing of Operations Information (Cancels 5000.3B)	$X_{New\ Order}$			X

Current (5/2/97) DOE Orders and Rules of Interest to the DNFSB	Addressed by Current (5/97) Appendix G (1)	Addressed by Proposed Appendix G		
		WSS (2)	WSS (3)	Non WSS (4)
DOE O 251.1 DIRECTIVES SYSTEM	NO			
DOE O 420.1 FACILITY SAFETY (Cancels 5480.7A, 5480.24, 5480.28, & Division 13 of 6430.1A)	X Canceled Order		X	
DOE O 425.1 STARTUP AND RESTART OF NUCLEAR FACILITIES (Cancels 5480.31)	X Canceled Order	X New Order		
DOE O 430.1 Life Cycle Asset Management (Cancels the following after meeting (see 430.1) implementation conditions: 1332.1A, 4010.1A, 4300.1C, 4320.1B, 4320.2A, 4330.4B, 4330.5, 4540.1C, 4700.1, 4700.3, 4700.4, 5700.2D, 6430.1A)	X New Order		X	
DOE O 440.1 WORKER PROTECTION MANAGEMENT FOR DOE FEDERAL AND CONTRACTOR EMPLOYEES (Cancels 3790.1B except Ch VIII, 5480.7A, 5480.8A, 5480.9A, 5480.10, 5480.16A, & 5483.1A)	X Canceled Order	X Parts of New Order	X	
DOE O 441.1 RADIOLOGICAL PROTECTION FOR DOE ACTIVITIES	X Canceled Order		X	
DOE O 451.1 NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE PROGRAM (Cancels 5440.1E)	NO		X	
DOE O 452.1 NUCLEAR EXPLOSIVE AND WEAPON SURETY PROGRAM (Canceled by 452.1A)	X Canceled Order			X
DOE O 452.2 SAFETY OF NUCLEAR EXPLOSIVE OPERATIONS (Canceled by 452.2A)	X Canceled Order			X
DOE O 460.1 PACKAGING AND TRANSPORTATION SAFETY (Canceled by 460.1A)	X Canceled Order	X Parts of New Order	X	
DOE O 460.2 DEPARTMENTAL MATERIALS TRANSPORTATION AND PACKAGING MANAGEMENT (Cancels 1540.1A, 1540.2, & 1540.3A)	X Canceled Order		X	

Current (5/2/97) DOE Orders and Rules of Interest to the DNFSB	Addressed by Current (5/97) Appendix G (1)	Addressed by Proposed Appendix G		
		WSS (2)	WSS (3)	Non WSS (4)
DOE 1300.2A Department of Energy Technical Standards Program	X Old Order			X
DOE 1360.2B Unclassified Computer Security Program	X Old Order			X
DOE 1540.2 Hazardous Material Packaging for Transport-Administrative Procedures (Canceled by O 460.2)	X Canceled Order		X	
DOE 1540.3A Base Technology for Radioactive Material Transportation Packaging Systems (Canceled by O 460.2)	X Canceled Order		X	
DOE 4330.4A Maintenance Management Program (Canceled by O 430.1)	X Canceled Order	X Parts of New Order		
DOE 4700.1 PROJECT MANAGEMENT SYSTEM (Canceled by O 430.1)	X New Order			X
DOE 5000.3B OCCURRENCE REPORTING AND PROCESSING OF OPERATIONS INFORMATION (Canceled by O 232.1)	X New Order			X
DOE 5362.11 PHYSICAL PROTECTION OF UNCLASSIFIED IRRADIATED REACTOR FUEL IN TRANSIT	NO			
DOE 5400.1 General Environmental Protection Program (specific paragraphs Canceled by O 231.1)	X Canceled Order	X Parts of Canceled Order	X	
DOE 5400.2A Environmental Compliance Issue Coordination (specific paragraphs Canceled by O 231.1)	X Canceled Order		X	
DOE 5400.3 HAZARDOUS AND RADIOACTIVE MIXED WASTE PROGRAM	NO			
DOE 5400.4 CERCLA Requirements	X Old Order		X	
DOE 5400.5 Radiation Protection of the Public and the Environment (specific paragraphs Canceled by O 231.1)	X Canceled Order	X Parts of Canceled Order	X	

Current (5/2/97) DOE Orders and Rules of Interest to the DNFSB	Addressed by Current (5/97) Appendix G (1)	Addressed by Proposed Appendix G		
		WSS (2)	WSS (3)	Non WSS (4)
DOE 5440.1E NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE PROGRAM (Canceled by O 451.1)	NO		X	
DOE 5480.1B Environment, Safety, and Health Program for Department of Energy Operations	X Old Order		X	
DOE 5480.3 Safety Requirements for the Packaging and Transportation of Hazardous Materials, HAZARDOUS SUBSTANCES, AND HAZARDOUS WASTE (specific paragraphs Canceled by O 231.1)	X Canceled Order		X	
DOE 5480.4 Environmental Protection, Safety, and Health Protection Standards	X Old Order		X	
DOE 5480.6 Safety of DOE-Owned Reactors	NO			
DOE 5480.7A Fire Protection (Canceled by O 440.1) (Canceled by O 420.1)	X Canceled Order		X	
DOE 5480.8A Contractor Occupational Medical Program (Canceled by O 440.1)	X Canceled Order		X	
DOE 5480.9 Construction Project Safety and Health Management (Canceled by O 440.1)	X Canceled Order		X	
DOE 5480.10 Contractor Industrial Hygiene Program (Canceled by O 440.1)	X Canceled Order		X	
DOE 5480.11 RADIATION PROTECTION FOR OCCUPATIONAL WORKERS	NO		X	
DOE 5480.15 DOE LABORATORY ACCREDITATION PROGRAM FOR PERSONNEL DOSIMETRY	NO			
DOE 5480.17 SITE SAFETY REPRESENTATIVES	NO			
DOE 5480.18A ACCREDITATION OF PERFORMANCE-BASED TRAINING FOR CATEGORY A REACTORS AND NUCLEAR FACILITIES	NO		X	

Current (5/2/97) DOE Orders and Rules of Interest to the DNFSB	Addressed by Current (5/97) Appendix G (1)	Addressed by Proposed Appendix G		
		WSS (2)	WSS (3)	Non WSS (4)
DOE 5480.19 Conduct of Operations Requirements for DOE Facilities	$X_{\text{Old Order}}$		X	
DOE 5480.20 Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities	$X_{\text{Old Order}}$	X		
DOE 5480.21 Unreviewed Safety Questions	$X_{\text{Old Order}}$	X		
DOE 5480.22 Technical Safety Requirements	$X_{\text{Old Order}}$	X		
DOE 5480.23 Nuclear Safety Analysis Reports	$X_{\text{Old Order}}$	X		
DOE 5480.24 Nuclear Criticality Safety (Canceled by O 420.1)	$X_{\text{Canceled Order}}$		X	
DOE 5480.25 Safety of Accelerator Facilities	$X_{\text{Old Order}}$	$X_{\text{Parts of Old Order}}$	X	
DOE 5480.26 Trending and Analysis of Operations Information Using Performance Indicators (specific paragraphs Canceled by O 231.1), (Canceled by O 210.1)	$X_{\text{Canceled Order}}$			X_{TBD}
DOE 5480.28 NATURAL PHENOMENA HAZARDS MITIGATION	NO		X	
DOE 5480.29 EMPLOYEE CONCERNS MANAGEMENT SYSTEM	NO			
DOE 5480.30 NUCLEAR REACTOR SAFETY DESIGN CRITERIA	NO			
DOE 5480.31 Startup and Restart of Nuclear Facilities (Canceled by O 425.1)	$X_{\text{Canceled Order}}$		X	
DOE 5481.1B Safety Analysis and Review System	$X_{\text{Old Order}}$	X		
DOE 5482.1B Environment, Safety, and Health Appraisal Program	$X_{\text{Old Order}}$			X
DOE 5483.1A Occupational Safety and Health Program for Contractor Employees at GOCO Facilities (Canceled by O 440.1), (specific paragraphs Canceled by O 231.1)	$X_{\text{Canceled Order}}$		X	

Current (5/2/97) DOE Orders and Rules of Interest to the DNFSB	Addressed by Current (5/97) Appendix G (1)	Addressed by Proposed Appendix G		
		WSS (2)	WSS (3)	Non WSS (4)
DOE 5484.1 ES&H Information Reporting Requirements (specific paragraphs Canceled by O 231.1), (paragraphs 1 thru 5, 6a(1) thru (10), both 6f(1) thru (8), & second misnumbered 6f, and Chapters I and II of DOE 5484.1 Canceled by O 225.1)	X Canceled Order			X TBD
DOE 5500.1B Emergency Management System (Canceled by O 151.1)	X Canceled Order	X New Order		
DOE 5500.2B Emergency Categories, Classes, and Notification and Reporting Requirements (Canceled by O 151.1)	X Canceled Order	X New Order		
DOE 5500.3A Planning and Preparedness for Operational Emergencies (Canceled by O 151.1)	X Canceled Order	X New Order		
DOE 5500.4A Public Affairs Policy and Planning Requirements for Emergencies (Canceled by O 151.1)	X Canceled Order	X New Order		
DOE 5500.7B Emergency Operating Records Protection Program (Canceled by O 151.1)	X Canceled Order	X New Order		
DOE 5500.10 Emergency Readiness Assurance Program (Canceled by O 151.1)	X Canceled Order	X		
DOE 5700.6C Quality Assurance	X Old Order	X		
DOE 5820.2A Radioactive Waste Management	X Old Order	X Parts of Old Order		
DOE 6430.1A General Design Criteria (Canceled by O 430.1)	X Canceled Order	X Parts of Canceled Order	X	
10 CFR 820 Procedural Rules for DOE Nuclear Activities	X	X		
* 10 CFR 830.110 SAFETY ANALYSIS REPORTS				
* 10 CFR 830.112 UNREVIEWED SAFETY REQUIREMENTS				

Current (5/2/97) DOE Orders and Rules of Interest to the DNFSB	Addressed by Current (5/97) Appendix G (1)	Addressed by Proposed Appendix G		
		WSS (2)	WSS (3)	Non WSS (4)
10 CFR 830.120 QUALITY ASSURANCE REQUIREMENTS	X	X		
* 10 CFR 830.310 CONDUCT OF OPERATIONS				
* 10 CFR 830.320 TECHNICAL SAFETY REQUIREMENTS				
* 10 CFR 830.330 TRAINING AND QUALIFICATION				
* 10 CFR 830.340 MAINTENANCE MANAGEMENT				
* 10 CFR 830.350 OPERATIONAL OCCURRENCE REPORTING				
* 10 CFR 834 RADIATION PROTECTION OF THE PUBLIC AND THE ENVIRONMENT				
10 CFR 835 Occupational Radiation Protection	X	X	X	

* The star indicates the existing Orders below remain of interest to the Board until the proposed rules are finalized and promulgated:
DOE 4330.4B MAINTENANCE MANAGEMENT PROGRAM DOE 5400.5 RADIATION PROTECTION OF THE PUBLIC AND THE ENVIRONMENT DOE 5480.19 CONDUCT OF OPERATIONS REQUIREMENTS FOR DOE FACILITIES DOE 5480.20A PERSONNEL SELECTION, QUALIFICATION, TRAINING, AND STAFFING REQUIREMENTS AT DOE REACTOR AND NON-REACTOR NUCLEAR FACILITIES DOE 5480.21 UNREVIEWED SAFETY QUESTIONS DOE 5480.22 TECHNICAL SAFETY REQUIREMENTS DOE 5480.23 NUCLEAR SAFETY ANALYSIS REPORTS

Attachment 6b

Core Team Results

Core Team Concerns: Worker Health & Safety ID Team
(Confirmation Step 1—March 1997)

Focus Group	*Concern*	*Disposition*
Bio	1. Should 10 CFR 745 be in requirements	1. No. Covers human subjects.
	2. Should the biosafety Plan be in Appendix G	2. No. Will be Lab implementing Requirements.
Chem	3. Should ACGIF be in Appendix G	3. Added ACGIF in Block 10.
	4. Clarify language in Block 10	4. Language clarified.
	5. Should 21 CFR 1308 be in requirements	5. Added in Block 6 in place of 21 CFR 1301.
	6. Should standards that OSHA references be listed as guidance	6. Listed in Block 15 to aid Goal 2 objectives
	7. Unknown citation 29 CFR 1910.1200 115	7.
Const	8. DOE O 440.1 all or parts	8. Will use DOE O 440.1, Section 13a 1-4
Eng/Firearms	9. Standard for firing range design criteria	9. Fac Design focus group has captured.
	9a. Need standard for grenade launchers?	9a. No. Cannot fire HE rounds at LANL. semi-annual training conducted elsewhere.
Eng/Laser	10. Should Lab LIR be in contract?	10. No, implementing requirement for safe use of lasers for Goal 2?
Eng/Pressure	11. Gas pipelines, 49 CFR 190-199 add	11. No. Addressed in Facilities Focus Group.
	12. Energ 08—Is this rollup of 04-07?	12. Yes. New Ener-04 will replace 04-08; old 04-07 will be used for Goal 2 input.
ER D&D	13. What about drilling standards?	13. ER-02 will cover drilling rigs.
Fire Prot/Life Safety	14. What is standard for installation of sprinkler system?	14. Standard added in Block 13.
	15. Life Safety Memo Interpret in Appendix G?	15. Yes, agreement between DOE/LANL on interpretation.
Food Sanitation	16. Official citation for USPHS Food Code	16. Official citations have been added.
Gen. Safety	17. Legal requirements for drug free work place and whistle blower protection.	17. Not for Appendix G but will be somewhere else in contract.
	18. Cite standards for lighting design.	18. Covered in Facilities Construction Design.
Mat Handling	19. Should AR 13-2, DOE Hoist/Rig Manual be in contract?	19. No, will be Lab Requirement Document for Goal 2.
Occ Med	20. NMED Rad licensing and registration—machine or operator or both?	20. Radiographic technicians are required to be certified under the NMED citation. Machines are not.
Phy-Non-Ion	21. Call out microwaves in Block #1	21. Done
	22. Block 14 language leads to confusion implying need to include internal Laboratory standards in Appendix G.	22. Language clarified, no need for inclusion of Laboratory Standards in Appendix G.
	23. Block #15, Item #2 needs to be in Block #10.	23. Agree, made change.

Core Team Concerns: Worker Health & Safety ID Team
(Confirmation Step 1—March 1997)

Focus Group	*Concern*	*Disposition*
Traffic	24. NM TRD MCS-96—need citation.	24. Citation added: "NM Adoption of Federal Motor Carrier Safety Regulations with certain amendments."
	25. Do we need standards for military vehicles, ATVs, Cushman, etc.?	25. No. SP vehicles including examples cited follow all state and local ordinances...and federal depending on circumstances (i.e., carrying HazMat must comply with rules).
	26. Flyovers—none during explosives and laser operations. Add in standard?	26. No, legal requirements to be cited in App. G. Will be covered in the Lab Implementation (Goal 2).
	27. Block 15—Traffic-03—clarify statement	27. Clear statement of implementing requirements added.

Core Team Concerns: Environmental Protection ID Team (Confirmation Step 1—March 1997)

Focus Group	*Concern*	*Disposition*
AIR-01	FFCA for air should be cited if it includes a standard	not included; any standards in FFCA flow from statute
NR-01	Should standards for stray livestock be included?	not included; unclear if any state regs apply to DOE
P&T-01 and -02	Should 10 CFR (NRC reg) be a standard?	yes, move to box #10
	What are ICAO/IATA and IMDG?	citations expanded
	Explosive Manual Citation-is this correct?	yes; citation of M 440.1-1 added
	Review/correct description of on site and off site and public roads	in process
SGW-01	Does citing State Engineer's Rules impact water rights?	Delete citation
	Do sanitary waste regs apply?	no; sanitary waste regs addressed in Waste-05
SGW-02	Does citing State Engineer's Rules impact water rights?	Delete citation
	Does Groundwater Discharge Plans apply?	no, any standards flow from statute
	Does 40 CFR 258 apply?	There is no 258 in 40 CFR.
	Does 40 CFR 265 apply?	no, covered in Waste-03
	Does NMAC 9.1 apply?	added
	Add DOE Order 5820.2a	change made
SGW-03	Are there state regulations for the operations of SWCS?	no, there are no known requirements
SGW-04	Does TSCA (40 CFR 761) apply?	no, covered in Waste-03
	Should RCRA be cited for releases?	no, given clarification that issue is discharges, not releases
SGW-05	Does 40 CFR 170.234 apply?	no, covered in Worker H&S
	Does 40 CFR 165 apply?	Citation was removed in 60FR32093, 6/19/95
	Does 50 CFR 402 apply?	no, related to Endangered Species Act, covered in NR-01
	Should EO 12088 be added?	no, covered in EP/P2-01
SGW-06	Cite Groundwater Discharge Plans, if standards are included in plan	no, flows from statute
Waste-01	Change TRU to non-mixed TRU waste, treatment and storage	change made
Waste-02	Add treatment, storage and disposal to issue statement	change made
	Does NMAC 9.1 apply?	no, NMAC 9.1 governs solid waste and is covered in Waste-05
	Is there a rad FFCA that applies?	no, any FFCA flows from statute
Waste-03	Add storage to title of issue	change made
	Does NMAC 9.1 apply?	no, covered in Waste-05
Waste-04	Add site characterization to title of issue	change made
	Add DOE Order 5400.5	change made
	Add Installation Work Plan	added to block #15
	Add storage and disposal	change made
Waste-05	Add 40 CFR 260-270	no, RCRA regulations cited in Waste-09
	Add 20NMAC4.1	no, hazardous waste regulations cited in Waste-09

Core Team Concerns: Environmental Protection ID Team (Confirmation Step 1—March 1997)

Focus Group	*Concern*	*Disposition*
Waste-06	Add 40 CFR 110	no, covered in SGW-04
	Add 40 CFR 112	no, covered in SGW-01
	Add 40 CFR 260-270	no, covered in Waste-09
	Add 20NMAC 9.1	no, covered in Waste-05
	Add Oil Pollution Prevention Act	no, covered in SGW-01
	Add SPCC plan	no, requirements in SGW; plan is Lab implementation
Waste-07	Add treat and store to issue title	change made
	Does 20NM9.1 apply?	no, solid waste regs covered in Waste-05
	Add DOE Order 5820.2a	no, covered in Waste--02
	Add Site Treatment Plan if it has standards	no, all standards flow from statute
Waste-08	Add 40 CFR 112	no, covered in SGW-01
Waste-09	Add treatment and storage to title	change made
	Change title and eliminate haz waste handlers	change made
	Add 20NMAC9.1	no, sanitary regs covered in Waste-05
P2-01	Add 20NMAC4.1	no, covered in Waste-09
	Add Hazardous Waste Operating Permit	no, covered in Waste-09
	Add SPCC Plan	no, covered in SGW-01 (Oil Pollution Prevention)

Core Team Concerns: Emergency Preparedness & Management ID Team (Confirmation Step 1—March 1997)

Focus Group	*Concern*	*Disposition*
Emergency Preparedness & Management	1. Check ORNL and LBL set for Fed Laws	1. Emergency Preparedness identified 49 CFR that was not included in LANL's list of requirements. 49 CFR is Packaging and Transportation and is covered in that Focus Group
	2. Addition to Block #10 of standards that apply to Device Handlers on EP&M/EMng-02.	2. These additions have been included under Emergency Management.
	3. Does DOE O 151.1 have any other laws/regs not already included in the 3 issue sheets?	3. No
	4. Does 29 CFR 1926.109 need to be included?	4. 29 CFR 1926.109 does not need to be included.
	5. 10 CFR 20.1101 remove EP&M/ERes-04	5. 10 CFR 1101 has been removed as a requirement since it is covered by the DOE approved Radiation Plan that implements 10 CFR 835 at Los Alamos.
	6. MOUs: Do they have hazard controls cited?	6. MOUs will be placed in Block 15.

Core Team Concerns: Facilities ID Team
(Confirmation Step 1—March 1997)

Focus Group	*Concern*	*Disposition*
Design/ Construction	1. Are NM requirements more or the same as UBC? What about environmental laws?	1. UBC covers all NM requirements. Environmental laws covered in Environmental Protection focus groups
	2. Ergonomic issue statement	2. Covered under WHS
General Focus Group Question	3. Should ACGIH be included?	3. ACGIH standards addressed by Worker Health and Safety issue sheets

Los Alamos & DOE Participants on Joint Focus Groups of ES&H Work Smart Standards Identification (ID) Teams

Focus Groups of Worker H&S ID Team (ID Team Leaders—Barbara Hargis, Steve Schreiber, Kim Thomas)	Lab Workers	Lab SME	DOE SME
Biological Safety (blood-borne pathogens, infectious agents, etc.) **WHS/Bio-1**	Hugh Smith, ESH Ernie Vigil, DX Julie Wilson, LS	Lisa Iverson, ESH	John Ryan, LAAO
Chemical, Toxic, and Hazardous Materials Safety **WHS/Chem-1**	Jim McKee, NMT Jon Nielsen, MST Mike Palmer, NMT Bill Tumas, CST John Watkin, CST Julie Wilson, LS	Helena Whyte, ESH	Mike Garcia, AL
Construction Safety **WHS/Cons-1**	Robert Bruhn, JCI John Fellers, FSS Samuel Montoya, JCI Pat Osterburg, BUS Roger Stutz, NIS	Tom Crespin, ESH	Ralph Fevig, AL Julian Biggers, AL (sub)
Criticality Safety **WHS/Crit-1**	R. Anderson, NIS S. Hale, NMT	Tom McLaughlin, ESH	Bill Bell, LAAO
Electrical Safety **WHS/Elec-1**	Jon Cross, CST Ray Jermance, NIS Mike Thuot, AOT Members of the Electrical Safety Task Force: James Anderson, ESA Richard Bartsch, P Darrell Fong, AL Steve Francis, CST Theodore Karki, NMT Jerry Paul, DX Randy Torres, JCI	Terry Fogle, ESH	Susan Mathews, LAAO
Energetic Systems (explosives, firearms, cryogens, compressed gases, magnetic fields, lasers, pressure, etc.) **WHS/Energ-1 (Firearms)** **WHS/Energ-2 (Lasers)** **WHS/Energ-3 (Explosives)** **WHS/Energ-4 (Pressure Safety)**	Mary Campbell, DX James Hoffer, MST Richard Larson, ESA Johnny Lovato, BUS Jerilyn Mosso, CST Bart Olinger, ESA Randy Putt, PTLA Steve Rivera, PTLA Ed Rodriquez, TSA Victor Sandoval, DX Bill Sprouse, FSS Jim Stapleton, ESH Dan Thomas, EES Jimmy Valdez, JCI	Roger Goldie, ESH Ron Hyer, ESH Paula Whitehead, ESH	Ed Christie, LAAO Allan Herrbach, ALO
Environmental Restoration and Decontamination & Decommissioning **WHS/ER-1** (Decontamination and Decommissioning) **WHS/ER-2** (Drilling)	Deba Daymon, EES Alan Pratt, EM Miguel Salazar, EM Miguel Velasquez, JCI	Oliver Wilton, ESH	Veronica Martinez, LAAO

Los Alamos & DOE Participants on Joint Focus Groups of ES&H Work Smart Standards Identification (ID) Teams

Focus Groups of Worker H&S ID Team (ID Team Leaders—Barbara Hargis, Steve Schreiber, Kim Thomas)	Lab Workers	Lab SME	DOE SME
Fire Protection/Life Safety **WHS/Fire-1**	Robert Bollman, NIS Charles Rense, NMT Tom Trezona, CIC Patrick Valerio, ESH	Jim Gourdoux, FSS	Tom Rush, LAAO
Food Sanitation **WHS/Food-1**	Todd Buonasera, Aramark Nancy Hall, Aramark Kimberly Zeilik, BUS	Debbie Baca, ESH	Kim Delman, AL
General Safety (burns, falling objects, falls, machine tools, etc.) **WHS/Gen-1 (Welding)** **WHS/Gen-2 (Machines)** **WHS/Gen-3 (Occupational Safety)** **WHS/Gen-4 (Lighting)**	Ignacio Medina, NIS John Palmer, JCI Bob Schuch, ESA	Phil Romero, ESH Jeff Hansen, ESH	Rudy Valdez, LAAO
Materials Handling (cranes, hoists, forklifts, etc.) **WHS/Mat-1**	Staley Hadden, P Dexter Lyerly, NIS Norris Martinez, JCI Robert Travis, BUS	Phil Romero, ESH	Tom Rush, LAAO
Occupational Medicine and Human Subjects (special medical surveillance [Be, Pb, etc.], PSAP, etc.) **WHS/Occ-1 (Occ Medicine)** **WHS/Occ-2 (Human Subjects)**	Angel Clark, JCI Ken Huff, PTLA	Hugh Smith, ESH Jerry Williams, ESH	John Ryan, LAAO
Physical Hazards (confined spaces, non-ionizing radiation, ergonomics, etc.) **WHS/Phy-1 (Confined Spaces)** **WHS/Phy-2 (Ergonomics)** **WHS/Phy-3 (Heat/Cold Stress Hazards)** **WHS/Phy-4 (Noise Hazards)** **WHS/Phy-5 (Nonionizing)**	Lee Bussolini, ESH Ann Collery, CST Gerry Edwards, CIC Grant Guymon, JCI Bill Hodges, ESH-WMM Jerry Langner, ESH John Lyles, ESA Dory Ryan, ESH John K. Vance, ESH Larry Lee Vaughn, AOT	Jeff Hollander, ESH Greg Rowell, ESH Gary Whitney, ESH	Kim Delman, AL

Radiation Safety **WHS/Rad-1**	Concha Collier, CST Glenn Bentley, CST Terry Vergemini, NIS Members of the Rad Prot. Pilot ID Team: Gordon Bergman, LC Thomas Buhl, ESH Joel Dahlby, CST Robert Devine, ESH Olin Van Dyck, AOT Kenneth G. Fellers, JCI Joseph M. Graf, ESH Steven J. Green, P Jimmy Harris, DOE Suzanne Helfinstine, CST Roger Huchton, ESH Sarah Hoover, ESH Jack J. Johnson, ESH Jerome A. Kunzman, ESH James Low, DOE/AL Thomas K. Marshall, CST J. Lee McAtee, ESH Robert McKaye, DOE Tom Mills, NMT Ron Morgan, ESH Evelyn M. Mullen, NIS Tom Pyburn, JCI Jennie Richardson, CST Louis Shulte, NMT Bruce Takala, DX Peter G. Veverka, ESH Jeff Whicker, ESH Roger Wisham, ESH	Richard Smale, ESH	Jimmy Harris, LAAO
Traffic, Vehicles, Special Purpose Vehicles, and Aviation **WHS/Traf-1 (Traffic Vehicles)** **WHS/Traf-2 (Aviation)** **WHS/Traf-3 (Traffic Design)**	Bruce Baca, NIS Ed Hoth, FSS Dexter Lyerly, JCI Dave McCollum, BUS B. J. Melloy, JCI Leroy Sanchez, FSS Bob Travis, BUS	Ron Hyer, ESH	Tom Rush, LAAO

Worker Health and Safety Justification

I. General Background

Los Alamos National Laboratory conducts all of its activities with the highest regard for the protection of its workers, the public, the environment, and facilities. This is reflected in the Laboratory's set of ES&H Work Smart Standards identified as necessary and sufficient for performing work safely. This institutional (Lab-wide) set was identified after a comprehensive list of the Laboratory's work and associated ES&H issues (hazardous materials/conditions and other ES&H concerns) was compiled and validated in all organizations at Los Alamos. An analysis of this list confirmed that most of the work and associated ES&H issues at Los Alamos have direct analogs in U.S. private industry and academia and that, for unique work, the ES&H issues associated with that work are comparable in industry/academia. This similarity with industry/academia is reflected by the applicability and inclusion of many national consensus standards in the Laboratory's set of ES&H Work Smart Standards.

The Laboratory's institutional set of ES&H Work Smart Standards has two major components: baseline standards and supplemental (above baseline) standards. The baseline standards are defined by the combination of standards identified by the Worker Health and Safety ID Team, the Environmental Protection ID Team, the Emergency Preparedness and Management ID Team, and, for facility design and operations, the Facilities ID Team. These baseline standards are common to all Laboratory work. These standards reflect the same laws, regulations, and consensus standards (with some additional DOE standards) that private industry and academia are meeting to protect workers, the public, the environment, and facilities. Additionally, the Accelerator Facilities Focus Group and Nuclear Facilities Focus Group each identified for their unique work and associated ES&H issues the supplemental standards that are considered necessary, along with the baseline standards, to perform work safely in those facilities at Los Alamos. For specific Laboratory work and associated ES&H issues, it is essential that the entire institutional set of ES&H Work Smart Standards be viewed as a whole when identifying the applicable subset that must be met when performing the work. This is to be accomplished through effective implementation of the Laboratory's Integrated Safety Management System.

Each ID Team comprised one or more focus groups consisting of knowledgeable and qualified workers from affected Los Alamos organizations and both a DOE and a Los Alamos subject matter expert (SME). While SMEs were perhaps more knowledgeable of the applicable laws and regulations, neither they nor the workers unilaterally drove the standards identification process. Los Alamos workers brought first-hand knowledge of the work and associated ES&H issues and, together with the SMEs, were vital in identifying the institutional set of ES&H Work Smart Standards. All focus group members had an equal voice in the process, and consensus was reached in all cases, i.e., no minority reports were filed.

II. Specific Justification

The Work Smart Standards for worker health and safety were identified by 15 separate focus groups under the Worker Health and Safety ID Team. For the work at Los Alamos, the scope of ES&H issues addressed included biological (blood-borne pathogens, infectious agents, etc.); chemical, toxic and hazardous materials; construction; criticality; electrical; energetic systems (including firearms, lasers, explosives, pressure, compressed gases, vacuum, and cryogens); environmental remediation, decontamination and decommissioning; fire protection/life safety; food sanitation; general safety (including welding, machines, occupational safety, and lighting); materials handling (cranes, hoists, forklifts, etc.); and occupational medicine and human subjects. The 15 focus groups ranged in size from four members (two workers and two SMEs on the Criticality Safety Focus Group) to 18 members (Energetic Systems Focus Group) to ensure sufficient knowledge and work experience for identifying the Work Smart Standards. The SMEs on each focus group provided knowledge of the current legal requirements and good industry practices and had a combined experience exceeding 10 person-years to, in some cases, over 80 person-years. The workers on each focus group provided relevant work experience ranging from over 20 person-years, in the case of one of the smaller focus groups, to over 230 person-years for the larger focus groups. The two major support subcontractors, Johnson Controls Incorporated (JCI) and Protection Technology Los Alamos (PTLA), were well represented. All workers were assigned by their respective managers to specific focus groups based on their hands-on experience with the specific work and ES&H issues for which standards were to be identified.

Biological Safety

The Biological Safety Focus Group identified applicable Occupational Safety and Health Administration (OSHA) regulations to address the generic aspects of biological safety, including infectious agents, live animal research, blood-borne pathogens, immunization, foreign travel, tissue and cell culture, recombinant DNA, biosafety practices, equipment, personal protective equipment, disinfection, sterilization, allergens, poisonous plants, and field work (including animal trapping, bites, and stings). They also selected the Laboratory's Biosafety Plan to ensure sufficiency. The Laboratory incorporates nationally recognized guidelines into its implementing procedures to address biosafety and recombinant DNA ES&H issues. These guidelines are listed on the subject issue sheet.

Chemical, Toxic and Hazardous Materials Handling

The Chemical, Toxic, and Hazardous Materials Handling Focus Group identified applicable regulations and consensus standards to address the generic health and safety considerations for handling hazardous chemicals in laboratories, facilities operations, and construction activities. This included such materials as corrosives, carcinogens, combustibles, flammables, heavy metals, pesticides and herbicides,

toxins/proteins/enzymes, toxic substances, chemical exposures, controlled substances, chemical inventory, chemical storage, asbestos (for both worker and environmental protection), lead exposure, ventilation, and personal protective equipment. Among the Work Smart Standards identified are the applicable portions of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and relevant New Mexico statutory authority, the applicable OSHA general industry safety standards, and the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values. In addition, applicable specific industry standards are cited as guidance, including certain standards within ACGIH guidelines, the Laboratory's Chemical Laboratory Safety Guidelines, the American Industrial Hygiene Association (AIHA) Workplace Environmental Exposure Levels (WEELs) and Emergency Response and Preparedness Guidelines (ERPGs), applicable American National Standards Institute (ANSI) standards, National Fire Protection Association (NFPA) codes, the National Toxicology Program, and the International Agency for Research on Cancer Monographs Group I.

Construction Safety

The Construction Safety Focus Group identified applicable standards to address worker exposures, energized systems, confined spaces, excavations and penetrations, materials handling with heavy equipment, and elevated work surfaces. The applicable portions of the OSHA construction industry standards and the OSHA general industry safety standards are cited, along with a portion of a DOE Order, as they address the breadth of construction work and ES&H issues at the Laboratory. These standards, along with the radiation standards and the biological agents and chemical agents standards, provide adequate protection to workers at Los Alamos engaged in construction-like activities.

Criticality Safety

The Criticality Safety Focus Group identified applicable consensus standards to address prevention of criticality accidents involving fissile material. The applicable portions of the American Nuclear Society and ANSI standards are cited. These are the applicable standards already in use by the Nuclear Regulatory Commission and that form the basis for international standards describing safe practices for nuclear criticality safety.

Electrical Safety

The electrical safety standards selected are those that were identified by the Laboratory when it recently enhanced its entire electrical safety program. These standards are commonly used in industrial settings and include those for electric generation, transmission, and distribution. Electrical work and ES&H issues at the Laboratory are numerous, but are not of a unique nature except where there is storage of large amounts of electrical energy in capacitor banks. These ES&H issues are controlled by following the high-voltage portions of the cited requirements and

strictly following the lockout/tagout requirements for energetic systems. High-current applications are addressed by the cited national codes and OSHA regulations. The application of high currents to produce high magnetic fields may not be found in industry; however, the currents and voltages are comparable.

Energetic Systems Safety

The Energetic Systems Focus Group identified applicable statutes, regulations, and consensus standards to address firearms, lasers, explosives, and general pressure safety, which includes pressure vessels, compressed gases, vacuum/pressure equipment and systems, and cryogens. The Physical Protection of Security Interests (10 CFR 1046) was cited to address firearms use, along with 10 CFR 1047, 49 CFR 173, and applicable portions of DOE Order 440.1. For laser use as research tools and for construction and cutting/welding the applicable portions of the OSHA regulations and of 21 CFR 1040 are cited along with specific ANSI standards. Explosives safety is addressed in the applicable portion of the OSHA regulations on Explosives and Chemical Processes and in the entirety of the DOE Explosives Safety Manual. Pressure vessel and compressed gas use is addressed in the applicable portions of the OSHA regulations and Department of Transportation (DOT) storage and transportation regulations addressing natural gas distribution. The use of vacuum and pressure equipment is addressed in the OSHA general safety and construction safety regulations and the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. The use of cryogens and cryogenic hardware is addressed in the applicable portions of the OSHA and DOT storage and transportation regulations. In addition to these safety standards, portions of the DOE Order on Worker Protection Management (440.1) is cited to address the unique pressure regimes and materials applications found at the Laboratory.

Environmental Restoration/Decontamination and Decommissioning (ER/D&D)

The ER/D&D Focus Group identified applicable OSHA regulations to address the ES&H issues associated with decontaminating and decommissioning structures and the environmental restoration of previously contaminated sites. These regulations are cited to address identified ES&H issues such as chemical hazards, confined space, Hazardous Waste Operations and Emergency Response (HAZWOPER), asbestos, spark/flame-producing operations and drilling of test wells.

Fire Protection

The Fire Protection Focus Group identified several applicable consensus standards to establish a reasonable level of fire safety and property protection to prevent program interruption from the ES&H issues created by fire and/or explosion. The National Fire Protection Association standards, the Uniform Building Code, the National Fire Danger Rating System, and Factory Mutual Data Sheets are cited along with OSHA regulations to provide the standards necessary and sufficient for fire safety in the construction, maintenance, use, and demolition of property.

Food Sanitation

The Food Sanitation Focus Group identified applicable statutes and regulations to address the hygienic practices and considerations necessary and sufficient to prevent the transmission of disease associated with the handling of food and equipment in food service and preparation areas. The applicable portions of U.S. Public Health Service Food Code and the New Mexico Food Service and Processor Regulations are cited.

General Safety

The General Safety Focus Group identified applicable regulations and consensus standards to address welding activities, machines and mechanical ES&H issues, occupational safety, and lighting or illumination of work areas. The applicable portions of the OSHA regulations are cited to address the spark-producing activities and machine tools. The OSHA general industry safety standards are cited to address generic occupational safety issues, while OSHA construction industry standards and the general duty clause are cited to provide a properly illuminated work environment. The work at Los Alamos involves these types of ES&H issues in settings like those found in industry.

Material Handling

The Material Handling Focus Group identified applicable OSHA regulations to address equipment design and certification, maintenance, safe operation, and personnel qualifications. The Laboratory uses various types of material-handling equipment, including overhead cranes, mobile cranes, jacks, powered industrial trucks, hooks, cableways, sideboom tractors, slings, below the hook lifting devices, manually lever-operated hoists, articulating boom cranes, conveyors, tie-downs, dollies and carts. These components are addressed in the applicable OSHA regulations for cranes, hoists and lifting devices. These types of ES&H issues at Los Alamos are similar to those found in other industries.

Occupational Medicine

The Occupational Medicine Focus Group identified applicable statutes and regulations to address medical surveillance of the workforce and human subject research. These medical support activities protect, evaluate, restore, and promote the health and well-being of the employees and subcontractors of the Laboratory. Cited statutes and standards, including applicable OSHA regulations, are wide-ranging but consistent with public or private medical practices. For performing human subject research, the applicable regulations cited are the Federal Policy for the Protection of Human Subjects; Notices and Rules (the Common Rule), the Department of Health and Human Services Protection of Human Subjects, and Institutional Review Boards. The Laboratory will continue with its already established and extensive workforce surveillance activities for toxic materials.

Physical Hazards

The Physical Hazards Focus Group identified applicable standards to address confined spaces, ergonomics in a variety of work environments, heat/cold stress, noise, and nonionizing electromagnetic radiation and fields (including microwaves). The applicable portions of the OSHA construction industry standards, the confined-space general industry standard, the telecommunication standard, and the electric power standard are cited to address confined-space access. The General Duty Clause of OSHA is cited to address ergonomic issues although no established specific federal regulations exist. Thus, internal standards will be developed for use at the Laboratory based upon proposed state, ANSI, and National Institute of Occupational Safety and Health (NIOSH) standards. The OSHA regulations and specific ACGIH Threshold Limit Values (TLVs) for physical agents are cited to address heat and cold stress in the work environment. Noise ES&H issues are addressed by the OSHA General Industry Noise and the Construction Industry Noise Standards and the ACGIH TLVs for Noise. The ES&H issues with nonionizing radiation are addressed in applicable specific sections of the OSHA regulations, the ACGIH TLVs for physical agents, the Institute of Electrical and Electronics Engineers (IEEE) national standards, and the National Electrical Manufacturers Association (NEMA) American National Standards Institute (ANSI) Standards. The ES&H issues identified at the Laboratory are comparable to those found in industry.

Radiological Protection

The Radiation Protection Focus Group confirmed that the work completed during the Radiation Protection Pilot of the Necessary and Sufficient Closure Process appropriately addressed the work and radiological ES&H issues at Los Alamos. The Laboratory will comply with 10 CFR 835 through implementation of its DOE-approved Radiation Protection Program (RPP), which includes national consensus and other standards that establish necessary and sufficient expectations based upon the work and radiological ES&H issues at the Laboratory. NRC standards and INPO guidance provided much of the foundation used to develop 10 CFR 835 and the Los Alamos RPP approved by DOE. Additionally, these external standards provide good guidance that may be useful for specific applications at Los Alamos.

Traffic and Vehicle Safety

The Traffic and Vehicle Safety Focus Group identified applicable statutes and regulations to address vehicle, special-purpose vehicle, driver, aviation, and traffic design ES&H issues. DOT and OSHA regulations, along with state traffic and vehicle rules and ordinances, are cited to address common traffic ES&H issues. Also, FAA regulations are cited to address aviation operations in support of research and development. New Mexico State Highway and Transportation Specifications for bridge and road construction, requirements of the American Society of Highway

and Transportation Officials, and the Manual on Uniform Traffic Control Devices are cited for safe travel. The American Disabilities Act (ADA) requirements are also cited. Most vehicle and traffic issues are not unique to the Laboratory.

In summary, the identified Work Smart Standards for worker health and safety are a major element of the baseline set of ES&H Work Smart Standards common to all Laboratory work. These standards include the laws, regulations, and consensus standards necessary and sufficient for protecting workers, the public, the environment, and facilities.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Biosafety: This issue addresses aspects of biosafety including infectious agents, animal research, blood-borne pathogens, immunization, foreign travel, tissue and cell culture, recombinant DNA, biosafety practices, equipment, PPE, disinfection and sterilization, allergens, poisonous plants, and field work (e.g., animal trapping, bites, and stings).

This issue does not address biological waste, transportation, or toxins. These were addressed by other Focus Groups.

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Biological Safety

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910.23	Guarding Openings and Holes
29 CFR 1910.28	Safety Requirements for Scaffolding
29 CFR 1910.66	Powered Platforms for Building Maintenance
29 CFR 1910.94	Ventilation
29 CFR 1910.107	Spray Finishing with Flammable and Combustible Materials
29 CFR 1910.109	Explosives and Blasting Agents
29 CFR 1910.147	Lockout/Tagout
29 CFR 1910.177	Servicing Multi-Piece and Single-Piece Rim Wheels
29 CFR 1910.178	Powered Industrial Trucks
29 CFR 1910.179	Overhead and Gantry Cranes
29 CFR 1910.180	Crawler Locomotive and Truck Cranes
29 CFR 1910.181	Derricks
29 CFR 1910.211	Machinery and Machine Guarding: Definitions
29 CFR 1910.212	Machinery and Machine Guarding: General Requirements
29 CFR 1910.213	Woodworking Machinery Requirements
29 CFR 1910.215	Abrasive Wheel Machinery
29 CFR 1910.217	Mechanical Power Presses
29 CFR 1910.218	Forging Machines
29 CFR 1910.219	Mechanical Power-Transmission Apparatus
29 CFR 1910.220	Machinery and Machine Guarding: Effective Dates
29 CFR 1910.221	Machinery and Machine Guarding: Sources of Standards
29 CFR 1910.222	Machinery and Machine Guarding: Standards Organizations
29 CFR 1910.241	Hand-Held Equipment: Definitions
29 CFR 1910.242	Hand and Portable Powered Tools and Equipment, General
29 CFR 1910.243	Guarding of Portable Powered Tools
29 CFR 1910.244	Other Portable Tools and Equipment
29 CFR 1910.246	Hand-Held Equipment: Sources of Standards
29 CFR 1910.255	Resistance Welding
29 CFR 1910.263	Bakery Equipment
29 CFR 1910.266	Logging Operations
29 CFR 1910.268	Telecommunications
29 CFR 1910.269	Electric Power Generation, Transmission, Distribution
29 CFR 1910.304	Electrical: Wiring Design and Protection
29 CFR 1910.306	Electrical: Specific Purpose Equipment and Installations
29 CFR 1910.332	Electrical: Training
29 CFR 1910.333	Electrical: Selection and Use of Work Practices
29 CFR 1910.335	Electrical: Safeguards for Personal Protection
29 CFR 1910.399	Electrical: Definitions
29 CFR 1926.25	Housekeeping
29 CFR 1926.28	Personal Protective Equipment
29 CFR 1926.55	Gases, Vapors, Fumes, Dusts, and Mists

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Guide for the Care and Use of Laboratory Animals, NIH
Biosafety in Microbiological and Biomedical Laboratories, CDC/NIH
Morbidity and Mortality Weekly Reports (MMWR), Recommendations and Reports, CDC
HHS Publications
Health Information for International Travel 1996-1997, CDC
NSF 49, Class II (Laminar Flow) Biohazard Cabinetry
Guidelines for Research Involving Recombinant DNA Molecules, NIH
Advisory Committee on Immunizations Practices (ACIP), CDC
LANL Institutional Animal Care and Use Committee (reviews all animal procedures)
LANL Institutional Biosafety Committee (reviews of all procedures involving biological hazards)
Control of Communicable Diseases in Man, American Public Health Association

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

ANSI A10.3
Official OSHA interpretations

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Chemicals and Hazardous Materials Handling

This issue addresses the generic health and safety considerations for handling hazardous chemicals in laboratories, facilities operations, and construction activities at Los Alamos National Laboratory. The scope is inclusive of the following subtopics: corrosives, carcinogens, combustibles, flammables, oxidizers, heavy metals, reactive and explosive chemicals, pesticide and herbicide application and use, toxins/proteins/enzymes, toxic substances, chemical exposures, controlled substances, chemical inventory, chemical storage, asbestos (worker and environmental protection), lead exposure, ventilation, and personal protective equipment.

This issue does not include recombinant DNA, chemical and mixed wastes. Ventilation addressed in this issue stops at the fume hood and does not include facility design. These were addressed by other Focus Groups.

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Chemical, toxic, and hazardous materials

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

21 CFR 1301, Controlled Substances
40 CFR 68, EPA Risk Management Rule, as applicable
40 CFR 150-189, Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (FEPCA) certified pesticide applicators
40 CFR 170, 171, Subchapter E, Pesticide Programs
40 CFR 261-265, HAZMAT Disposal
40 CFR 720, Toxic Substance Control Act

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

Occupational Safety and Health Act 1970 Statute Public Law 91-596 Section 5(a(1) cited under the "General Duty Clause"

29 CFR 1904	Recording/Reporting Occupational Injuries and Illnesses
29 CFR 1905	Variances, Limitations, Tolerances, Exemptions, Etc.
29 CFR 1910.12	Standards: Construction
29 CFR 1910.20	Access to Employee Exposure and Medical Records
29 CFR 1910.23	Guarding Openings and Holes
29 CFR 1910.25	Portable Wood Ladders
29 CFR 1910.28	Safety Requirements for Scaffolding
29 CFR 1910.29	Manually Propelled Mobile Ladder Stands / Scaffolds
29 CFR 1910.30	Walking & Working Surfaces: Other Working Surfaces
29 CFR 1910.38	Employee Emergency Plans and Fire Prevention Plans
29 CFR 1910.56	Fire Brigades
29 CFR 1910.66	Powered Platforms for Building Maintenance
29 CFR 1910.67	Vehicle-Mounted Elevating and Rotating Work Platforms
29 CFR 1910.94	Ventilation
29 CFR 1910.111	Storage of Anhydrous Ammonia
29 CFR 1910.120	Hazardous Waste Operation and Emergency Response
29 CFR 1910.132	Personal Protective Equipment: General Requirements
29 CFR 1910.133	Eye and Face Protection
29 CFR 1910.134	Respiratory Protection
29 CFR 1910.135	Head Protection
29 CFR 1910.176	Handling Materials (General)
29 CFR 1910.177	Servicing Multi-Piece and Single-Rim Wheels
29 CFR 1910.178	Powered Industrial Trucks
29 CFR 1910.211	Machinery and Machine Guarding: Definitions
29 CFR 1910.212	Machinery and Machine Guarding: General Requirements
29 CFR 1910.215	Abrasive Wheel Machinery
29 CFR 1910.217	Mechanical Power Presses
29 CFR 1910.242	Hand and Portable Powered Tools and Equipment, General
29 CFR 1910.243	Guarding of Portable Powered Tools
29 CFR 1910.252	Welding, Cutting, and Brazing: General Requirements
29 CFR 1910.268	Telecommunications
29 CFR 1910.269	Electric Power Generation, Transmission, Distribution
29 CFR 1910.1003	13 Carcinogens
29 CFR 1910.1200	Hazard Communication
29 CFR 1910.1450	Occupational Exposure to Hazardous Chemicals in Labs
29 CFR 1926.500	Subpart M-Guardrails, Handrails, and Covers
29 CFR 1926.501	Subpart M-Stairways
29 CFR 1926.502	Subpart M-Definitions applicable to this subpart

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

The OSHA Standard (29 CFR 1910) prescribes requirements for health and safety in general industry. Specifically 1910.1000 lists exposure limits for airborne contaminants (PELs). The substance-specific standard in 29 CFR 1910 Subpart Z provides detailed coverage in areas of medical surveillance, exposure monitoring, training, emergency procedures, decontamination and disposal, and facility safety features for specific substances. LANL will use ACGIH TLVs to assist in determining when additional employee protection is needed. A LANL written Hazard Communication Program is required by 29 CFR 1910.1200. A LANL Chemical Hygiene Plan is required by 29 CFR 1910.1450. The Hazard Communication Program and the Chemical Hygiene Plan provisions address work practices, controls and training applied on a performance basis for all work at Los Alamos in a laboratory setting. The substance-specific portions and the Chemical Hygiene Plan provide an effective safety umbrella for the work occurring with chemical carcinogens in both laboratory and support operation environments at Los Alamos.

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Facility issues—worker exposures, energized systems, confined spaces, excavations or penetrations, materials handling/heavy equipment, elevated work surfaces.

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Construction Safety

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910, Occupational Safety and Health Standards
29 CFR 1926, Safety and Health Regulations for Construction

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Laboratory guidance should be based on Chapter 11 "Illumination Values," in the IES Lighting Handbook (8th Edition)
Official OSHA interpretations

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Criticality Accident

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Nuclear Criticality Safety

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910, Subpart N, Material Handling and Storage
29 CFR 1926.251, Rigging Equipment for Material Handling
29 CFR 1926.305, Jacks-Lever and Ratchet, Screw and Hydraulic
29 CFR 1926.550, Cranes and Derricks
29 CFR 1926.552, Material Hoists, Personnel Hoists and Elevators
29 CFR 1926.553, Base-Mounted Drum Hoists
29 CFR 1926.554, Overhead Hoists
29 CFR 1926.555, Conveyors
29 CFR 1926.602, Material Handling Equipment
29 CFR 1926.853, Removal of Materials through Floor Openings
29 CFR 1926.953, Material Handling

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

The standards listed in Section 10 are U.S. National Consensus Standards. These standards represent over 30 years of ongoing, experience-based safety practice, and cover all aspects of nuclear criticality safety. These standards are already used by the Nuclear Regulatory Commission as shown in 10 CFR 50. These standards have been accepted by the DOE in previous rules, orders, guides, etc., such as in DOE Order 420.1. These standards also form the basis for international standards describing safe practice for nuclear criticality safety.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

1. Conduct of business in the Nuclear Criticality Safety Group, ESH-6-96:009 (January 1996)
2. Line management's Safety Manuals and related requirements documents.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Electrical Safety

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Electrical Safety Committee

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

6. List applicable legal requirement(s):

10 CFR 835

[Note: The DOE-approved Los Alamos Radiation Protection Program is the implementing requirement for 10 CFR 835 (without matrix, revision 1.1). It incorporates the applicable provisions of 10 CFR 835, Occupational Radiation Protection, and any exemptions to these regulations as granted by DOE from time to time.]

49 CFR 30-399, Department of Transportation, Motor Carrier Safety Regulations
Americans with Disabilities Act (ADA)
Family Medical Leave Act (FMLA)
Rehabilitation Act
Privacy Act, California Information Practices Act
10 CFR 710, Access to Classified Material and SNM
10 CFR 1046, Security Inspectors
Atomic Energy Act 1954, Sect. 143, "DoD Participation"
49 CFR 382, Controlled Substances and Alcohol Use and Testing
49 CFR 40, Procedures for Transportation Workplace Drug Testing
10 CFR 26, Fitness for Duty Programs
New Mexico Workers' Compensation Act
10 CFR 707, Workplace Substance Abuse Programs at DOE Facilities
DHHS "Mandatory Guidelines for Federal Workplace Drug Testing Programs"
5 CFR 630.1207, Medical Certification
42 CFR 2, Confidentiality of Alcohol and Drug Abuse Patient Records
42 CFR 405, Federal Health Insurance for the Aged and Disabled, et. al., Clinical Laboratory Improvement Amendments of 1988

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

☐ Yes ■ No ☐ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ☐ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910, Worker Safety—extensive OM requirements throughout all sections
29 CFR 1926, Safety and Health Regulations for Construction

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Firearms Safety

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Energetic Systems-Firearms

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

Atomic Energy Act of 1954, 42 United States Code (USC 2201K), as amended, Section 161K
10 CFR 1046, Physical Protection of Security Interests
10 CFR 1047, Limited Arrest Authority and Use of Force by Protective Force Officers
49 CFR 173, Shippers—General Requirements for Shipments and Packages

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

This issue addresses all lasers used at LANL. Lasers are primarily used as research tools and for construction and production (cutting and welding). Locations of use are predominantly indoors with an increasing use of lasers outdoors.

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Energetic Systems——Lasers

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

21 CFR 1040, Performance Standards for Light Emitting Products
21 CFR 1040, FDA CDRH Requirements for Laser Products, if LANL becomes a laser manufacturer

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

Institutions funded by government agencies are required to have a review board (IRB) to ensure that risks to subjects are minimized; risks are reasonable in relationship to anticipated benefits; selection of subjects is equitable, informed consent is obtained, data collection is monitored; privacy and confidentiality are protected; policies are developed that will result in research protocols designed to protect subject and promote sound research.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

DOE Order 1300.3, Policy on the Protection of Human Subjects
DOE Order 4300.2C, Work for Others (Non-Department of Energy Funded Work)
LANL--Multiple Project Assurance to the U.S. Department of Energy of Compliance with Regulations for the Protection of Human Subjects (DOE/MPA: LANL 1996-2000)

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

The explosives safety issue provides protection for the workers, public, environment, and facilities by eliminating uncontrolled/unwanted energetic events and discharges to the environment.

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Energetic Systems—Explosives

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910.146, Confined Space General Industry Standard
29 CFR 1910.268(o), Telecommunications Standard
29 CFR 1910.269(e), (t), Electric Power Standard
29 CFR 1926.21(b)(6), .352(g), .353(b), .651(g), Construction Industry Standards

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Implementation will require review and revision of current LANL confined space program, including appropriate modification of the Laboratory's Administrative Requirement 8-1, Confined Spaces.

(Note: An ANSI standard for confined spaces exists, but it would not significantly add any value beyond the OSHA confined-space regulations so it is not included as a consensus standard.)

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Pressure Safety, including: Pressure Vessels, Compressed Gases, Compressed Gas Cylinders, Pressure Equipment, Vacuum Equipment and Systems, Cryogenic Materials and Systems

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Pressure/Compressed Gas/Cryogens

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

49 CFR 171-179, Storage and Transportation

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

Public Law 91-596 Section 5(a)(1), Occupational Safety and Health Act, "General Duty Clause"

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

☐ Yes ■ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

■ Yes ☐ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

LANL Ergonomic Standard (to be developed)

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

Currently there are no federal regulations specific to ergonomic hazards. Other standards are in draft or proposed states and/or are designed as guidelines to be used with professional judgment. Neither federal nor state proposed regulations have been accepted to date because of difficulty in getting consensus among the public, employers, and others over what should be regulated and required. The State of California appears to be closest to having a potentially acceptable repetitive motion injury (RMI) standard, but the future of this proposed standard is not known.

With the absence of ergonomic regulations and the breadth and complexity of ergonomic issues, maintenance of internal standards is the recommended approach for ensuring adequate protection at Los Alamos National Laboratory.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

Pressure vessels include laboratory equipment under pressure, ASME-rated vessels, air receivers, and cryogenic storage tanks.

The term cryogenic fluid (or cryogen) is defined here as any substance that is used as a working fluid in mechanical refrigerators or as a cooling bath in cryostats. A typical cryogen becomes a gas at ambient temperature and atmospheric pressure. The cryogenic fluids nitrogen and helium are widely used in research activities at the Laboratory, and liquid argon, liquid oxygen, and liquid hydrogen are used less frequently. The Laboratory standard LS 106-05.1 controls the usage of cryogens.

Much of the hardware associated with cryogenics and the practice of low-temperature physics research, such as cryogen storage dewers and common cryostats, are purchased from commercial vendors. It is recommended to perform a FMEA for systems involving very large quantities of inert cryogens or non-exempt amounts of flammable or oxidizing cryogens. For specialty cryostats or test stations exposed to cryogenic temperatures built at LANL, professional scientific and engineering judgment is to be used in the design criteria, construction, testing and usage.

Compressed-gas cylinders contain gases under a pressure considerably above ambient atmospheric pressure, where a sudden release could have catastrophic consequences. Research systems which operate at greater than, or less than, ambient atmospheric pressures often are not covered by recognized statutory requirements and incorporated consensus standards, and at other times research requirements preclude conformance to ASME requirements. Research pressure, compressed gas, cryogenic and vacuum systems often contain scientific glassware components, and pressure systems may contain viewing ports. At times, it may be necessary to include other brittle components into research systems. Brittle components can generate hazardous fragments upon failure, and failure may be initiated by any scratch or defect in glass, for example.

Adoption of and compliance with statutory requirements, consensus standards and the DOE Order 440.1 (Pressure Safety Requirements) for pressure safety provide for control and mitigation of recognized ES&H issues associated with pressure, cryogenic and vacuum systems. This helps to provide for a safe and healthful workplace and reduces the impact on non-related facilities and equipment in the event of a catastrophic occurrence.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Re-write AR 14-1 into a LPR that incorporates existing Laboratory standard LS 105-03.1. This will adequately control and mitigate recognized ES&H issues associated with pressure.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

The ES&H issues associated with decontamination/decommissioning include, but are not limited to—blood-borne pathogens, equipment grounding, chemical hazards contamination, chemical-specific compliance, confined space entries, HAZWOPER, hearing conservation, lockout/tagout of hazardous energy sources, spark/flame-producing operations, personnel protection equipment, first-aid requirements, and asbestos

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Environmental Restoration and Decontamination and Decommissioning

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910.120(g)(5), "Personal Protective Equipment Program for Hazardous Waste Operations and Emergency Response"
ACGIH, "Threshold Limit Values for Physical Agents" (latest edition): Cold Stress; Heat Stress.

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Develop a PPE program addressing limitations during temperature extremes.

Hazard communications training will be addressed separately by ESH training.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

This issue addresses the generic health and safety considerations for drilling activities at Los Alamos National Laboratory. The scope includes personnel training and qualifications; standard operating practices; and requirements, inspections, testing, and maintenance of drilling equipment.

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Environmental Restoration and Decontamination and Decommissioning

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910.95, General Industry Noise Standard
29 CFR 1926.52, Construction Industry Noise Standard
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values for Noise (most recent edition)

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to provide acceptable hearing conservation program elements. Because both the American Conference of Governmental Industrial Hygienists (ACGIH) and the National Institute for Occupational Safety and Health (NIOSH) have indicated that the noise exposure limits found in 29 CFR 1910.95 do not always provide acceptable hearing protection, the ACGIH Threshold Limit Values for Noise (most recent edition) will be adopted as a supplement to the OSHA regulations.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Implementation will require review and revision of the current LANL hearing conservation program and appropriate modification of the Laboratory's Administrative Requirement 8-2, Hearing Conservation.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Fire Protection:

An engineering science intended to provide minimum requirements including construction, maintenance, use, and demolition of property, necessary to establish a reasonable level of fire safety, property protection (inclusive of Fire Department Services and wildland fire protection), and program interruption from fire and/or explosion.

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Fire Protection

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910.97, Non-Ionizing Radiation (except (a)(2) and (a)(3), which are obsolete)
29 CFR 1910.133, Eye and Face Protection
29 CFR 1910.252, Welding, Cutting and Brazing

1) ACGIH, *Threshold Limit Values for Physical Agents* (latest edition): Light and Near-Infrared Radiation; Static Magnetic Fields; Sub-Radiofrequency (30kHz and below) Magnetic Fields; Sub-Radiofrequency (30kHz and below) and Static Electric Fields; Ultraviolet Radiation.

2) IEEE, *American National Standards Safety Level with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300Ghz*, C95.1-1991 (1992).

Where the ACGIH standard conflicts with the IEEE standard (specifically they overlap at the frequencies from 3kHz to 30kHz), the ACGIH guidance will be used because it is reviewed and updated annually.

3) National Electrical Manufacturers Association, *American National Standard for Criteria for Safety Symbols*, ANSI Z535.3-1991 (1991).

4) National Electrical Manufacturers Association, *American National Standard for Environmental and Facility Safety Signs*, ANSI Z535.2-1991 (1991).

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Food Sanitation

This issue relates solely to the hygienic practices and necessary considerations to prevent the transmission of disease associated with the handling of food and equipment in food service and preparation areas. The scope does not address safe drinking water or sanitary sewer considerations. These were addressed by other Focus Groups.

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Food Sanitation

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

1995 U.S. Public Health Service Food Code (FDA), PB95-265492CEH
1993 Food Service and Processor Regulations (NMED) or most current edition, E1BFQM2

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Welding, brazing, cutting, spark-producing

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

General Safety

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The Laboratory used the Necessary and Sufficient Closure Process to establish the Laboratory Performance Requirements (LPRs) for radiological protection of workers. These LPRs go beyond the requirements of 10 CFR 835 to provide special hazard controls for some work at the Laboratory. The DOE-approved Radiation Protection Plan delineates what is expected from Los Alamos to meet 10 CFR 835 and includes the LPRs. Exemptions were identified based upon the work at Los Alamos. The LPRs include consensus and other standards that support meeting the identified requirements.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

NRC standards and INPO guidance provided much of the foundation used to develop 10 CFR 835 and the Los Alamos RPP approved by DOE. Additionally, these external standards provide good guidance for specific applications at Los Alamos.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s) that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue: (cont)

29 CFR 1910.1025	App. C, Lead: Medical Surveillance Guidelines
29 CFR 1910.1027	Cadmium
29 CFR 1910.1027	App. B, Cadmium: Substance Technical Guidelines
29 CFR 1910.1027	App. F, Cadmium: Biological Monitoring
29 CFR 1910.1200	Hazard Communication
NFPA-51	

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Official OSHA interpretations.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910, Occupational Safety and Health Standards
29 CFR 1910, Subpart N, Material Handling and Storage

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified establish a comprehensive set of requirements that provide sufficient safety and health protection for the recognized ES&H issues.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Machines, tools, mechanical hazards

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

General Safety

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Internal procedures must be developed/updated to ensure that the Laboratory notifies proper authorities regarding activities that could potentially impact air navigation.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s) that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue: (cont)

29 CFR 1926.57	Ventilation
29 CFR 1926.100	Head Protection
29 CFR 1926.101	Hearing Protection
29 CFR 1926.102	Eye and Face Protection
29 CFR 1926.103	Respiratory Protection
29 CFR 1926.104	Safety Belts, Lifelines, and Lanyards
29 CFR 1926.105	Safety Nets
29 CFR 1926.250	General Requirements for Storage
29 CFR 1926.300	General Requirements
29 CFR 1926.301	Hand Tools
29 CFR 1926.302	Power Operated Hand Tools
29 CFR 1926.303	Abrasive Wheels and Tools
29 CFR 1926.304	Woodworking Tools
29 CFR 1926.305	Jacks-Lever and Ratchet, Screw and Hydraulic
29 CFR 1926.350	Gas Welding and Cutting
29 CFR 1926.351	Arc Welding and Cutting
29 CFR 1926.352	Fire Prevention
29 CFR 1926.353	Ventilation and Protection in Welding, Cutting, and Heating
29 CFR 1926.417	Lockout and Tagging of Circuits
29 CFR 1926.441	Battery Locations and Battery Charging
29 CFR 1926.450	Ladders
29 CFR 1926.451	Scaffolding
29 CFR 1926.552	Material Hoists, Personnel Hoists and Elevators
29 CFR 1926.553	Base-Mounted Drum Hoists
29 CFR 1926.554	Overhead Hoists
29 CFR 1926.950	General Requirements
29 CFR 1926.951	Tools and Protective Equipment
29 CFR 1926.952	Mechanical Equipment
29 CFR 1926.953	Material Handling

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

New Mexico State Highway and Transportation (NMSH&T) Specifications for Bridge and Road Construction
Manual on Uniform Traffic Control Devices (MUTCD)

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

Standards identified provide adequate protection regarding traffic safety and safe and efficient movement of the motoring public.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Need an internal requirement that new construction, renovation, or expanded use of facilities necessitates the conduct of a traffic impact study. Also see American Society of Highway and Transportation Officials (ASHTO) Policy on Geometric Design of Highways and Streets, Highway Drainage Guidelines, and Roadside Design Guidelines.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Occupational Safety

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

General Safety

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Official OSHA interpretations

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Lighting (illumination) of Work Areas
- includes requirements that will result in a safe work environment

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

General Safety

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Material handling includes the following ES&H issues that can affect worker health and safety: equipment design and certification, maintenance, safe operation, and qualified personnel. The Laboratory uses various types of material-handling equipment in applications that are critical in meeting mission objectives. Thus, it is important to acknowledge that more stringent requirement should be considered for applications that may pose a higher risk potential and associated liabilities to the Laboratory. Equipment used at the Laboratory includes the following: overhead cranes/hoists, mobile cranes, jacks, powered industrial trucks, hooks, cableways, sideboom tractors, slings, below-the-hook lifting devices, manually lever-operated hoists, articulating boom cranes, conveyors, tie downs, dollies, and carts.

A considerable volume of material-handling activities is conducted by individuals without the aid of mechanical devices or equipment. Note that back injury is addressed by another Focus Group.

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Material Handling

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

29 CFR 1910, Subpart N, Materials Handling and Storage, and the listed sections of 29 CFR 1926, Safety and Health Regulations for Construction, are acceptable industry wide for safe operations concerning material handling and storage. They incorporate other industry and professional consensus standards that address design and maintenance for worker health and safety. The application of these standards will provide effective protection of workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

New Mexico State Hoisting and Operator Safety Act—State Licensing Requirement for Mobile Crane Operators

LANL LIR 402-1110-01, Forklift and Powered Industrial Trucks, and LANL ESH Manual AR 13-2, Cranes, Hoists, Lifting Devices and Rigging, will be drafted into a LIR.

The following American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME) standards should be used as guidance in the design and acquisition of material-handling equipment:

ANSI/ASME B30.1, Jacks
ANSI/ASME B30.2, Overhead/Gantry Cranes
ANSI/ASME B30.5, Derricks
ANSI/ASME B30.7, Base Mounted Drums
ANSI/ASME B30.9, Slings
ANSI/ASME B30.10, Hooks
ANSI/ASME B30.11, Monorails/Underhung Cranes
ANSI/ASME B30.14, Sideboom Tractors
ANSI/ASME B30.16, Overhead Hoists
ANSI/ASME B30.17, Overhead and Gantry Cranes
ANSI/ASME B30.19, Cableways
ANSI/ASME B30.20, Below-the-Hook Lifting Devices
ANSI/ASME B30.21, Manually Lever Operated Hoists
ANSI/ASME B30.22 Articulating Boom Cranes
ANSI/ASME Paid-12C, Shop Cranes
ANSI/ASME B56.1, Powered Industrial Trucks

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Occupational Medicine: This issue addresses the generic aspects of Occupational Medicine services: Medical Surveillance and Certification, Education, Employee Assistance Program Health Promotion, Medical Review Officer Services, Medical Records Management, Fitness for Duty (FFD), Managed Care of Work-Related Injuries, Medical Evaluation and Treatment of Employee Injuries/Illnesses, Worksite Assessments, Health Education, Emergency Response and Management, Liaison with Local Medical Community, Fitness Assessments, Fitness Training of Security Inspectors and Firefighters, Epidemiology, Employee Assistance Program Referral Option (EAPRO), Drug and Alcohol Rehabilitation Program, Human Reliability Programs, Health Case Management, Biological Monitoring Services, Sickness and Absenteeism Rehabilitation Management, Vocational Rehabilitation, Radiation Health Program, Medical Toxicology Services, Reproductive Health and Pregnancy Counseling, OSHA 200/CAIRS/Workers' Compensation Reporting, Occurrence Reporting, Return to Work Evaluations, Preventive Medicine, Alternate Placement of Employee, Critical Incident Stress Debriefing, Crisis Negotiation, Radiation Assistance Program, Rapid Action Team (Worksite Violence Control), Medical and Psychological Counseling, Physical Therapy, Clinical Referrals, Community Outreach, Health Risk Appraisal, Medical Self-Care Training and Support, Early-Return-to-Work Program, In-House Pharmacy Services, Clinical Laboratory Services, Radiology Services, Medical Information Management, Maintaining Confidentiality of Sensitive, Unclassified, Medical Information, Employee Counseling for Family Medical Leave Act (FMLA) and Americans with Disabilities Act (ADA), Fitness Facility Management, Emergency Medical Evaluation and Treatment, Decontamination of Personal Chemical/Radiological Contamination.

This issue does not address immunizations, foreign-travel clinic services response to an infectious disease outbreak, infectious disease prevention, or human studies. These are addressed by other Focus Groups.

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Occupational Medicine

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

American National Standards Institute (ANSI)
American Society of Mechanical Engineers (ASME)
NM State Board of Pharmacy Regulations
NM State Board of Medical Examiners Regulations
NM State Board of Nursing
NM State Physical Therapy Board
NM Board of Psychologist Examiners
NM State Counseling and Therapy Practice Board
US DEA Controlled Substances Licensing Requirements
American Registry of Radiologic Technologists
NM State Environment Department, Radiation Licensing and Registration
NIOSH Audiology Certification Requirements
Council of Accreditation for Occupational Hearing Conservationists
ESH-2/ESH-5 Integration Plan
LANL Substance Abuse, AM 110
JCI Drug and Alcohol Policy
PTLA Drug and Alcohol Policies and Procedures
Various NM State Boards for Professional Accreditation

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Human Subject Research: The issue addresses responsibility and requirements for the ethical and safe conduct of research involving human subjects: respect for persons, beneficence, and justice. (The Belmont Report published by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research-1979)

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Human Subject Research

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

10 CFR 745, Federal Policy for the Protection of Human Subjects; Notices and Rules (known as the Common Rule)
45 CFR 46, Subparts B, C, and D, Department of Health and Human Services, Protection of Human Subjects
45 CFR 46, Research Activities which may be reviewed through expedited review procedures
21 CFR 50, Protection of Human Subjects
21 CFR 56, Institutional Review Boards

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Confined Spaces

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Physical Hazards

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Ergonomics disorders or cumulative trauma disorders (CTD's) are caused by (1) high repetition, (2) awkward postures, (3) high forces, (4) vibration, and (5) a lack of recovery time for the body. A combination of these factors can contribute to developing CTD's such as carpal tunnel syndrome, thoracic outlet syndrome, Raynauds syndrome, tendonitis, etc. The Laboratory has workplaces that present a wide array of ergonomic hazards/concerns from VDT use, materials handling, glove-box work, pipetting, etc. These workplaces could have a negative impact on LANL through lost workdays, workdays restricted, and workers compensation costs.

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Ergonomic Subcommittee of Physical Hazards

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

Public Law 91-596 Section 5(a)(1), Occupational Safety and Health Act, "General Duty Clause"

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

☐ Yes ■ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

■ Yes ☐ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

LANL Ergonomic Standard (to be developed)

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

Currently there are no federal regulations specific to ergonomic hazards. Other standards are in draft or proposed states and/or are designed as guidelines to be used with professional judgment. Neither federal nor state proposed regulations have been accepted to date because of difficulty in getting consensus among the public, employers, and others over what should be regulated and required. The State of California appears to be closest to having a potentially acceptable repetitive motion injury (RMI) standard, but the future of this proposed standard is not known.

With the absence of ergonomic regulations and the breadth and complexity of ergonomic issues, maintenance of internal standards is the recommended approach for ensuring adequate protection at Los Alamos National Laboratory.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

No single standard or guideline covers all aspects of ergonomics or establishes minimum requirements that are appropriate in all cases. LANL will use the following guidance in implementing an ergonomics program. Los Alamos will continue its ergonomics program and use of PUB-3000, Chapter 17, Ergonomics.

- California Proposed (7/96 Draft) State standard, Title 8, Chapter 4, Section 5110, Repetitive Motion injuries. The proposed five-page standard: (1) applies to work, or similar work, that has caused RMIs to more than one employee in the last year, and (2) requires that the following types of objectives be achieved: risk-minimization program, worksite evaluation of a representative number of jobs, control of exposures, and training.
- ANSI/HFES 100, 1988, American National Standard for Human Factors Engineering of Visual Display Terminal Workstations. This is a detailed technical standard that specifies acceptable conditions representing implementing of human factors, engineering principles, and practices in the design of VDTs.
- NIOSH Work Practices Guide for Manual Lifting, Technical Report 81-122, 1991 revision. This guide provides health and safety professionals quantitative means for evaluating lifting and lowering jobs for establishing weight limits.
- DOE Order 6430.1A, 1989, General Design Criteria, Section 1300-12, Human Factors engineering. This nine-page section outlines general considerations for: (1) incorporating human-factors engineering into the system design process; (2) human-machine displays, controls, alarms, labeling, and communications; and (3) work environment ventilation, lighting, noise, and space and equipment layout and design.
- Proposed ANSI Z-365, 1993 or 1996 draft, Control of Cumulative Trauma Disorders. This is a proposed, roughly 80-page, comprehensive, technical standard that specifies principles and practices for controlling a wide range of CTDs. The standard assumes and requires use by trained individuals and use of professional judgment.
- Federal OSHA Boston Regional Office Instruction of Inspectors Providing Guidance and Procedures for Ergonomic Inspections, January 6, 1993. This instruction provides guidance and procedures to be used by Boston OSHA for ergonomic inspections involving CTDs.
- Federal OSHA Technical Manual, Section VI—Ergonomics, Chapter 3—Back Disorders and Injuries. Issued by OSHA Instruction TED 1.15, September 22, 1995. This Section provides guidance to Federal OSHA for ergonomic inspections involving control of back disorders and injuries.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Heat and Cold Stress in the Work Environment

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Physical Hazards

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910.120(g)(5), "Personal Protective Equipment Program for Hazardous Waste Operations and Emergency Response"
ACGIH, "Threshold Limit Values for Physical Agents" (latest edition): Cold Stress; Heat Stress.

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Develop a PPE program addressing limitations during temperature extremes.
Hazard communications training will be addressed separately by ESH training.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Noise

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Physical Hazards

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910.95, General Industry Noise Standard
29 CFR 1926.52, Construction Industry Noise Standard
American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values for Noise (most recent edition)

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to provide acceptable hearing conservation program elements. Because both the American Conference of Governmental Industrial Hygienists (ACGIH) and the National Institute for Occupational Safety and Health (NIOSH) have indicated that the noise exposure limits found in 29 CFR 1910.95 do not always provide acceptable hearing protection, the ACGIH Threshold Limit Values for Noise (most recent edition) will be adopted as a supplement to the OSHA regulations.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Implementation will require review and revision of the current LANL hearing conservation program and appropriate modification of the Laboratory's Administrative Requirement 8-2, Hearing Conservation.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Nonionizing Electromagnetic Radiation (excluding lasers) and Fields, including Microwaves

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Physical Hazards

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910.97, Non-Ionizing Radiation (except (a)(2) and (a)(3), which are obsolete)
29 CFR 1910.133, Eye and Face Protection
29 CFR 1910.252, Welding, Cutting and Brazing

1) ACGIH, *Threshold Limit Values for Physical Agents* (latest edition): Light and Near-Infrared Radiation; Static Magnetic Fields; Sub-Radiofrequency (30kHz and below) Magnetic Fields; Sub-Radiofrequency (30kHz and below) and Static Electric Fields; Ultraviolet Radiation.

2) IEEE, *American National Standards Safety Level with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300Ghz*, C95.1-1991 (1992).

Where the ACGIH standard conflicts with the IEEE standard (specifically they overlap at the frequencies from 3kHz to 30kHz), the ACGIH guidance will be used because it is reviewed and updated annually.

3) National Electrical Manufacturers Association, *American National Standard for Criteria for Safety Symbols*, ANSI Z535.3-1991 (1991).

4) National Electrical Manufacturers Association, *American National Standard for Environmental and Facility Safety Signs*, ANSI Z535.2-1991 (1991).

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

1) Any work/ES&H issues determined not to be adequately addressed by these standards will be reviewed on a case-by-case basis, consistent with Integrated Safety Management.

2) Hazard communication training will be addressed separately by ESH training.

3) Electromagnetic pulse (EMP) studies and high magnetic field research will need to ensure that activity- and facility-specific standards are consistent with the institutional set.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Protection of workers from radiological hazards.

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Radiological Protection

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

10 CFR 835

[Note: The DOE-approved Los Alamos Radiation Protection Program is the implementing requirement for 10 CFR 835 (without matrix, revision 1.1). It incorporates the applicable provisions of 10 CFR 835, Occupational Radiation Protection, and any exemptions to these regulations as granted by DOE from time to time.]

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

■ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

Two exemption requests submitted to DOE are under review.

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The Laboratory used the Necessary and Sufficient Closure Process to establish the Laboratory Performance Requirements (LPRs) for radiological protection of workers. These LPRs go beyond the requirements of 10 CFR 835 to provide special hazard controls for some work at the Laboratory. The DOE-approved Radiation Protection Plan delineates what is expected from Los Alamos to meet 10 CFR 835 and includes the LPRs. Exemptions were identified based upon the work at Los Alamos. The LPRs include consensus and other standards that support meeting the identified requirements.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

NRC standards and INPO guidance provided much of the foundation used to develop 10 CFR 835 and the Los Alamos RPP approved by DOE. Additionally, these external standards provide good guidance for specific applications at Los Alamos.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Traffic Vehicle, Driver, and Special Purpose Vehicles

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Traffic Safety

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

49 CFR 106, 107, 171, 172, 173, 177, 178, 40, 382, 383, 390-397, 399, Transportation
State of New Mexico—TRD Rule MCS-96, New Mexico Adoption of Federal Motor Carrier Safety Regulations with certain amendments
State of New Mexico—MVC 5-93

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910, Occupational Safety and Health Standards
29 CFR 1910, Subpart N, Material Handling and Storage

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified establish a comprehensive set of requirements that provide sufficient safety and health protection for the recognized ES&H issues.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Aviation in Research and Development Activities

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Traffic Safety

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

Title 14 CFR - Federal Aviation Administration (FAA)

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

LANL's work and ES&H issues in this area are similar to what is found in industry and academia. The standards cited are considered necessary and sufficient to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Internal procedures must be developed/updated to ensure that the Laboratory notifies proper authorities regarding activities that could potentially impact air navigation.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Traffic Design Standards (to ensure safe travel)

2. ID Team:

■ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Traffic Safety

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

American Disability Act (ADA)

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

New Mexico State Highway and Transportation (NMSH&T) Specifications for Bridge and Road Construction
Manual on Uniform Traffic Control Devices (MUTCD)

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

Standards identified provide adequate protection regarding traffic safety and safe and efficient movement of the motoring public.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Need an internal requirement that new construction, renovation, or expanded use of facilities necessitates the conduct of a traffic impact study. Also see American Society of Highway and Transportation Officials (ASHTO) Policy on Geometric Design of Highways and Streets, Highway Drainage Guidelines, and Roadside Design Guidelines.

Los Alamos & DOE Participants on Joint Focus Groups of ES&H Work Smart Standards Identification (ID) Teams

Focus Groups of Environmental Protection ID Team (ID Team Leaders— Doris Garvey, Wayne Hansen)	Lab Workers	Lab SME	DOE SME
Air (radioactive and nonradioactive emissions, etc.) **EP/Air-1 (Radioactive)** **EP/Air-2 (Public Health)** **EP/Air-3 (Emergency)**	Robert Keys, LANSCE Robert Romero, CST	Doug Stavert, ESH	Shiv Goel, AL S. Fong, LAAO
Natural Resources (NEPA, ecology, archeology, etc.) **EP/NR-1 (Ecology)** **EP/NR-2 (Cultural)** **EP/NR-3 (Environmental)** **EP/NR-4 (Soils)** **EP/NR-5 (Boating)**	Carey Bare, ESH Phil Fresquez, ESH R. Huchton, ESH David C. Keller, ESH T. Ladino, ESH Margaret A. Powers, ESH Bill Schueler, NMT Ann Sherrard, ESA	Bev Larson, ESH Rueben Rangel, ESH Bob Vocke, EM Diana Webb, ESH	Dean Triebel, LAAO
Packaging and Transportation (hazardous/chemical, radioactive, waste, classified, etc.) **EP/P&T-1 (Off-Site)** **EP/P&T-2 (Intra-Site)**	Dan Oakley, EM Randy Rowan, ESA Diana Sena, NMT	Tim Cash, BUS D. McCollum, BUS Pat Myers, BUS Tim Stone, BUS	James Nunz, LAAO Roy, Lybarger, NSD Carey Loflin, AL
Surface and Groundwater (NPDES, stormwater, etc.) **EP/SGW-1 (Surface Water)** **EP/SGW-2 (Ground Water)** **EP/SGW-3 (Drinking Water)** **EP/SGW-4 (Liquid Releases)** **EP/SGW-5 (Pesticides)** **EP/SGW-6 (Waste Water Discharge)**	Mike Alexander, ESH Bob Beers, ESH Charlie Barnett, JCI Michael Brown, JCI Charlie Nylander, ESH Mike Saladen, ESH Ann Sherrard, ESA	Steve Rae, ESH	Karen McAda, AL
Waste (hazardous/chemical, biological/medical, low-level and mixed low-level radioactive, TRU, classified, "legacy," etc.) **EP/Waste-1 (TRU)** **EP/Waste-2 (Low-Level)** **EP/Waste-3 (Polychlorinated)** **EP/Waste-4 (Environmental)** **EP/Waste-5 (Industrial)** **EP/Waste-6 (Waste Oil)** **EP/Waste-7 (Mixed Waste)** **EP/Waste-8 (Underground)** **EP/Waste-9 (Hazardous)**	Larry Maassen, EM Johnny Harper, CST Juan Corpion, CST Scott Downing, LS Charles Foxx, NMT Mandy Fuehrer, EM Charles Peper, EM-SWO	Jim White, ESH	James Nunz, LAAO
Waste Minimization and Pollution Prevention **EP/P2-1**	Sam Pillay, NMT Tony Grieggs, ESH David Jamriska, CST Ron Morgan, ESH Mandy Fuehrer, EM Richard Perkins, JCI	Tom Starke, EM	Ron Dobbs, AL Patty Bergland, DOE/LAAO

Environmental Protection Justification

I. General Background

Los Alamos National Laboratory conducts all of its activities with the highest regard for the protection of its workers, the public, the environment, and facilities. This is reflected in the Laboratory's set of ES&H Work Smart Standards identified as necessary and sufficient for performing work safely. This institutional (Lab-wide) set was identified after a comprehensive list of the Laboratory's work and associated ES&H issues (hazardous materials/conditions and other ES&H concerns) was compiled and validated in all organizations at Los Alamos. An analysis of this list confirmed that most of the work and associated ES&H issues at Los Alamos have direct analogs in U.S. private industry and academia and that, for unique work, the ES&H issues associated with that work are comparable in industry/academia. This similarity with industry/academia is reflected by the applicability and inclusion of many national consensus standards in the Laboratory's set of ES&H Work Smart Standards.

The Laboratory's institutional set of ES&H Work Smart Standards has two major components: baseline standards and supplemental (above baseline) standards. The baseline standards are defined by the combination of standards identified by the Worker Health and Safety ID Team, the Environmental Protection ID Team, the Emergency Preparedness and Management ID Team, and, for facility design and operations, the Facilities ID Team. These baseline standards are common to all Laboratory work. These standards reflect the same laws, regulations, and consensus standards (with some additional DOE standards) that private industry and academia are meeting to protect workers, the public, the environment, and facilities. Additionally, the Accelerator Facilities Focus Group and Nuclear Facilities Focus Group each identified for their unique work and associated ES&H issues the supplemental standards that are considered necessary, along with the baseline standards, to perform work safely in those facilities at Los Alamos. For specific Laboratory work and associated ES&H issues, it is essential that the entire institutional set of ES&H Work Smart Standards be viewed as a whole when identifying the applicable subset that must be met when performing the work. This is to be accomplished through effective implementation of the Laboratory's Integrated Safety Management System.

Each ID Team comprised one or more focus groups consisting of knowledgeable and qualified workers from affected Los Alamos organizations and both a DOE and a Los Alamos subject matter expert (SME). While SMEs were perhaps more knowledgeable of the applicable laws and regulations, neither they nor the workers unilaterally drove the standards identification process. Los Alamos workers brought first-hand knowledge of the work and associated ES&H issues and, together with the SMEs, were vital in identifying the institutional set of ES&H Work Smart Standards. All focus group members had an equal voice in the process, and consensus was reached in all cases, i.e., no minority reports were filed.

II. Specific Justification

The Work Smart Standards for environmental protection were identified by six focus groups under the Environmental Protection ID Team. All six focus groups had SMEs to address the breadth as well as the depth of legal requirements that exist and may be applicable to the diverse work and associated ES&H issues of the Laboratory. Each focus group had at least, and in several cases well over, 30 person-years of relevant experience among the SMEs. Additionally, Laboratory workers from those organizations most impacted by the requirements were assigned by their respective managers. These workers had a total of over 300 person-years of relevant experience. The size of the focus groups ranged from two Laboratory workers and two SMEs to six workers and two SMEs.

Air (Radioactive and Nonradioactive Air Emissions)

Radioactive air emissions from the Laboratory occur at several facilities. The standards for radioactive air emissions from DOE facilities are federal regulations under the Clean Air Act (CAA) found in 40 CFR 61, Subpart H (National Emission Standards for Emissions of Radionuclides other than radon from Department of Energy Facilities). For radionuclide emissions, required standards are administered at the federal level by EPA. In addition, DOE Orders 5400.1, General Environmental Protection Program, and 5400.5, Radiation Protection of the Public, deal with radioactive air emissions monitoring and reporting. The planning, monitoring, dose limits, and ALARA (as low as reasonably achievable) portions of these Orders are standards that are adopted.

Emissions to the air from the Laboratory and the phase-out of ozone-depleting substances (ODS) are regulated by the CAA. Regulations for both radionuclide and non-radionuclide emissions and for ODS have been established in Title 40 CFR, Protection of the Environment. At the state level, requirements for non-radionuclide emissions have been established by the State of New Mexico Air Quality Control Act and its implementing regulations in Title 20. A hazardous material inventory is required by the Emergency Planning and Community Right-to-Know Act (EPCRA) for facilities that are required to maintain material safety data sheets (MSDSs) under OSHA. Executive Order No. 12856, Federal Compliance with Right to Know Laws and Pollution Prevention Requirements, requires DOE to comply with EPCRA, and the University of California (UC) supports DOE in DOE's compliance with the laws, regulations, executive orders, etc., that apply to DOE, but the parties acknowledge that UC is not independently bound by these laws or this contract to comply with these laws, etc.

Asbestos emissions are regulated under the CAA and its federal regulations (40 CFR 61), which include work-practice standards for renovation and demolition operations. For worker protection, asbestos standards have also been prescribed in OSHA and its implementing regulations, 29 CFR, Labor.

Environmental Protection Justification

Natural Resources

The National Environmental Policy Act (NEPA) and Council on Environmental Quality (CEQ) regulations specifically state that compliance is the responsibility of federal agencies, such as DOE, and cannot be further delegated. The current practice is for the Laboratory to support DOE to comply with NEPA requirements.

The federal laws and regulations regarding cultural resources require DOE to identify archaeological and historical resources present on its property, and to take proper steps to preserve or otherwise mitigate impacts to these resources. DOE must consider the effect of its actions on archaeological and historical resources located on other lands. The current practice is for the Laboratory to support DOE to meet these requirements. Additionally, DOE must protect traditional cultural uses in certain situations. The federal statutes include the National Historic Preservation Act, the Archaeological and Historic Preservation Act, the Native Americans Graves Protection and Repatriation Act, the American Indian Religious Freedom Act, and their implementing regulations are listed as required standards.

The federal Endangered Species Act (ESA) requires federal agencies to ensure that actions they authorize, approve, and implement do not jeopardize the continued existence of threatened or endangered species and their habitat(s). The Laboratory currently contains potential habitats for listed endangered species. In addition, work performed off-site may be impacted by this requirement. The current practice is for the Laboratory to support DOE to comply with ESA requirements.

The Laboratory also identified State of New Mexico Statutes for the protection of natural resources. Sampling programs for monitoring contaminant levels in biota are subject to the conditions of the State of New Mexico Wildlife Conservation Act for permits. Portions of the DOE Orders for environmental radiation protection (5400.1 and 5400.5) have been identified as standards for this monitoring program.

In the Federal Water Pollution Control Act (FWPCA), as amended, there are provisions requiring DOE and the Laboratory to consider the effects of their projects on floodplains and wetlands. At the Laboratory, some on-site activities could affect wetlands in certain areas. In addition, Laboratory projects conducted off-site have the potential to impact floodplain or wetland areas. Therefore, the floodplains and wetlands provisions of the FWPCA and the corresponding regulations in 10 CFR, Energy, and 33 CFR, Navigation and Navigable Waters, were selected as necessary legal requirements. The Laboratory will continue to support DOE to meet these requirements.

DOE Orders covering environmental radiation protection (5400.1 and 5400.5) and guidance documents were reviewed and standards selected that provide an industry-standard site program. Establishing standards that address all ES&H issues of an industry-standard site program is important to ensuring the protection of the public and the environment. Also considered as part of the standard selection

process was the cost to both the Laboratory and DOE of implementing the selected standard(s). In DOE Order 5400.1, specific paragraphs of Chapter IV were selected as necessary external standards to establish the requirements for an environmental monitoring program. In DOE Order 5400.5, specific paragraphs of Chapter II were included to establish the necessary external standards for public dose limits, determining reasonable emission reductions, release of property, performing dose evaluations, reporting and records management, and Chapter IV for residual radioactive materials. In addition, the DOE implementation guidance, to the extent that it modifies the selected portions of DOE Order 5400.5, was also selected as a necessary external standard. The Air Quality and Surface and Groundwater Focus Groups also identified the DOE Orders 5400.1 and 5400.5 for monitoring and surveillance as appropriate for the protection for those resources.

Preparation of a site environmental report is not a legal requirement. However, there is value added by distributing annual summary data. The method for communicating will be developed and will provide useful information to the general public.

Surface and Groundwater (NPDES, stormwater, etc.)

The FWPCA, as amended, and its implementing regulations in specific sections of 40 CFR establish standards for discharges of pollutants to navigable (surface) waters. State and local standards also apply to discharges to navigable waters and are found in the New Mexico Water Quality Act and appropriate implementing regulations. However, these standards do not apply to most radioactive materials, as these are regulated by the Atomic Energy Act (AEA). Standards for such radioactive materials are discussed in the section on natural resources.

Groundwater regulations regarding quantity and quality of water are present in both federal and state regulations. The New Mexico requirements are found in the New Mexico Hazardous Waste Act, the New Mexico Solid Waste Act, the New Mexico Water Quality Act, and implementing regulations in Title 20 of the New Mexico Administrative Code (NMAC). The federal laws are implemented by regulations in 40 CFR. For radioactive materials the DOE Orders 5400.1 and 5400.5 address groundwater protection and monitoring. For radioactive waste disposal sites, the DOE Order 5820.2A requires performance assessment monitoring of the groundwater to assure that estimates of acceptable performance are being met.

Federal and state regulations provide requirements for regulating certain aspects of drinking water. The regulations stemming from the Safe Drinking Water Act are in 40 CFR and the State of New Mexico regulations are in Title 20. Since radioactive materials in drinking water are addressed by the federal and state regulations, the DOE Orders are not needed to provide adequate protection.

Pesticides (insecticides, fungicides, rodenticides, and herbicides) are regulated in 40 CFR and by the State of New Mexico under Title 21 of the NMAC. Also adopted

were two Regulatory Orders of the New Mexico Department of Agriculture that deal with regulated applicators and commercial applicators.

Waste Management

Hazardous, radioactive, mixed (hazardous and radioactive), and medical wastes are generated by a wide variety of research and support activities at the Laboratory. These wastes are managed at its hazardous waste-handling facilities, waste and satellite accumulation areas, and fixed-treatment units located throughout the site, and either treated on-site or shipped off-site for disposal.

The federal and state laws and regulations provide a comprehensive set of requirements for the management of hazardous waste and the hazardous components of mixed waste at the Laboratory. Federal requirements have been established by the Resource Conservation and Recovery Act (RCRA) and related regulations in specific sections of Title 40 and 29 CFR. State requirements are established in the New Mexico Hazardous Waste Act and implementing regulations in Title 20, NMAC.

Requirements for the management of Low-Level and Transuranic (TRU) radioactive wastes and the radioactive components of mixed waste are prescribed in DOE Order 5820.2A. Chapters II, III, IV, and V of the Order establish the standard set required by DOE for the Laboratory to meet the Waste Acceptance Criteria (WAC) of the disposal sites. These chapters cover transuranic, low-level, and accelerator-produced wastes, and wastes generated as a result of decommissioning facilities. In addition, the WAC are important for protecting the public, worker safety and health, and the environment at the disposal sites. Specifically, they create important limitations on waste composition and packaging.

Requirements for the storage of hazardous waste in aboveground tanks and for the storage of hazardous materials in underground tanks have been established in RCRA and the New Mexico Hazardous Waste Act and their implementing regulations in specific sections of 40 CFR and Title 20, respectively.

Standards regarding equipment containing polychlorinated biphenyl (PCB) have been established by the Toxic Substance Control Act (TSCA) and its implementing regulations in 40 CFR. At the Laboratory, these standards apply to PCB-containing electrical equipment such as capacitors. Administration of this standard is at the federal level, so no state or local standards apply. The TSCA also contains requirements regarding the cleanup of PCB spills and the disposal of PCB equipment and wastes. PCB spills impacting water courses are addressed by the State of New Mexico under Title 21, NMAC.

The New Mexico Solid Waste Act contains requirements for medical waste. Related federal regulations have been established in 29 CFR. The TSCA provides requirements for disposal of PCB-contaminated oil. Asbestos, medical, and

infectious wastes are addressed by both federal and state laws. Waste oils are addressed by both federal and state laws in specific sections of 40 CFR and Title 20, respectively.

Packaging and Transportation

Department of Transportation (DOT) requirements in 49 CFR, Hazardous Waste Transportation Provisions, and regulations in 10 CFR, Energy, were selected for off-site, intra-site, and on-site transportation of hazardous, radioactive, and mixed wastes because they legally apply to transportation of materials on public roads. The DoD and DOE Explosives Classifications and Explosives Manual were selected as standards for on-site, intra-site, and off-site transportation of explosives because they have the necessary breadth of coverage and sufficient depth in detail to address the explosives transportation ES&H issues at the Laboratory. Also, the Los Alamos Packaging and Transportation Manual jointly developed and approved by LANL and DOE is currently being updated and addresses requirements for on-site and intra-site transportation.

Waste Minimization and Pollution Prevention

Waste minimization and pollution prevention requirements are contained in federal regulations that govern emissions, effluent, and waste handling (RCRA, CAA, and the FWPCA). Block 15 in the Focus Group documentation identifies a number of standards that were considered for inclusion in the Work Smart Standards set. These standards are included to support implementation of Goal 2. Executive Orders, permits, and Federal Facility Compliance Agreements contain specific information that will be considered in preparing the Laboratory Performance Requirements.

In summary, the identified Work Smart Standards for environmental protection are a major element of the baseline set of ES&H Work Smart Standards common to all Laboratory work. These standards include the laws, regulations, and consensus standards necessary and sufficient for protecting workers, the public, the environment, and facilities.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Radioactive and Non-Radioactive Air Emissions, Ozone Depleting Substances, and Monitoring of Radiological Stacks

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Air Quality

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

Clean Air Act and Clean Air Act Amendments
New Mexico Air Quality Control Act

20 NMAC 2.1	General Provisions
20 NMAC 2.2	Definitions
20 NMAC 2.3	Ambient Air Quality Standards
20 NMAC 2.7	Excess Emissions during Malfunction, Startup, Shutdown, or Scheduled Maintenance
20 NMAC 2.11	Asphalt Process Equipment
20 NMAC 2.60	Open Burning
20 NMAC 2.61	Control of Smoke and Visible Emissions
20 NMAC 2.70	Operating Permits
20 NMAC 2.71	Operating Permit Emission Fees
20 NMAC 2.72	Construction Permits
20 NMAC 2.73	Notice of Intent and Emissions Inventory Requirements
20 NMAC 2.77	New Source Performance Standards (40 CFR 60 Subpart A)
20 NMAC 2.77	NSPS for Volatile Organic Liquid Storage Vessels
20 NMAC 2.78	NESHAP - General Provisions (40 CFR 61 Subpart A)
20 NMAC 2.78	NESHAP for Beryllium (40 CFR 61 Subpart C)
20 NMAC 2.78	NESHAP for Asbestos (40 CFR 61 Subpart M)

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

6. List applicable legal requirement(s) (cont):

20 NMAC 2.82	General Requirements (40 CFR 63 Subpart A)
40 CFR 61 Subpart H	NESHAP for Radionuclides other than Radon for DOE Facilities
40 CFR 61 Subpart Q	NESHAP for Radon Emissions from DOE Facilities
40 CFR 63 Subpart T	NESHAP for Halogenated Solvent Cleaning
40 CFR 68	Accidental Release
40 CFR 80 Subpart B	Controls and Prohibitions
40 CFR 80 Subpart G	Fuels and Fuel Additives: Regulation of Fuels and Fuel Additives: Interim Requirements for Deposit Control Gasoline Additives
40 CFR 82 Subpart B	Servicing of Motor Vehicle Air Conditioners
40 CFR 82 Subpart F	Recycling and Emission Reduction

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards cited are necessary and sufficient for ensuring, upon effective implementation, that the workers, the public, the environment, and facilities are protected.

Emissions to the air from LANL are regulated by the Clean Air Act (CAA) and implementing regulations in the 40 CFR series, and the State of New Mexico Air Quality Control Act and implementing regulations in 20 NMAC, Chapter 2. Enforcement authority for radioactive air emissions (40 CFR 61 Subpart H) has not been delegated to the State of New Mexico. Non-radioactive air emissions are regulated by the State of New Mexico.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Public Health Impacts (Dose Assessments) - Rad Air Emissions; Associated Surveillance and Monitoring

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Air Quality

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

DOE 5400.1 General Environmental Protection Program
Chapter III Environmental Protection Program Plans
Chapter IV Environmental Monitoring Requirements
1. Purpose
2. Applicability
3. Pre-operational Monitoring of Facilities, Sites, and Operations
4. Environmental Monitoring Plans
5. Environmental Monitoring - General Requirements
   a. Effluent Monitoring
   b. Environmental Surveillance
6. Meteorological Monitoring Program
7. Radiological Monitoring
8. Non-Radiological Monitoring
   a. Air Monitoring - Emissions
   b. Air Monitoring - Environmental Surveillance
10. Quality Assurance and Data Verification

DOE 5400.5 Radiation Protection of the Public and the Environment
Chapter I General
8. Effluent Monitoring and Environmental Surveillance
   a. Demonstration of Compliance
   b. Monitoring and Surveillance Requirements
10. Dose Evaluations

Chapter II Requirements for Radiation Protection of the Public and the Environment
1. Public Dose Limits
2. The ALARA Process
6. Demonstration of Compliance with the Dose Limits
7. Reporting Requirements
8. Records

Chapter III Derived Concentration Guides for Air and Water

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards cited are necessary and sufficient for ensuring, upon effective implementation, that the workers, the public, the environment, and facilities are protected.

Public health impacts and dose assessment activities have been directed by DOE Orders. These orders have established public health dose standards. These dose standards are applicable to all emissions of radioactive material from all exposure pathways.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Some aspects of the implementation of the environmental monitoring effort (AIRNET and TLDNET) are being reviewed with DOE and non-value added components of these programs will be discontinued.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

EPCRA - Emergency Planning and Community Right to Know

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Air Quality

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

The University of California (UC) supports DOE in DOE's compliance with the following laws, regulations, executive orders, etc., that apply to DOE, but the parties acknowledge that UC is not independently bound by these laws or this contract to comply with these laws, etc.

40 CFR 372, Emergency Planning and Community Right to Know Act (EPCRA)

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

Los Alamos operations are similar to those for industry from an emergency planning and community right-to-know perspective.

The standards identified are necessary and sufficient to meet emergency planning and community right-to-know expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

EPCRA regulations (40 CFR 372) require owners and operators of facilities within specified SIC Codes and seven (7) other industry groups to report on releases of chemicals if they exceed certain amounts. The DOE facilities do not fit within EPCRA's SIC Codes or industry groups and so the Laboratory is exempt from the reporting requirements. However, Executive Order #12856 requires federal agencies to report as per the EPCRA requirements. LANL will continue to voluntarily support this effort.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Ecology, Flood Plains and Wetlands, Forestry, Insects, and Wildlife.

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Natural Resources

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

Federal Water Pollution Control Act FWPCA § 311 (f)(4) and (f)(5)
40 CFR 300, National Oil and Hazardous Substances Pollution Contingency Plan
43 CFR 11 Natural Resource Damage Assessments, Final Rule
CERCLA § 107

The University of California (UC) supports DOE in DOE's compliance with the following laws, regulations, executive orders, etc., that apply to DOE, but the parties acknowledge that UC is not independently bound by these laws or this contract to comply with these laws, etc.

Endangered Species Act (16 U.S.C. 1531-1543)
- 50 CFR 17.11, Endangered and Threatened Wildlife (August 23, 1993)
- 50 CFR 17.12, Endangered and Threatened Plants (August 23, 1993)
- 50 CFR 10, General Provisions (April 5, 1985)
- 50 CFR 402, Interagency Cooperation—Endangered Species Act of 1973, as amended (Section 7, Consultation)

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

☐ Yes ■ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

☐ Yes ☐ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

☐ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection expectations for protecting the workers, public, environment, and facilities.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

CERCLA § 101, 104, and 120
Resource Conservation and Recovery Act (42 USCA Section 6924) as implemented by
40 CFR 264.101, Corrective Action for Solid Waste Management Units
State of New Mexico Hazardous Waste Act as implemented by
20 NMAC 4.1 Subpart V.500 at 40 CFR 264.101
10 CFR 1022 Compliance with Flood Plain/Wetlands Environmental Review Requirements
Executive Order 11990: Protection of Wetlands
Executive Order 11998: Flood Plain Management
Executive Order 12580: Superfund Implementation
Executive Order 12962: Recreational Fisheries
Wildlife Conservation Act (NMSA 17-2-37 through 17-2-46, July 1 1974)
New Mexico Endangered Plant Species Act (NM 75-6-1) of 1985 and attendant regulation NRD Rule 85-3
New Mexico Natural Resource Trustee Act
New Mexico Wildlife Conservation Act: (NMSA 17-2-37 through 17-2-46, 1978)

Note: The Fish and Wildlife Coordination Act (FWCA) places certain obligations on federal agencies regarding the conservation, maintenance, and management of wildlife resources. The current practice is for the Laboratory to support DOE to comply with FWCA requirements.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Cultural, Historic/Traditional Use, Traditional Cultural Properties

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Natural Resources

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

The University of California (UC) supports DOE in DOE's compliance with the following laws, regulations, executive orders, etc., that apply to DOE, but the parties acknowledge that UC is not independently bound by these laws or this contract to comply with these laws, etc.

National Historic Preservation Act (NHPA) Public Law 89-665 16 USCA 470aa-11
- 36 CFR 800, Protection of Historic and Cultural Properties
- 36 CFR 60, National Register of Historic Places
- 36 CFR 63, Determinations of Eligibility for Inclusion in the National Register
- 36 CFR 65, National Historic Landmarks Program
- 36 CFR 68, Secretary of the Interior's Standards for the Treatment of Historic Properties
- 36 CFR 78, Waiver of Federal Agency Responsibilities under Section 110 of NHPA
- 36 CFR 79, Curation of Federally Owned and Administered Archeological Collections

Archeological Resources Protection Act (ARPA), Public Law 96-95, USC 470
- 43 CFR 78, Protection of Archeological Resources

Native American Graves Protection and Repatriation Act (NAGPRA), Public Law 101-601
American Indian Religious Freedom Act (AIRFA), Public Law 95-341

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Executive Order 11593 Protection and Enhancement of the Cultural Environment
Executive Order 13007 Sacred Sites
(Proposed) 36 CFR 66, Recovery of Scientific, Prehistoric, Historic, and Archeological Data: Methods, Standards, and Reporting Requirements

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Environmental, Socioeconomics, NEPA, Land Use Planning, Visual Resources, Tourists/Recreational Use

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Natural Resources

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

The University of California (UC) supports DOE in DOE's compliance with the following laws, regulations, executive orders, etc., that apply to DOE, but the parties acknowledge that UC is not independently bound by these laws or this contract to comply with these laws, etc.

National Environmental Policy Act of 1969, as amended: PL 91-190, 42 USC 4321-4347, January 1, 1970, as amended by PL 94-52, July 3, 1975 and PL 94-83, August 9, 1975

40 CFR 1500-1508, Protection of the Environment, July 1, 1986

10 CFR 1021, National Environmental Policy Act Implementing Regulations, April 24, 1992, and as amended July 8, 1996

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

DOE, as the NEPA decision-maker, provides NEPA guidance to the Laboratory.
Executive Order 12114, Environmental Effects Abroad of Major Federal Actions
Executive Order 11514, Protection and Enhancement of Environmental Quality, March 5, 1970, as amended by Executive Order 11991, May 24, 1997
Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 11, 1994

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Soils, Foodstuffs, and Biota; Food Chain; Road Kill; Trapping; Associated Monitoring and Surveillance

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Natural Resources

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

DOE O 5400.1, General Environmental Protection Program (for soils, foodstuffs, and biota; environmental sampling with reporting limited to an annual data summary)
DOE O 5400.1, General Environmental Protection Program
f. Environmental Surveillance
Chapter IV. Environmental Monitoring Requirements
5. Environmental Monitoring—General Requirements
b. Environmental Surveillance
DOE O 5400.5, Radiation Protection of Public and the Environment (for soils foodstuffs, and biota; environmental sampling with reporting limited to an annual data summary)

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Boating and Watercraft Use for Monitoring

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Natural Resources

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

New Mexico Boat Act, New Mexico Statutes Annotated, 1978, Chapter 66, Article 12

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

LANL ESH-20 Operating Procedures for Boating

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Off-Site Packaging and Transportation Safety Including Explosives

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Packaging and Transportation

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

10 CFR 871, Air Transportation of Plutonium
49 CFR 106 through 180, 325 through 399, Transportation
New Mexico NM-MCS-96

7. Were any non value-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

10 CFR 71, Packaging and Transportation of Radioactive Material
DOD TB 700-2, Explosives Classification
DOD TP 45-51D, Tiedown for Weapons
DOE M 440.1-1, Revision 8, 3/96, Explosives Safety Manual
DOE O 460.1a, Packaging and Transportation Safety, Attachment 1, Contractor Requirements Document, Paragraphs 2 and 6
International Civil Aviation Organization/International Air Transport Association Regulations (ICAO/IATA)
International Maritime of Dangerous Goods Code (IMDG)

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and packaging and transportation expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

The LANL Packaging and Transportation Manual jointly developed and approved by LANL and DOE is currently being updated. The Manual shall cover requirements for off-site transportation which is defined as "transportation of materials on property not owned by DOE."

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Intra-Site Packaging and Transportation Safety, including Explosives

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Packaging and Transportation

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

49 CFR 106 through 180, 325 through 399, Transportation
New Mexico NM-MCS-96

7. Were any non value-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

10 CFR 71, Packaging and Transportation of Radioactive Material
DOD TB 700-2, Explosives Classification
DOD TP 45-51D, Tiedown for Weapons
DOE M 440.1-1, Revision 8, 3/96, Explosives Safety Manual
DOE O 460.1a, Packaging and Transportation Safety, Attachment 1, Contractor Requirements Document, Paragraphs 2 and 6

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

☐ Yes ■ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

■ Yes ☐ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

The LANL Packaging and Transportation Manual jointly developed and approved by LANL and DOE is currently being updated. The Manual shall cover requirements for intra-site transportation which is defined as "transportation of materials on DOE-owned property to which public access is not restricted."

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and packaging and transportation expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

On-Site Packaging and Transportation Safety, including Explosives

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Packaging and Transportation

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any non value-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

DoD TB 700-2, Explosives Classification
DoD TP 45-51D, Tiedown for Weapons
DOE M 440.1-1, Revision 8, 3/96, Explosives Safety Manual
DOE O 460.1a, Packaging and Transportation Safety, Attachment 1, Contractor Requirements Document, Paragraphs 2 and 6

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

☐ Yes ■ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

■ Yes ☐ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

The LANL Packaging and Transportation Manual jointly developed and approved by LANL and DOE is currently being updated. The Manual shall cover requirements for on-site transportation which is defined as "transportation of materials on DOE-owned property to which public access is restricted."

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and packaging and transportation expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Surface Water, Dredge and Fill Work, Erosion Control, NPDES (Non-Point Discharges), Storm Water

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Surface and Groundwater

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

Federal Water Pollution Control Act, Title 33 U.S.C. 1251 et seq., as amended and as implemented by:

- 33 CFR 320, 321, 322, 323 and 330, Corps of Engineers Regulations for Protection of Water of the US and Nationwide Permit Program
- 40 CFR 104, Public Hearings on Effluent Standards for Toxic Pollutants
- 40 CFR 121, State Certification of Activities Requiring a Federal License or Permit
- 40 CFR 122, EPA Administered Permit Programs: NPDES
- 40 CFR 124, Procedures for Decision Making
- 40 CFR 125, Criteria and Standards for the NPDES
- 40 CFR 129, Toxic Pollutant Effluent Standards
- 40 CFR 131, Water Quality Standards
- 40 CFR 135, Prior Notice of Citizen Suits
- 40 CFR 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants

Federal Water Pollution Control Act, Title 33 U.S.C. 1251 et seq., as amended; and Oil Pollution Act of 1990, Title 33 U.S.C. 2701 et seq. as implemented by:

- 40 CFR 112, Oil Pollution Prevention

New Mexico Law, Sections 72-2-8, 72-2-12, and 72-13-4, NMSA 1978, as implemented by:

- New Mexico State Engineer's Office Rules

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

6. List applicable legal requirement(s) (cont):

New Mexico Water Quality Act, Section 74-6-1 et seq., NMSA 1993 as implemented by:
- 20 NMAC 6.1 Water Quality; General Provisions
- 20 NMAC 6.2 Ground and Surface Water Protection

Resource Conservation and Recovery Act, Title 42 U.S.C. 6901 et seq., and New Mexico Hazardous Waste Act, NMSA Section 74-4-1 to -13 as amended and as implemented by:
- 40 CFR 264 and 265, Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities
- 40 CFR 270, EPA Administered Permit Programs: The Hazardous Waste Permit Program

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

☐ Yes ■ No ☐ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ☐ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

DOE O 5400.1 (except Chapter 2, paragraphs 2, 4.d., and 5; and Chapter 4, paragraph 3), General Environmental Protection Program

DOE O 5400.5, Radiation Protection of the Public, as applicable to Surface Water

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ☐ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

☐ Yes ☐ No If no, skip to No. 14

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and surface and groundwater expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

NPDES Permit Number NMR00A384 and other miscellaneous NPDES Storm Water Industrial and Construction General Permits

HSWA and RCRA Permits, under 40 CFR 264 and 270, and 20 NMAC 4.1.500 and 4.1.900

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Groundwater and Aquifer Monitoring

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Surface and Groundwater

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

New Mexico Solid Waste Act, 74-9-1 et seq., NMSA, as implemented by:
- 20 NMAC 9.1, Solid Waste Management
- 20 NMAC 9.4, Solid Waste Plans

New Mexico Law, Sections 72-2-8, 72-2-12, and 72-13-4, NMSA 1978, as implemented by:
- New Mexico State Engineer's Office Rules

New Mexico Water Quality Act, Section 74-6-1 et seq., NMSA 1993, as implemented by:
- 20 NMAC 6.1, Water Quality; General Provisions
- 20 NMAC 6.2, Ground and Surface Water Protection (including the Energy, Minerals and Natural Resource Department, Oil Conservation Department Delegated Rules)

Resource Conservation and Recovery Act, Title 42 U.S.C. 6901 et seq., and New Mexico Hazardous Waste Act, NMSA Section 74-4-1 to -13 as amended and as implemented by:
- 40 CFR 264 and 265, Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities
- 40 CFR 270, EPA Administered Permit Programs: The Hazardous Waste Permit Program

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

DOE O 5400.1 (except Chapter 2, paragraphs 2, 4.d., and 5; and Chapter 4, paragraph 3), General Environmental Protection Program

DOE O 5400.5, Radiation Protection of the Public, as applicable to Groundwater

DOE O 5820.2A, Radioactive Waste Management

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and surface and groundwater expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

HSWA and RCRA Permits, under 40 CFR 264 and 270, and 20 NMAC 4.1.500 and 4.1.900

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Drinking Water, Bacteria, Potable Water Issues

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Surface and Groundwater

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

Safe Drinking Water Act, Title 42 U.S.C. 300f et seq., as amended and as implemented by:
40 CFR 141, National Primary Drinking Water Regulations
40 CFR 142, National Primary Drinking Water Regulations Implementation
40 CFR 143, National Secondary Drinking Water Regulations

New Mexico Environmental Improvement Act, Section 74-1-8, NMSA 1978, as amended and as implemented by:
20 NMAC 7.1, Drinking Water

New Mexico Utility Operators Certification Act, NMSA 1978, as implemented by:
20 NMAC 7.4, Utility Operator Certification

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

☐ Yes ■ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

☐ Yes ☐ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

☐ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and surface and groundwater expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Liquid Discharges, Spills, and Discharges to Surface Water

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Surface and Groundwater

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

Federal Water Pollution Control Act, Title 33 U.S.C. 1251 et seq., as amended and as implemented by:
- 40 CFR 110, Discharge of Oil
- 40 CFR 116, Designation of Hazardous Substances
- 40 CFR 117, Determination of Reportable Quantities for Hazardous Substances

New Mexico Hazardous Chemicals Information Act, NMSA Sections 74-4E-1 to -9 (1993)

New Mexico Water Quality Act, Section 74-6-1 et seq., NMSA 1993, as implemented by:
- 20 NMAC 6.1, Water Quality; General Provisions
- 20 NMAC 6.2, Ground and Surface Water Protection

Comprehensive Environmental Response, Compensation and Liability Act, Title 42 U.S.C. 9601 et seq., as implemented by:
- 40 CFR 302, Designation, Reportable Quantities and Notification

The University of California (UC) supports DOE in DOE's compliance with the following laws, regulations, executive orders, etc., that apply to DOE, but the parties acknowledge that UC is not independently bound by these laws or this contract to comply with these laws, etc.

Emergency Planning and Community Right to Know Act, Title 42 U.S.C. 11001 et seq., as implemented by:
- 40 CFR 355, Emergency Planning and Notification

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and surface and groundwater expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Pesticides (including application and use, storage and disposal)

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Surface and Groundwater

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

Federal Insecticide, Fungicide, and Rodenticide Act, Chapter 7, U.S.C. 136 et seq., as implemented by:
- 40 CFR 171, Certification of Pesticide Applicators

New Mexico Pesticide Control Act, Chapter 76, Article 4, as implemented by:
- 21 NMAC 17.53, Continuing Education Units for Pesticide Applicators
- 21 NMAC 17.56, Restricted-Use Pesticides
- NMDA Rule 88-2, Fees for Pesticide Registrations and Licenses
- NMDA Rule 89-1, Control of Wood-Destroying Pests
- NMDA Rule 89-2, Restricted Use Pesticides
- NMDA Regulatory Order 4 Regulatory Orders of the Board of Regents of New Mexico State University
- NMDA Regulatory Order 5 Definitions, Licensing, Equipment Inspections, Record Keeping of Pesticides by Regulated Applicators
- NMDA Regulatory Order 7 Establishes Financial Responsibility for Commercial Applicators

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and surface and groundwater expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Waste-Water Discharges (including sludge, septic, and holding tanks, NPDES, sanitary waste water issues)

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Surface and Groundwater

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

Federal Water Pollution Control Act, Title 33 U.S.C. 1251 et seq., as amended and as implemented by:

- 33 CFR 320, 321, 322, 323 and 330, Corps of Engineers Regulations for Protection of Water of the US and Nationwide Permit Program
- 40 CFR 104, Public Hearings on Effluent Standards for Toxic Pollutants
- 40 CFR 121, State Certification of Activities Requiring a Federal License or Permit
- 40 CFR 122, EPA Administered Permit Programs: NPDES
- 40 CFR 124, Procedures for Decision Making
- 40 CFR 125, Criteria and Standards for the NPDES
- 40 CFR 129, Toxic Pollutant Effluent Standards
- 40 CFR 131, Water Quality Standards
- 40 CFR 133, Secondary Treatment Regulation
- 40 CFR 135, Prior Notice of Citizen Suits
- 40 CFR 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants
- 40 CFR 503, Standards for the Use or Disposal of Sewage Sludge

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

6. List applicable legal requirement(s) (cont):

New Mexico Water Quality Act, Section 74-6-1 et seq., NMSA 1993, as implemented by:
- 20 NMAC 1.3, Requirement of Filing of Procedure Manual
- 20 NMAC 6.1, Water Quality; General Provisions
- 20 NMAC 6.2, Ground and Surface Water Protection
- 20 NMAC 7.3, Liquid Waste Disposal

New Mexico Utility Operators Certification Act, NMSA 1978, as implemented by:
- 20 NMAC 7.4, Utility Operator Certification

New Mexico Solid Waste Act as implemented by 20 NMAC 9.1, Solid Waste Management

Resource Conservation and Recovery Act, 42 U.S.C. 6939e, as amended by Section 108 of FFCA, Federally Owned Treatment Works

The University of California (UC) supports DOE in DOE's compliance with the following laws, regulations, executive orders, etc., that apply to DOE, but the parties acknowledge that UC is not independently bound by these laws or this contract to comply with these laws, etc.

Federal Facility Compliance Act, Title 42 U.S.C. 69393e. Section 3023, Federally Owned Treatment Works

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

☐ Yes ■ No ☐ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ☐ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

DOE Order 5400.5, Chapter 1.5 Liquid Wastes and Effluents

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ☐ No If Yes, skip to no. 14; otherwise continue.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and surface and groundwater expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Los Alamos National Laboratory NPDES Permit Number NM0028355
Fenton Hill NPDES Permit Number NM0028576

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Non-Mixed TRU Waste, Treatment and Storage

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Waste

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

DOE O 5820.2a, Radioactive Waste Management

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and waste management expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Low-level Radioactive Waste (includes radioactively contaminated PCB, asbestos, infectious) Treatment, Storage, and Disposal

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Waste

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

40 CFR 761, Toxic Substances Control Act, PCBs only
PCB Landfill Approval Conditions (EPA, June 25, 1996)

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

DOE O 5820.2a, Radioactive Waste Management

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and waste management expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

The University of California (UC) supports DOE in DOE's compliance with the following laws, regulations, executive orders, etc., that apply to DOE, but the parties acknowledge that UC is not independently bound by these law or this contract to comply with these laws, etc.

Federal Facility Compliance Agreement on Storage of PCBs (1996).

LS 105-05 assures that rad waste is not released to the public domain.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Polychlorinated Biphenyl (PCB) Waste (non-rad) Storage

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Waste

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

40 CFR 260-270, Protection of the Environment
40 CFR 761 (Toxic Substances Control Act), PCBs only
20 NMAC 4.1 (implementing RCRA and New Mexico Hazardous Waste Act)

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and waste management expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

NM State Code is included to cover PCB mixed with hazardous waste.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Environmental Restoration Site Characterization and Corrective Actions

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Waste

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

HSWA Sec 206, 207 (RCRA 3004 u, v)
LANL Hazardous Waste Operating Permit, Module VIII (Operating Permit) and New Mexico Hazardous Waste Permit, RCRA 42 U.S.C. 6901 et. seq., as implemented by:
40 CFR 260-270, Protection of the Environment
New Mexico Hazardous Waste Act, NMSA Sections 74-4-1 to -13 (1993) as implemented by 20 NMAC 4.1

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

DOE O 5400.5, Radiation Protection of the Public and the Environment

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and waste management expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

RCRA requires that solid waste management units be investigated and cleaned up as necessary. Installation Work Plan for Environmental Restoration addresses cleanup for rad.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Non-Hazardous, Non-Liquid Industrial and Sanitary Solid Waste (including medical/infectious and asbestos) Storage and Disposal

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Waste

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

20 NMAC 9.1-9.4, New Mexico Solid Waste Act

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910.1001, Asbestos Waste
29 CFR 1910.1030, Blood-borne Pathogen

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and waste management expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Waste Oil (Disposal)

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Waste

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

Resource Conservation and Recovery Act, as implemented by:
40 CFR 260-270 and 279, Protection of the Environment
New Mexico Hazardous Waste Act, as implemented by:
20 NMAC 4.1

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and waste management expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

NM State Code is included to cover waste oil with hazardous waste.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Mixed Waste Treatment and Storage

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Waste

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

10 CFR 962, By-Product Material
Resource Conservation and Recovery Act as implemented by 40 CFR 260-270, Protection of the Environment
New Mexico Hazardous Waste Act as implemented by 20 NMAC 4.1
The University of California (UC) supports DOE in DOE's compliance with the following laws, regulations, executive orders, etc., that apply to DOE, but the parties acknowledge that UC is not independently bound by these law or this contract to comply with these laws, etc.
Federal Facilities Compliance Act

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and waste management expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

WIPP WAC (TRU mixed waste only)—cited in RCRA/HWA Operating Permit
LS 105-05—Removing Waste from Rad Control Areas

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Underground Storage Tanks (Non-Hazardous Waste)

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Waste

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

New Mexico Hazardous Waste Act and New Mexico Groundwater Protection Act, as implemented by:
New Mexico Underground Storage Tank Regulations
20 NMAC 5.1-5.17

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and waste management expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Hazardous Waste Treatment and Storage

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Waste

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

NM Hazardous Waste Act as implemented by
20 NMAC 4.1-4.3
Resource Conservation and Recovery Act, as amended and implemented by
40 CFR 260-270, Protection of the Environment
LANL Hazardous Waste Operating Permit

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection and waste management expectations for protecting the workers, public, environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Waste Minimization/Pollution Prevention:
Recycling
Avoidable Waste Generation
Avoidable Air Emissions
Avoidable Effluent Releases
Avoidable Energy Usage

2. ID Team:

❑ Worker H & S ■ Environmental Protection ❑ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Waste Minimization and Pollution Prevention

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

42 USCA, 6901, 6925, and 6961-5 et seq., Resource Conservation and Recovery Act
42 USCA 13101-2, 13107, Pollution Prevention Act of 1990
33 USCA 1251-1252, 1323, Federal Water Pollution Control Act
42 USCA 7401, 7511b, 7671g, Clean Air Act of 1990

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

❑ Yes ■ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ■ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified are necessary and sufficient to meet environmental protection expectations for protecting the workers, public, environment, and facilities.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Need to maintain:

a. Standard for releasing surface, alpha-emitter contaminated materials from Radiological Controlled Areas for recycle.

b. Standard for releasing volume, alpha/beta/gamma-emitter contaminated materials from Radiological Controlled Areas for recycle.

Energy Conservation Act, Subchapter III improving Energy Efficiency, Part D 6361-2;

HSWA Module 8 of Los Alamos National Laboratory RCRA Permit

The University of California (UC) supports DOE in DOE's compliance with the following laws, regulations, executive orders, etc., that apply to DOE, but the parties acknowledge that UC is not independently bound by these laws or this contract to comply with these laws, etc.

E. O. 12902, Energy Efficiency and Waste Conservation
E. O. 12088
E. O. 12856, Federal Compliance with Right to Know Laws and Pollution Prevention Requirements
E. O. 12873, Federal Acquisition, Recycling, and Waste Prevention
E. O. 12780, Recycling, Federal Agency Policy
E. O. 12995, Amendments to E. O. 12873
Secretary of Energy Memorandum, May 3, 1996, Subject: Departmental Pollution Prevention Goals

Los Alamos & DOE Participants on Joint Focus Groups of ES&H Work Smart Standards Identification (ID) Teams

Focus Group of Emergency Preparedness & Management ID Team (ID Team Leaders— Bill Flor, George VanTiem)	Lab Workers	Lab SME	DOE SME
Emergency Preparedness and Management **EP&M/EPrep-1** **EP&M/EMng-2** **EP&M/EPlan-3** **EP&M/ERes-4**	Gene Darling, FSS Manny L'Esperance, JCI Paul Nelson, ESH Nick Nicholson, NWT Gerry Ramsey, FSS Mike Terrill, PAO David Volz, ESH	Bill Flor, ESH George VanTiem, FSS	Rudy Valdez, LAAO

Emergency Preparedness and Management Justification

I. General Background

Los Alamos National Laboratory conducts all of its activities with the highest regard for the protection of its workers, the public, the environment, and facilities. This is reflected in the Laboratory's set of ES&H Work Smart Standards identified as necessary and sufficient for performing work safely. This institutional (Lab-wide) set was identified after a comprehensive list of the Laboratory's work and associated ES&H issues (hazardous materials/conditions and other ES&H concerns) was compiled and validated in all organizations at Los Alamos. An analysis of this list confirmed that most of the work and associated ES&H issues at Los Alamos have direct analogs in U.S. private industry and academia and that, for unique work, the ES&H issues associated with that work are comparable in industry/academia. This similarity with industry/academia is reflected by the applicability and inclusion of many national consensus standards in the Laboratory's set of ES&H Work Smart Standards.

The Laboratory's institutional set of ES&H Work Smart Standards has two major components: baseline standards and supplemental (above baseline) standards. The baseline standards are defined by the combination of standards identified by the Worker Health and Safety ID Team, the Environmental Protection ID Team, the Emergency Preparedness and Management ID Team, and, for facility design and operations, the Facilities ID Team. These baseline standards are common to all Laboratory work. These standards reflect the same laws, regulations, and consensus standards (with some additional DOE standards) that private industry and academia are meeting to protect workers, the public, the environment, and facilities. Additionally, the Accelerator Facilities Focus Group and Nuclear Facilities Focus Group each identified for their unique work and associated ES&H issues the supplemental standards that are considered necessary, along with the baseline standards, to perform work safely in those facilities at Los Alamos. For specific Laboratory work and associated ES&H issues, it is essential that the entire institutional set of ES&H Work Smart Standards be viewed as a whole when identifying the applicable subset that must be met when performing the work. This is to be accomplished through effective implementation of the Laboratory's Integrated Safety Management System.

Each ID Team comprised one or more focus groups consisting of knowledgeable and qualified workers from affected Los Alamos organizations and both a DOE and a Los Alamos subject matter expert (SME). While SMEs were perhaps more knowledgeable of the applicable laws and regulations, neither they nor the workers unilaterally drove the standards identification process. Los Alamos workers brought first-hand knowledge of the work and associated ES&H issues and, together with the SMEs, were vital in identifying the institutional set of ES&H Work Smart Standards. All focus group members had an equal voice in the process, and consensus was reached in all cases, i.e., no minority reports were filed.

Emergency Preparedness and Management Justification

II. Specific Justification

The Emergency Preparedness and Management ID Team acted as the focus group to identify the subject Work Smart Standards. The ID Team Leaders served as the SMEs along with a local DOE colleague. Employees who perform the emergency response functions were assigned by their respective mangers to serve as the Laboratory workers on this ID Team. The team had over 100 person-years of relevant experience. Note that emergency management, as defined by DOE Orders, includes emergency planning, emergency preparedness, and emergency response, all under the umbrella of an emergency management system.

The Laboratory's emergency preparedness and management program is based on a response to credible scenarios, which include earthquakes, wildland fires, and spills or releases of hazardous materials at the Laboratory and in Los Alamos County or the State of New Mexico. The Laboratory is similar to some complex industrial facilities in that many of its ES&H issues are comparable. The Laboratory and the local jurisdictions share the same ES&H issues, response challenges, and resources. Therefore, adopting similar standards allows the Laboratory to be consistent with the state and local emergency planning processes. More importantly, the standards identified here, when effectively implemented, can reasonably be expected to provide adequate protection of the workers, the public, the environment, and facilities. Laboratory emergency management staff participate in drills and exercises with Los Alamos County, Los Alamos, White Rock, and adjoining Indian Pueblos. The Laboratory also participates, along with the Los Alamos County Fire Department, in a state-wide mutual emergency-aid program. Moreover, the Laboratory participates on the University of California system-wide emergency management council.

The Work Smart Standards identified in Titles 10, 29, and 40 of the Code of Federal Regulations (CFRs) are necessary and commonly used among all participating agencies. In addition, NFPA 1600, Disaster Management, was selected because it establishes disaster management criteria for the Laboratory's development and maintenance of a program for effective preparedness, response, mitigation, and recovery from the many hazards identified by hazard assessments. Furthermore, NFPA 471 and 472 provide best management practices on the level of training and competencies in which hazardous material responders must be proficient to conduct their actions safely. DOE Order 151.1, Comprehensive Emergency Management System, has also been selected and provides requirements for the emergency management organization and infrastructure to ensure safe and effective response to credible emergency situations. Depending on the nature of the emergency, numerous federal and state agencies could be involved. The DOE/AL Emergency Operations Center procures the needed resources, and the Laboratory supports them as required. Arriving agencies support the Laboratory or, if they assume Incident Command, the Laboratory supports them. This protocol is well established through

the application of the Incident Command System, which is described in NFPA 1600 and 40 CFR 355, Emergency Planning and Notification (SARA III).

Also included in the Work Smart Standards are the notification, reporting, communications, records management, readiness assurance, and public affairs coordination requirements. The New Mexico Health and Safety Code and local risk management prevention plan requirements are required for prevention of accidental releases to air.

Standards for release reporting are established in various federal laws, including the Comprehensive Environmental Recovery, Compensation and Liability Act (CERCLA), Federal Water Pollution Control Act (FWPCA), and Clean Air Act (CAA), all of which are applicable legal requirements. The Laboratory voluntarily reports accidental releases when sovereign immunity has not been waived pursuant to state and local codes (to the extent that local reporting thresholds are consistent with those of the state).

In summary, the identified Work Smart Standards for emergency preparedness and management are a major element of the baseline set of ES&H Work Smart Standards common to all Laboratory work. These standards include the laws, regulations, and consensus standards necessary and sufficient for protecting workers, the public, the environment, and facilities.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Emergency Management:

Provide emergency management organization and infrastructure to ensure safe and effective response to credible emergency situations both on the Laboratory and off-site, as directed by DOE, to meet responsibilities through MOUs, federal statutes, and programmatic decisions.

2. ID Team:

❑ Worker H & S ❑ Environmental Protection ■ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Emergency Preparedness and Management

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

10 CFR 835

[Note: The DOE-approved Los Alamos Radiation Protection Program is the implementing requirement for 10 CFR 835 (without matrix, revision 1.1). It incorporates the applicable provisions of 10 CFR 835, Occupational Radiation Protection, and any exemptions to these regulations as granted by DOE from time to time.]

40 CFR 302.1, et seq., CERCLA
40 CFR 355, Emergency Planning and Notification (SARA Title III)
61 FR 20943-70, Federal Radiological Emergency Response Plan (FRERP)
NM Chapter 74, Article 4B, New Mexico Emergency Management Act

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

DOE Order 151.1, Comprehensive Emergency Management System
DOE 5530.01A, Accident Response Group
DOE 5530.02, Nuclear Emergency Search Team
DOE 5530.03, Radiological Assistance Program
NFPA 1600, Disaster Management
DOE 5530.05, Federal Radiological Monitoring and Assessment Center
DoD-EODB 60A-11-38, Dynamite ID, Neutralization and Disposal
DoD-EODB 60A-1-1-9, Discovery and Disposal Procedure for Environmental Experiments and Related Hazmat

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The standards identified provide a necessary and sufficient set of requirements for ensuring that the activities performed with respect to the entire scope of Emergency Management, Planning, Response, and Preparedness will be performed in a manner that protects the workers, the public, the environment, and facilities.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Through a Memorandum of Understanding between the Department of Energy and the County of Los Alamos (DE-GM32-92AL82509), LANL emergency response assets can be called upon to respond to hazardous materials and hazardous devices incidents off Laboratory property within Los Alamos County.

Through a Memorandum of Understanding between the Department of Energy and the New Mexico Department of Public Safety (GM-04-91AL58221), LANL emergency response assets can be called upon to respond to hazardous materials incidents outside of Los Alamos County within the State of New Mexico.

A Memorandum of Understanding between the Department of Energy and the Department of Defense establishes joint response requirements in the event of a US nuclear weapons accident anywhere in the world, and LANL emergency response assets under the Accident Response Group (ARG) program (DOE Order 5530.01A) would deploy as part of the DOE response.

A Memorandum of Understanding between the Department of Energy, the Department of Defense, and the Federal Bureau of Investigation, establishes joint response requirements in the event of a nuclear weapon, improvised nuclear device or radioactive materials terrorist incident anywhere in the world, and LANL emergency response assets under the Nuclear Emergency Search Team (NEST) program (DOE Order 5530.02) would deploy as part of the DOE response.

In the early planning stages of projects where shipment of components by air is anticipated, the Loadmaster is consulted to obtain current military specifications for validation of configuration requirements (dimensional, weight, and hazards). All such packages are built to the military specifications.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Emergency Planning:

The development and preparation of emergency plans and procedures and the identification of necessary personnel and resources to provide an effective response.

2. ID Team:

❑ Worker H & S ❑ Environmental Protection ■ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Emergency Preparedness and Management

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

10 CFR 835

[Note: The DOE-approved Los Alamos Radiation Protection Program is the implementing requirement for 10 CFR 835 (without matrix, revision 1.1). It incorporates the applicable provisions of 10 CFR 835, Occupational Radiation Protection, and any exemptions to these regulations as granted by DOE from time to time.]

40 CFR 355, Emergency Planning and Notification (SARA Title III)
40 CFR 264, 265, RCRA

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910, General Industry Standards (OSHA)
DOE Order 151.1, Comprehensive Emergency Management System
New Mexico Hazardous Materials Response Plan and Procedure

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The identified standards provide a necessary and sufficient set of requirements for ensuring that the activities performed with respect to the entire scope of Emergency Management, Planning, Response, and Preparedness will be performed in a manner that protects the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Emergency Preparedness:

The training of personnel, acquisition and maintenance of resources, and exercising of the plans, procedures, personnel and resources essential for effective emergency response.

2. ID Team:

❑ Worker H & S ❑ Environmental Protection ■ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Emergency Preparedness and Management

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

10 CFR 835

[Note: The DOE-approved Los Alamos Radiation Protection Program is the implementing requirement for 10 CFR 835 (without matrix, revision 1.1). It incorporates the applicable provisions of 10 CFR 835, Occupational Radiation Protection, and any exemptions to these regulations as granted by DOE from time to time.]

40 CFR 68, Chemical Accident Prevention Provisions (CAA)

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910, General Industry Standards (OSHA)
DOE Order 151.1, Comprehensive Emergency Management System
NFPA 1600, Disaster Management
New Mexico Hazardous Material Response Plan and Procedure

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The identified standards provide a necessary and sufficient set of requirements for ensuring that the activities performed with respect to the entire scope of Emergency Management, Planning, Response, and Preparedness will be performed in a manner that protects the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Emergency Response:

The implementation of planning and preparedness during an emergency involving the effective decisions, actions, and application of resources that should be accomplished to mitigate consequences and recover from an emergency, on- or off-site, and minimize its impact on the workers, the public, the environment, and facilities.

2. ID Team:

❑ Worker H & S ❑ Environmental Protection ■ Emergency Preparedness & Mgmt. ❑ Facilities

3. Focus Group:

Emergency Preparedness and Management

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

10 CFR 835

[Note: The DOE-approved Los Alamos Radiation Protection Program is the implementing requirement for 10 CFR 835 (without matrix, revision 1.1). It incorporates the applicable provisions of 10 CFR 835, Occupational Radiation Protection, and any exemptions to these regulations as granted by DOE from time to time.]

40 CFR 112, Spills
40 CFR 264-265, RCRA
NM Chapter 74, Article 4B, New Mexico Emergency Management Act

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910, General Industry Standards
ACGIH, Threshold Limit Values (TLVs)
New Mexico Hazardous Materials Response Plan and Procedure
NFPA 471, Responding to HAZMAT Activities
NFPA 472, Professional Competencies of Responders to HAZMAT Incidents

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

The identified standards provide a necessary and sufficient set of requirements for ensuring that the activities performed with respect to the entire scope of Emergency Management, Planning, Response, and Preparedness will be performed in a manner that protects the workers, the public, the environment, and facilities.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

Through a Memorandum of Understanding between the Department of Energy and the County of Los Alamos (DE-GM32-92AL82509), LANL emergency response assets can be called upon to respond to hazardous materials and hazardous devices incidents off Laboratory property within Los Alamos County.

Through a Memorandum of Understanding between the Department of Energy and the New Mexico Department of Public Safety (GM-04-91AL58221), LANL emergency response assets can be called upon to respond to hazardous materials incidents outside of Los Alamos County within the State of New Mexico.

A Memorandum of Understanding between the Department of Energy and the Department of Defense establishes joint response requirements in the event of a US nuclear weapons accident anywhere in the world, and LANL emergency response assets under the Accident Response Group (ARG) program (DOE Order 5530.01A) would deploy as part of the DOE response.

A Memorandum of Understanding between the Department of Energy, the Department of Defense, and the Federal Bureau of Investigation, establishes joint response requirements in the event of a nuclear weapon, improvised nuclear device or radioactive materials terrorist incident anywhere in the world, and LANL emergency response assets under the Nuclear Emergency Search Team (NEST) program (DOE Order 5530.02) would deploy as part of the DOE response.

In the early planning stages of projects where shipment of components by air is anticipated, the Loadmaster is consulted to obtain current military specifications for validation of configuration requirements (dimensional, weight, and hazards). All such packages are built to the military specifications.

Los Alamos & DOE Participants on Joint Focus Groups of ES&H Work Smart Standards Identification (ID) Teams

Focus Groups of Facilities ID Team (ID Team Leaders— Wayne Fisher, Rich Mah)	Lab Workers	Lab SME	DOE SME
Facility Design **FAC/Des-1**	Robert Gonzales, NMT Mike Nicolini, FSS Emilio Racinez, FSS Richard Roybal, JCI Jeff Schroeder, FSS	John Tegtmeier, DX	Bruce Elsner, AL
Facility Operations **FAC/Ops-1**	Robert Gonzales, NMT Mike Nicolini, FSS Emilio Racinez, FSS Richard Roybal, JCI Jeff Schroeder, FSS Emilio Racinez, FSS Rick Rivera, CIC Mike Ziehmn, MST Martha Zumbro, AOT	John Tegtmeier, DX Scott Walker, ESH	Bruce Elsner, AL Steve Payne, AL
Accelerator Facilities **FAC/Accel-1**	Emilio Racinez, FSS Rick Rivera, CIC Mike Ziehmn, MST Martha Zumbro, AOT	Scott Walker, ESH	Steve Payne, AL
Nuclear Facilities **FAC/Nuc-1**	Jay Boettner, DX Martin A. Bowidowicz, ESH Terry Buxton, ESA Mike Chochoms, EM Evelyn Mullen, NIS Christine Nelson, ESH David Post, NMT	H.Howard, ESH	Chris Steele, LAAO

Facilities Justification

I. General Background

Los Alamos National Laboratory conducts all of its activities with the highest regard for the protection of its workers, the public, the environment, and facilities. This is reflected in the Laboratory's set of ES&H Work Smart Standards identified as necessary and sufficient for performing work safely. This institutional (Lab-wide) set was identified after a comprehensive list of the Laboratory's work and associated ES&H issues (hazardous materials/conditions and other ES&H concerns) was compiled and validated in all organizations at Los Alamos. An analysis of this list confirmed that most of the work and associated ES&H issues at Los Alamos have direct analogs in U.S. private industry and academia and that, for unique work, the ES&H issues associated with that work are comparable in industry/academia. This similarity with industry/academia is reflected by the applicability and inclusion of many national consensus standards in the Laboratory's set of ES&H Work Smart Standards.

The Laboratory's institutional set of ES&H Work Smart Standards has two major components: baseline standards and supplemental (above baseline) standards. The baseline standards are defined by the combination of standards identified by the Worker Health and Safety ID Team, the Environmental Protection ID Team, the Emergency Preparedness and Management ID Team, and, for facility design and operations, the Facilities ID Team. These baseline standards are common to all Laboratory work. These standards reflect the same laws, regulations, and consensus standards (with some additional DOE standards) that private industry and academia are meeting to protect workers, the public, the environment, and facilities. Additionally, the Accelerator Facilities Focus Group and Nuclear Facilities Focus Group each identified for their unique work and associated ES&H issues the supplemental standards that are considered necessary, along with the baseline standards, to perform work safely in those facilities at Los Alamos. For specific Laboratory work and associated ES&H issues, it is essential that the entire institutional set of ES&H Work Smart Standards be viewed as a whole when identifying the applicable subset that must be met when performing the work. This is to be accomplished through effective implementation of the Laboratory's Integrated Safety Management System.

Each ID Team comprised one or more focus groups consisting of knowledgeable and qualified workers from affected Los Alamos organizations and both a DOE and a Los Alamos subject matter expert (SME). While SMEs were perhaps more knowledgeable of the applicable laws and regulations, neither they nor the workers unilaterally drove the standards identification process. Los Alamos workers brought first-hand knowledge of the work and associated ES&H issues and, together with the SMEs, were vital in identifying the institutional set of ES&H Work Smart Standards. All focus group members had an equal voice in the process, and consensus was reached in all cases, i.e., no minority reports were filed.

II. Specific Justification

The Work Smart Standards for facilities were identified by three focus groups under the Facilities ID Team: Facility Design, Accelerator Facilities, and Nuclear Facilities. These focus groups ranged in size from six to 10 members providing sufficient expertise and experience to match the breadth of the work and ES&H issues. The combined work experience and subject matter expertise was over 100 person-years within each of the focus groups. All workers were assigned by their respective managers to specific focus groups based on their hands-on experience with specific work and ES&H issues for which standards were to be identified. Two of the focus groups, Facility Design and Accelerator Facilities, also led the identification of baseline standards cited below for managing facility operations.

Facility Design

The standards identified for facility design address ES&H issues normally encountered in the course of designing new or upgraded facilities at Los Alamos. These standards include the federal OSHA safety standards (29 CFR 1910), OSHA construction industry standards (29 CFR 1926), Uniform Building Code (UBC), Life Safety Code (NFPA 101), and the cited legal requirements. The DOE Standard 1020-94 and DOE Manual 440.1-1 are also included to address mitigation of natural phenomena ES&H issues and explosives ES&H issues, respectively, to achieve a sufficient set of standards for facility design. These DOE standards provide requirements that are specific to the location and operations here at Los Alamos and establish a level of protection equal to or greater than that provided by the UBC and NFPA when applied at Los Alamos. Note that the UBC and NFPA are cited instead of the canceled DOE Order 6430.1A because the UBC and NFPA have similar content and are kept current. The DOE Order 6430.1A provides a user-friendly reference to industry standards and therefore is cited as guidance. The Facility Design Focus Group determined that these standards, in combination with the other standards cited, are necessary and sufficient to provide adequate protection to the workers, the public, the environment, and facilities.

Facility Operations

The standards identified for managing facility operations address ES&H issues normally encountered in the course of operating existing, new, or upgraded facilities at Los Alamos. It was determined that Los Alamos should develop a tailored standard (nominally called "Management of Operations") to address the principles of DOE Order 5480.19, Conduct of Operations, and that this order should be cited as guidance. Also, AL Supplemental Directive 5481.1b, which addresses safety analysis and reviews; DOE Order 5700.6c, Quality Assurance; ASME Boiler and Pressure Vessel Code; and ANSI B31.1, Power Boilers, which addresses attended and unattended boiler operations, were selected as Work Smart Standards for facility operations. Los Alamos LPR 270-02, Perform Assessment of Operating Limits and

Start-Up Tests, was cited as a necessary standard to establish facility start/re-start requirements at Los Alamos. AL 5480.31, Start-up/Restart, is cited as guidance for developing implementing requirements for LPR 270-02. The Facilities ID Team determined that these standards, in combination with the other standards cited, are necessary and sufficient to provide adequate protection to workers, the public, the environment, and facilities.

Accelerator Facilities

The supplemental (above baseline) standards identified for accelerators at Los Alamos are unique to accelerator work. The Accelerator Focus Group compiled listings of the Laboratory's accelerator work and associated ES&H issues. They then examined the work and ES&H issues to determine whether they pose a unique risk. They concluded that the design of experiments, high-energy charged and neutral particle beams, high magnetic fields, x-ray machines, and electron microscopes (nonmedical) present an additional risk not addressed by the baseline standards. Hence, supplemental standards were identified as necessary and, in combination with the baseline standards, sufficient to perform accelerator work safely. These supplemental standards are contained in the cited ANSI standard and DOE Order.

Nuclear Facilities

The supplemental (above baseline) nuclear facility standards identified uniquely address the management of work and associated ES&H issues within nuclear facilities at Los Alamos. These supplemental standards are further described below. Both the baseline and supplemental standards must be met when performing work in the Laboratory's nuclear facilities.

The storage of nuclear materials in nuclear facilities is addressed by the combination of baseline standards and supplemental nuclear facility standards. All nuclear materials storage at Los Alamos must meet the baseline set of standards and, as applicable, the supplemental standards unique to nuclear facilities (e.g., DOE-STD-3013-94). The specific controls for safe storage of nuclear materials will be identified and effectively implemented through application of the five core functions defined in the Laboratory's DOE-approved Integrated Safety Management Plan, consistent with the Laboratory's set of ES&H Work Smart Standards.

Other supplemental standards identified for nuclear facilities include those DOE Directives judged necessary and, in combination with the baseline standards, sufficient to perform work safely in nuclear facilities. These DOE Directives were derived from experience gained in the commercial nuclear industry (including the Nuclear Regulatory Commission), the U.S. Nuclear Navy, and the earliest days of the Atomic Energy Commission. As a collection, these DOE Directives establish a formality analogous to that required by OSHA's Process Safety Management for significant nonnuclear ES&H issues. As shown in the Laboratory's Integrated Safety Management Plan, Los Alamos has identified its nuclear facilities and established

approved implementation plans that, when accomplished, will ensure that all Laboratory nuclear facilities comply with the DOE Directives listed below.

Quality management for nuclear facilities is addressed by 10 CFR 830.120, Quality Assurance for Nuclear Facilities. Nuclear facility design criteria are addressed by DOE Order 6430.1A, General Design Criteria, Division 13. DOE Order 425.1, Startup and Restart of Nuclear Facilities, Chg. 1: 10-26-95, provides the requirements that need to be considered and addressed by management when it decides to authorize work in a new facility or to restart suspended work in an existing facility after modification or extended work stoppages. DOE Order 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities, 11-15-94, contains requirements for users and operating personnel who have access to and work within nuclear facilities. DOE Order 5480.21, Unreviewed Safety Questions, 12-24-91, is analogous to the requirements in the chemical industry for performing safety analyses before changing processes, procedures, or making hardware modifications. DOE Order 5480.23, Nuclear Safety Analysis Reports, 4-30-92, presents a set of requirements again analogous to OSHA's Process Safety Management requirements—i.e., the design of processes must be analyzed, controls must be selected and analyzed for their performance during upset and accident conditions, and results of the analyses must be used in the design and construction of the process equipment. The analyses are documented so that the final configuration and procedures can be compared to the assumptions in the analyses to ensure that the processes will perform as expected. From these analyses there may derive a set of limits and conditions that must be met to ensure that the control and mitigation systems within the facility will provide an expected and acceptable margin of safety to the public. DOE Order 5480.22, Technical Safety Requirements, Change 2: 1-23-96, requires that the selection of these limits be documented, agreed to by both the contractor and the DOE, and met by the contractor whenever the facility is operational. The level of formality and documentation can be graded based upon the magnitude of hazard(s) as indicated in these DOE Directives and associated guidance. Finally, though Los Alamos has no nuclear explosives, the DOE Directives on nuclear explosive safety will continue to be in the UC/DOE contract to address work in support of other sites. Moreover, though these DOE/DP-promulgated Directives were outside the scope of the DOE Necessary and Sufficient Process, they will be subject to ongoing review and assessment, through Integrated Safety Management, to ensure their sufficiency.

In summary, the identified Work Smart Standards for facilities are a major element of the total institutional set (baseline and supplemental) of ES&H Work Smart Standards for performing work safely at the Laboratory. These standards include the laws, regulations, and consensus standards necessary and sufficient for protecting the workers, the public, the environment, and facilities.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Los Alamos facilities, structures, systems, and components (SSC) must be designed to meet the standard industrial expectations for the provision of utilities, services, and control and mitigation of hazards. Hazards at Los Alamos are widely varied in both type and potential severity. Examples of issues that must be addressed by facility design are: aboveground storage tanks (includes non-PCB transformers); boilers and heaters; communications (telephone lines, network systems, etc.); drains and sinks plumbing; electrical utilities tie-in; erosion control; fire protection; high-pressure steam systems; means of egress; natural gas systems; underground storage tanks; wastewater; and natural phenomena hazards. Design features that are unique to accelerators or nuclear facilities are supplemental to these design considerations and are addressed by other issue sheets.

2. ID Team:

❑ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ■ Facilities

3. Focus Group:

Facility Design

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

40 CFR 280, Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)
20 NMAC 5.1-5.14, New Mexico Underground Storage Tank Regulations
49 CFR 192, Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ■ No ❑ Not evaluated.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910, Occupational Safety and Health Standards
29 CFR 1926, Safety and Health Regulations for Construction
Uniform Building Code (UBC)
National Fire Protection Association (NFPA) Standards, including 101, Life Safety Code
NFPA 78, "Lightning Protection"
DOE-STD-1020-94, Natural Phenomena Hazard Design and Evaluation Criteria for DOE Facilities
DOE O 5700.6C, Quality Assurance
DOE M 440.1-1, DOE Explosives Safety Manual
DOE OSS Range Design Criteria Guide
Air-Conditioning Engineers, INCZ (ASHRAE) 61.1989, Ventilation for Acceptable Indoor Air Quality

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

These baseline facility-design standards are necessary and sufficient to protect the workers, the public, the environment, and facilities.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

LPR 240-01, Managing Facility and Operational Limits and Configuration
DOE O 430.1, Life-Cycle Asset Management
DOE O 6430.1A, General Design Criteria (Divisions 1-12, 14-16)

UBC and NFPA address all aspects of DOE Order 6430.1A and comparable industry standards. DOE Order 6430.1A provides a user-friendly set of references to industry standards and practices but is not kept current. UBC and NFPA are kept current.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Management standards for operating facilities having common industrial ES&H issues

2. ID Team:

❑ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ■ Facilities

3. Focus Group:

Facilities ID Team (esp. the Facility Design and Accelerator Facilities Focus Groups)

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

29 CFR 1910, Occupational Safety and Health standards (especially .119)
AL Supplemental Directive 5481.1b, Safety Analysis and Review System
DOE O 5700.6c, Quality Assurance
ASME Boiler and Pressure Vessel Code, Section 1, Power Boilers, page 60, or Section N, Heating Boilers, HG 605 and HG 614
ANSI B31.1, Power Boilers

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

☐ Yes ■ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

■ Yes ☐ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

LANL LPR "Management of Operations" (to be developed to address the philosophy of DOE O 5480.19, Conduct of Operations)
LANL LPR 270-02, "Perform Assessment of Operating Limits and Start-Up Tests" (currently exists and addresses the philosophy of AL 5480.31 cited below)

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

These baseline standards for management of operations are necessary and sufficient to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

DOE O 5480.19, Conduct of Operations
AL 5480.31, Startup/Restart of AL Facilities
Los Alamos Integrated Safety Management Implementation Plan (Approved 1996)

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Design and Review of Experiments; High-Energy Charged and Neutral Particle Beams; High Magnetic Fields; Operations Start-Restart Process; Radiography Equipment and Parts; X-Ray Machines and Electron Microscopes (Non-Medical)

2. ID Team:

❑ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ■ Facilities

3. Focus Group:

Accelerator Facilities

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

❑ Yes ■ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

■ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ❑ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

ANSI N43.3, Definitions, Sections 4.1, 5.1, 5.1.2, 5.1.4, 5.1.6.3, 5.1.5.2, 5.1.5.7, 9.1, 9.4
DOE O 5480.25, Safety of Accelerator Facilities, Sections 9f-j, 10

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

These supplemental (above baseline) standards for accelerator facilities are necessary and sufficient, in combination with the baseline standards, to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

From the baseline standards:
29 CFR 1910.97, Occupational Safety and Health Standards, "Nonionizing Radiation"
IEEE C95.1, Safety Levels with Respect to Human Exposure to Radiofrequency Electromagnetic Fields

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

Issue Origin: ■ Work and Hazard Survey ■ ID Team

1. List Issue(s): ("Issue" means any ES&H hazard(s) or concern(s) that may negatively impact the work of the Laboratory or may negatively impact workers, the public, the environment, and/or facilities as a result of performing Laboratory work.)

Nuclear Facility Safety

2. ID Team:

❑ Worker H & S ❑ Environmental Protection ❑ Emergency Preparedness & Mgmt. ■ Facilities

3. Focus Group:

Nuclear Facilities

4. Were any legal requirements identified that apply to this issue? ("Legal requirements" here means federal, state, and local laws and regulations that are enforceable at the Laboratory by the promulgating agency[ies].)

■ Yes ❑ No If No, continue; otherwise skip to No. 6.

5. Is a standard in Appendix G necessary to establish the ISMS institutional ES&H expectation for this issue? (NOTE: ISMS = Integrated Safety Management System)

❑ Yes ❑ No If yes, skip to No. 9; otherwise skip to No. 14.

6. List applicable legal requirement(s):

10 CFR 830.120, Quality Assurance for Nuclear Facilities

7. Were any nonvalue-added aspects of the legal requirement(s) identified?

❑ Yes ❑ No ■ Not evaluated.

8. Describe nonvalue-added aspects of the legal requirement(s) that suggest need for exemption, as appropriate:

9. Were any consensus or other external standards, including DOE Directives, identified as necessary to address this issue?

■ Yes ❑ No If Yes, continue; otherwise skip to No. 12.

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

10. List consensus or other external standard(s), including DOE Directives, that are needed in Appendix G to provide the ISMS institutional ES&H expectation for this issue:

DOE O 425.1, Startup and Restart of Nuclear Facilities, Chg 1: 10-26-95, with the exception of the DOE O 5480.19 citation

DOE O 5480.20A, Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities, 11-15-94

DOE O 5480.21, Unreviewed Safety Questions, 12-24-91

DOE O 5480.22, Technical Safety Requirements, Change 2: 1-23-96

DOE O 5480.23, Nuclear Safety Analysis Reports, Effective Date: 4-30-92

DOE O 6430.1A, General Design Criteria, Division 13
NOTE: This order was canceled by 430.1 LCAM, except for specific facilities under the purview of the Defense Nuclear Facilities Safety Board. See DOE O 430.1 paragraph 2. for more information.

DOE-STD-3013-94, Criteria for Safe Storage of Plutonium Metals and Oxides, 12-94

11. Do the standards identified sufficiently establish the Appendix G ISMS institutional ES&H expectation for this issue?

■ Yes ❑ No If Yes, skip to no. 14; otherwise continue.

12. Were LANL-specific standards identified as necessary in Appendix G to provide the ISMS institutional ES&H expectation for this issue?

❑ Yes ❑ No If no, skip to No. 14

13. List LANL-specific standard(s) and indicate whether it currently exists or needs to be developed:

Goal 1 Focus Group Documentation

The purpose of this form is to document the decisions of the Focus Groups in identifying the ES&H Work Smart Standards necessary and sufficient for inclusion in Appendix G of our UC/DOE Contract. Inclusion of a standard in Appendix G contractually binds the Laboratory to meeting the standard while performing work.

14. Provide basis for the sufficiency of the identified ES&H Work Smart Standards for this issue which, when met by the other elements of ISMS, will provide effective protection to workers, the public, the environment, and facilities:

All nuclear facilities at Los Alamos are nonreactor nuclear facilities. Nonreactor nuclear facility means those activities or operations that involve radioactive and/or fissionable materials in such form and quantity that a nuclear hazard potentially exists to the employees or the general public. While the radiological hazards at Los Alamos are controlled to standards set by the DOE, there is a need to provide enhanced assurance that these standards are indeed met when performing activities within these nuclear facilities. To this end, the DOE has issued directives specifying requirements that must be met by its contractors who manage and operate nuclear facilities. The above identified set contains those directives that the Laboratory is now meeting or has committed to meet through DOE-approved implementation plans for all designated nuclear facilities. These supplemental (above baseline) standards for nuclear facilities, in combination with the baseline standards, are adequate to protect the workers, the public, the environment, and facilities.

15. Provide any guidance or assumptions for implementation of these ES&H Work Smart Standards:

DOE O 430.1, Ch1, Life Cycle Asset Management

-Brief Vita-

Carl A. Ostenak, Process Leader
Laboratory Standards Project

Professional Background

Since 1978, after graduating summa cum laude from the University of Arizona with a Bachelor of Science in Chemistry and a Master of Science in Nuclear and Chemical Engineering, Carl has worked at Los Alamos National Laboratory as a staff scientist, engineer, and manager engaged in the research, development, and management of advanced nuclear materials processing, safety, and nuclear safeguards systems. During this time, Carl:

- Led several Laboratory and DOE task forces and employee involvement teams charged with improving nuclear and nonuclear systems performance;
- Completed the Laboratory's Leadership Development Program;
- Held line and program management positions, including division and program director;
- Authored numerous (>30) technical publications;
- Chaired local and co-chaired national conferences;
- Was nominated by the Laboratory Director's Office as one of the nation's outstanding young American Scientists (1985); and
- Was awarded a technical patent, IR 100 Commendation, and National Technology Commendation for significant achievements in nuclear technology.

Since July 1995, after completing a one-year assignment as senior technical adviser at Rocky Flats, Carl has been serving on the Laboratory Standards Project Team, which was commissioned by the Laboratory's Operations Working Group chaired by the Director. In addition, he has continued serving as the Laboratory's Nuclear Safeguards Assurance Officer. In 1996, he also served on the Integrated Safety Management Steering Team responsible for developing the Laboratory's Integrated Safety Management Plan, which was approved in November 1996 by the Laboratory Director and DOE Senior Management. Carl also received a personal commendation and Certificate of Appreciation in 1996 from former Energy Secretary Hazel O'Leary for his "contributions to the development of the 'Necessary and Sufficient' Process," which is the cornerstone of DOE's new approach to establishing Integrated Safety Management Systems throughout the entire DOE complex.

Team Member Qualifications

Los Alamos National Laboratory

LABORATORY STANDARDS PROJECT IDENTIFICATION TEAM PERSONNEL QUALIFICATIONS FORM

The purpose of this form is to document qualifications for personnel involved in the LANL Standards Project.

Name _____ Date _____

Z#_____ Phone _____ MS _____ Org. _____

Organization Represented _____

Please complete the following or attach a resume that includes this information.

Education :

Undergraduate degree, date, and major(s) _____

Graduate degree, date, and major _____

Certifications _____

Work experience in relevant field: (number of years, employer, description of position)

SEE LABORATORY STANDARDS PROJECT FILE FOR THE COMPLETED SET OF FORMS.

Signed _____ (ID Team Member) Date _____

I, Hillard Howard, have reviewed the qualifications of the individual and certify that she/he can perform the duties assigned.

Signature of Process Leader _____ Date_____

PERSONAL:

Name: JOHN C. BARTLEY, D.V.M., Ph.D.

Citizenship: USA

EDUCATION:

University of California, Davis, California, Ph.D., 1963
University of Illinois, Urbana, Illinois, V.M.S., 1960
Colorado State University, Fort Collins, Colorado, D.V.M., 1956
Colorado State University, Fort Collins, Colorado, B.S., 1954

HONORS:

High School National Honor Society (1950)
Phi Zeta - Veterinary Scholastic Honor Society (1956)
Sigma Xi (1961)

FELLOWSHIPS:

Fulbright Scholar to Australia, University of New England, Armidale N.W.S. (1956-1957)

Public Health Service Postdoctoral Fellow (National Institutes of Arthritis and Metabolic Diseases) at the University of California, Davis (1960-63)

Public Health Service Special Fellow (National Institutes of Arthritis and Metabolic Diseases) at the University of California, Davis (1963-66)

PROFESSIONAL SOCIETIES:

Sigma Xi (1962 to present)
Biochemical Society (1966 to present)
American Society of Biological Chemists (1978 to present)
American Association for the Advancement of Science (1981 to present)
American Society of Cell Biologists (1985 to present)

RESEARCH INTERESTS:

Control of cellular activity in normal and cancerous cells:

Modulation of functional differentiation in mammary epithelial cells of all species; effects of developmental state, hormones, nutrition, extracellular matrices.

Metabolic fate of chemical carcinogens in epithelial cells in culture; mechanisms of action, influence of nutritional and hormonal factors on the metabolism of carcinogens, on DNA adduct formation and oxidative damage, and on the incidence of transformation.

Induction oxidative damage in DNA: mechansim(s), molecular and chemical characterization, biological consequences.

ADMINISTRATIVE COMMITTEES:

LBL Animal Welfare and Research Committee (1983 to present) - Chair (1985 to present)
Biomedical Division Director's Advisory Committee (1981 to 1988)
Biomedical Research Support Grant Review Committee (1981 to 1987)
Biomedical Divisional Salary Committee (1981 to 1988)
Biomedical Divisional Equipment Committee (1982 to 1987)
CMB Safety Committee - Chair (1988 to 1990)
Chairman, Human Genome Center Planning Group - 1987
LBL Safety Review Committee (1988 to present)
LBL Tiger Team Task Force - Head Envirnomental Assessment Group (1990 to 1991)
Charman, LBL Biological Safety Subcommittee (1990 to present)

PROFESSIONAL EXPERIENCE:

Instructor (Research)
University of Illinois, Urbana 1957 - 1960

Lecturer
Department of Physiological Sciences
University of California, Davis 1962 - 1963

Postdoctoral Fellow
Department of Physiology and Anatomy
University of California, Berkeley 1963 - 1966

Assistant/Associate Professor of Clinical Sciences
University of California, Davis 1966 - 1968

Lecturer
Department of Nutritional Sciences
University of California, Berkeley 1969 - 1972
Lecturer
Department of Clinical Sciences
University of California, Davis 1969 - 1972

Assistant Director of Research
Bruce Lyon Memorial Research Laboratory
Children's Hospital Medical Center of Northern California, Oakland 1968 - 1978

Research Investigator
Peralta Cancer Research Institute
Peralta Hospital, Oakland, California 1979 - 1981

Consultant
Laboratory Management/Administration
Bruce Lyon Memorial Research Laboratory
Children's Hospital Medical Center of Northern California, Oakland 1982 - 1984

Staff Scientist
Division of Biology and Medicine/Cellular and Molecular Biology
Lawrence Berkeley Laboratory
University of California, Berkeley 1982 - present

Coordinator, Cellular and Molecular Biology Group
Division of Biology and Medicine
Lawrence Berkeley Laboratory
University of California, Berkeley 1984 - 1987

Deputy Head, Division of Biology and Medicine
Lawrence Berkeley Laboratory
University of California, Berkeley 1987

Deputy Director, Human Genome Center
Lawrence Berkeley Laboratory
University of California, Berkeley 1987 - 1990

Scientific Assistant
Scientific and Technical Resources
Lawrence Berkeley Laboratory 1990 to July, 1990

Deputy Director
Environment, Health and Safety
Lawrence Berkeley Laboratory 7/1990 - Present

PROFESSIONAL ACTIVITIES:

Teaching

1968-70: Dietary Regulation of Lipid Metabolism, Department of Nutrition, U.C. Berkeley

1967-70: Animal Medicine, Intermediary Metabolism and Metabolic Diseases, School of Veterinary Medicine, U.C. Davis

1967-68: Acid-Base Balance, School of Veterinary Medicine, U.C. Davis

1966-68: Clinical Specialties in Biochemistry, School of Veterinary Medicine, U.C. Davis

Reviewer for the following Journals and Agencies:

Cancer Research
Carcinogenesis
Department of Energy
Endocrinology
In Vitro
Journal of Toxicology and Environmental Health
Lipids
National Institutes of Health

PUBLICATIONS:

Abstracts

1986 - American Association for Cancer Research. Expression of Differentiated Properties in Normal and Transformed Human Mammary Epithelial Cells. M. Stampfer, G. Parry, and J. C. Bartley.

1986 - A Triton Biosciences- UCLA Symposium. Growth Factors, Tumor Promoters and Cancer Genes. Expression of Differentiated Properties in Normal and Transformed Human Mammary Epithelial Cells. M. Stampfer, G. Parry and J. C. Bartley.

1985 - 36th Annual Meeting of the Tissue Culture Association. Development of Continuous Cell Lines after Exposure of Normal Human Mammary Eithelial Cells to Benzo(a)pyrene. M.R. Stampfer and J.C. Bartley.

1985 - International Association for Breast Cancer Research. Transformation In Vitro of Normal Human Mammary Epithelial Cells after Exposure to Benzo(a)pyrene. M.R. Stampfer, K. Walen, D. Dolberg, and J. C. Bartley.

1985 - American Association for Cancer Research. Metabolism of 7,12-Dimethyl-benz(a)anthracine by Mouse Mammary Cells Grown inside Collagen Gels. R.C. Guzman, J. C. Bartley, R. C. Osborn and S. Nandi.

1983 - American Society for Cell Biology. Modulation of Differentiatied Function of Human Mammary Epithelial Cells by Culture Medium. J.C. Bartley and M.R. Stampfer.

Selected full length papers (1982 onward):

Bartley, J., Bartholomew, J. C., Stampfer, M. R. Metabolism of Benzo(a)pyrene by Huaman Epithelial and Fibroblastic Cells: Metabolite Patterns and DNA Adduct Formation. J. Cell. Biochem. 18: 243-256, 1982.

Hackett, A.J., Stampfer, M.R., Bartley, J. C., Smith, H.S. The Cellular Biology of Mammary Cancer: Potential Resource for Biostatisticians. In: Cancer and the Stochastic Process, the Cellular Biology of Mammary Cancer: Potential Resource for Biostatisticians. North-Holland Publishing Co., Amsterdam, pp. 1-14, 1982.

Stampfer, M. R. and Bartley, J. C. Development of Human Mammary Epithelial Cell Culture Systems and Their Use for Studies of Carcinogenesis and Differentiation. In: In Vitro Models for Cancer Research, L. Sekley and M. Webber, eds,. CRC Press, Boca Raton, Florida, in press, 1985.

Stampfer, M. R. and Bartley, J. C. Induction of Transformation and Continuous Cell Lines from Normal Human Mammary Epithelial Cells after Exposure to Benzo(a)pyrene. Proc. Natl. Acad. Sci. 82: 2394-2398, 1985.

Bartley, J. C. and Stampfer, M.R. Factors Influencing Benzo(a)pyrene Metabolism and DNA Adduct Formation in Human Mammary Epithelial Cells in Culture. Carcinogenesis 6: 1017-1022, 1985.

Menon, R., Bartley, J. C., Som, S. and Banerjee, M.R. Metabolism of 7,12-dimethylbenz(a)-anthracene by mouse mammary glands in organ culture. Europ. J. Cancer and Clinical Oncol. 23: 395-400, 1987.

Guzman, R.C., Osborn, R.C., Bartley, J. C., Imagawa, W., Asch, B. and Nandi, S. In Vitro Transformation of Mouse Mammary Epithelial Cells Grown Serum-Free inside Collagen Gels. Cancer Res. 49: 275-280, 1987.

Stampfer, M. R. and Bartley, J. C. Growth and Transformation of Human Mammary Epithelial Cells in Culture. In: Cellular and Molecular Biology of Experimental Mammary Cancer, D. Medina, W. Kidwell, G. Heppner and E. Anderson, eds. Plenum Publishing Corp., N.Y. pp. 419-436, 1987.

Leadon, S.A., Stampfer, M. R. and Bartley, J. C. Production of Thymine Glycols during the Metabolism of Benzo(a)pyrene by Human Mammary Epithelial Cells. Proc. Natl. Acad. Sci. USA. 85: 4365-4368, 1987.

Stampfer, M. R. and Bartley, J. C. Human Mammary Epithelial Cells in Culture: Differentiation and Transformation. In: Breast Cancer: Cellular and Molecular Biology. R. Dickson and M. Lippman, eds. Martinus Nijhoff, Norwell, A, pp. 1-24, 1988.

Parry, G., Beck, J. C., Moss, L., Bartley, J., Ojakian, G. K. Determination of Apical Membrane Polarity in Mammary Epithelial Cell Cultures: The Role of Cell-Cell, Cell-Substratum, and Membrane-Cytoskeleton Interactions. Exp. Cell Res. 188: 302-311, 1990.

Name: Cooper, Timothy A

Position: General Engineer

Degrees/Certifications:

Masters of Business Administration, Clarkson University, 1992
Bachelor of Civil Engineering, Georgia Institute of Technology, 1990
Engineer In Training, 1990

Work Experience Summary:

Led the Department of Energy Nevada Operations Office Necessary and Sufficient Initiative to identify the Work Smart Standards for the DOE/NV complex. Past responsibilities include coordinating R&D activities and opportunities between DOE, it's contractors and private sector entities; managing dispersement and accounting for a $140M R&D budget; and coordinating the development of a management information system. Prior to joining DOE, worked with the Virginia Department of Transportation and Froehling & Robertson in several aspects of construction materials inspection in positions ranging from technician to technician manager.

Curriculum Vitae

Robert H. Day
DX-DO, MS P915
Los Alamos National Laboratory
Los Alamos, NM 87545

Birth Date: 10 August 1947

Education: Ph.D. Nuclear Physics, University of Michigan, Ann Arbor, MI, 1974

Dissertation: Neutron Time-of-Flight Spectroscopy and the Reaction $^{88}Sr(^3He,n)^{90}Zr$.
Advisor: William C. Parkinson

BS. Physics, Syracuse University, Syracuse, NY 1969

Honors: Phi Beta Kappa, BS. Physics - Magna cum Laude, Danforth Fellowship, SU Merit Scholarship, USAF Scholarship

Professional Societies: APS, Phi Beta Kappa

Professional Experience:
11/93 - present, DX Division Director
3/93 - 11/93, J-DO Deputy Division Leader
3/90 - 3/93, P-DO, Prompt Diagnostics Program Manager and Line Manager
9/84 - 3/90, P-14 Group Leader
1981 - 9/84, P-14 Deputy Group Leader
1/76 - 1981, J-14 and P-14 Staff Member and X-ray Section Leader
2/74-1/76, USAF, Kirtland Air Force Base, Simulations Branch

Research and Professional Interests:

I am an experimental physicist with broad interests in nuclear and high energy density physics. My background covers original research in nuclear physics, x-ray physics, plasma physics, and nuclear weapons research as well as technical management. My Ph. D. focused on instrument development for neutron time-of-flight spectroscopy and investigation of two proton transfer reactions. A commitment to the US Air Force took me to the Air Force Weapons Lab to work on the development of pulsed power driven imploding liner x-ray sources where I contributed to low energy x-ray measurement and characterization techniques. I subsequently applied these and other developments to the Los Alamos Inertial Confinement Fusion Program. Other areas of emphasis at Los Alamos have included experimental weapons physics in the underground test program, instrumentation development, and the SDI program. I have also been extensively involved and interested in technical management at the Laboratory.

Publications: Over 30 contributed and/or refereed unclassified papers on nuclear physics, instrumentation and high energy density physics (list available on request) as well as numerous contributions to the classified literature.

Dynamic Experimentation Division

"The nature of the problems facing the nation and Los Alamos are changing rapidly, and we must have the opportunity to contribute in new areas."

—Robert Day
Division Director

Field testing of nuclear and non-nuclear devices and components, above-ground experiments, and fundamental and applied research in explosives technology—these are the responsibilities of the newly created Dynamic Experimentation Division. The division is also responsible for local high-explosive firing sites and field operations at the Nevada Test Site.

Areas of expertise in the division include

- explosives technology
- dynamic testing
- hydrodynamics
- shock wave physics
- detonation systems
- field engineering
- test engineering
- command, control, and communications

The division will continue to be a keystone of the experimental weapons program but will also seek new ways to apply its diverse skills to problems of interest to the Laboratory and the nation.

For more information, contact the division at
Mailstop F670 or P915
Los Alamos National Laboratory
Los Alamos, New Mexico 87545
Phone: (505) 667-4236 or 667-6471
Fax: (505) 667-7256 or 667-3407

■ Robert H. Day

Physics, B.S.
Syracuse University
Nuclear Physics, Ph.D.
University of Michigan

An experimental physicist, Day came to Los Alamos in 1970 after he finished a commitment to the US Air Force. For the past 12 years, he has held several technical management positions at Los Alamos, most recently as deputy division leader of the Field Test Division.

Areas of emphasis for Day at Los Alamos have included inertial confinement fusion, experimental weapons physics in the underground test program, instrumentation development, and strategic defense initiative programs. He has contributed to over 30 unclassified papers and numerous classified papers on nuclear physics, instrumentation, and high-energy density physics.

As division director, Day expects to contribute his consensus decision-making skills, seeking informal and formal input to create a broad-based team to develop new programs. Experienced in bringing together large teams to address technical problems, he wants to find ways to channel the expertise of his division into new arenas of inquiry.

Los Alamos
NATIONAL LABORATORY

A US DEPARTMENT OF ENERGY LABORATORY
LALP-93-87. October 1993 • Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by the University of California for the US Department of Energy under contract W-7405-ENG-36

Albuquerque Operations Office
Incumbent Biography

Rick Glass
Assistant Manager, Office of Technical Management and Operations (OTMO)

The Assistant Manager, OTMO is responsible for staff activities in environmental compliance, safety and health, safeguards and security, facility operations and authorization basis, for all functions other than nuclear explosive safety.

Education Summary:

Bachelor of Science, Nuclear Engineering, UC Berkeley, 1981
Master of Science, Nuclear Engineering, UC Berkeley, 1982
Department Citation, National Engineering Honor Society
Completed Bettis Reactor Engineering School, 1984
Completed course work in engineering analysis, George Washington University

Professional Affiliations/Certifications:

Registered Professional Engineer
Administrative Contracting Officer Warrant
Member, American Nuclear Society
Member, National Contract Management Association

Relevant Background/Experience Summary:

1992 - 1996 Manager, Pinellas Area Office

Senior DOE official for all site operations and warranted Administrative Contracting Officer for M&O contract. Represented DOE to political, business and academic community leaders. Signed environmental permits and applications. Developed tailored authorization basis program to fit work and hazards at Pinellas.

1990 - 1992 Director, Separations Division, Savannah River

Line manager for operation of F-Canyon, FB-Line, H-Canyon, HB-Line, New Special Recovery, and Receiving Basin for Offsite Fuels. Established Technical Support Branch and initiated authorization basis upgrade program. Established Facility Representative program for chemical processing operations.

1989 - 1990 Assistant Naval Reactors Representative, Puget Sound

Served as Assistant to the Naval Reactors Representative (NRR) during a training assignment in preparation to become the NRR at a nuclear shipyard when a vacancy occurred.

1988 - 1989 Naval Reactors Representative, Savannah River

Assigned as site representative for Naval Reactors during the final stages of taking the Naval Fuels Manufacturing Facility operational. Resolved programmatic issues that had delayed initial operation. Obtained agreement on the priority of technical issues to allow sequential resolution. Obtained agreement from contractor and DOE to organize program management with authority and accountability vested in a single individual.

1986 - 1988 Assistant Naval Reactors Representative, Schenectady

Head of Naval Reactors office at 550 person prime contractor responsible for design and procurement of all primary system reactor components, except the reactor core, and many secondary system components. Evaluated technical adequacy of contractor efforts.

1982 - 1986 Naval Reactors Headquarters, Reactor Engineering Division

Program engineer responsible for the Structural Design Basis, the Shock and Vibration Design Manual and the Threaded Fastener Design Manual. Approved or rejected changes to manuals proposed by Bettis and Knolls Atomic Power Laboratories.

Program engineer responsible for procurement of control rod drive mechanisms, reactor vessels, closure heads and core barrels. Approved technical specifications, approved or rejected deviations from specification requirements, and managed vendor base skills retention effort.

THOMAS C. GUNDERSON, PH.D., P.E.

1739 Camino Redondo
Los Alamos, NM 87544

Home: (505) 662-9775
Office: (505) 665-3778
E-mail: tgunderson@lanl.gov

OBJECTIVE

A senior management position in environment, safety, and health (ES&H) field.

QUALIFICATIONS

- Over 20 years ES&H experience
- Ph.D. in environmental engineering
- Registered professional engineer
- Excel in setting/achieving goals and working well under pressure

EXPERIENCE AND RELEVANT ACCOMPLISHMENTS

Program Manager--Environment, Safety, and Health (ESH) Division, Los Alamos National Laboratory (1993-Present)

Developing and implementing strategic/tactical and business plans; reengineeringservice delivery and and resource management processes for ESH Division at LANL (7,000 employees, 43 sq. mi.). ESH Division is responsible for radiation protection, occupational medicine, industrial hygiene, industrial safety, environmental regulatory compliance, nuclear criticality, and related ES&H functions; the Division has 1,000 employees and a $80 M/ year budget.

- Implementing issues management process to improve ES&H compliance.
- Initiated cost-risk-benefit prioritization to insure limited resources deployed most effectively.
- Installing project controls to monitor and control Division's work.
- Rengineering ES&H service delivery processes.

Division Leader--Environmental Management Division, LANL (1991-93)

Managed more than 300 professionals and $160 M/year at LANL for hazardous waste operations/minimization; environmental monitoring and compliance (RCRA/HSWA, CERCLA/SARA, TSCA, NEPA, etc.); analytical chemistry; environmental restoration. Active Department of Energy security (Q) clearance.

- Managed rapid growth from $80 M/year to over $160 M/year over 2 years and going from 170 to 300 full time employees by implementing strong project controls and hiring talented professionals.
- Initiated customer survey and benchmarking; used results to improve Division's service.
- Initiated ES&H audits, including program evaluations and field inspections.
- Developed staffing, space, and other business plans.
- Established Technical Advisory Committee of industry/academic leaders to assist in directing Environmental Management's future programs.

Thomas C. Gunderson (cont.)

[redacted]

Deputy Division Leader--ES&H Division, LANL (1987-91)
Managed 200 professional staff and $80 M/year for environmental programs; industrial hygiene; occupational medicine.

- Represented LANL during all Environmental Protection Agency and New Mexico inspections.
- Presented environmental programs at LANL in numerous public forums.
- Member on LANL emergency response team for hazardous and radiological emergencies.

Group Leader--Environmental Surveillance, LANL (1985-87)
Lead 50 staff responsible for environmental monitoring and compliance programs funded at $8.0 M/year.

- Revamped annual environmental surveillance report into reader-friendly document.
- Effectively interacted with print/electronic media on environmental issues.
- Obtained RCRA operating permit for LANL.

Staff Member--Environmental Surveillance, LANL (1975-84)
Manage 15 staff for environmental monitoring program.

- Directed environmental field operations on decontamination and decommissioning projects.
- Created computer programs and graphics to manage and statistically analyze water, air, soil, sediment data.
- Authored numerous technical papers and reports.

Research Assistant--University of Florida (1973-75)
Taught and researched responsibilities in air pollution instrumentation and control; aerosols; meteorology.

- Taught environmental engineering course to undergraduates emphasizing aerosol science.
- Built high-temperature system to test filters.

Civil Engineer--Daniel Construction Company (1972-73)
In Puerto Rico, responsible for rental of construction equipment; conduct field inspections; cost estimates.

- Saved Company $50,000 by developing system to track rental equipment.
- Prepared cost estimates from design specifications.

[redacted]

EDUCATIONAL AND PROFESSIONAL BACKGROUND

- University of Florida--Ph.D. Environmental Engineering (1973-75)
- California Institute of Technology--M. S. Civil Engineering (1970-71) - Full Scholarship
- University of Wisconsin--B. S. Mechanical Engineering (1966-70) - Berganthal, Boeing and Wisconsin Honor Scholarships, Dean's Honor List (1967-1970)
- State of New Mexico--Professional Engineer (1978)
- Middle and upper management training provided by LANL (e.g., Bill Ury: "Negotiation and Conflict Resolution")
- Chosen (1 of 30 throughout all of LANL) to re-engineer LANL organizations, sponsored by Motorola.
- Nine days training in Hammer reengineering workshops (10/94, 2/95, 4/95).

DAVID A. HERBERT
640 Bayard Road
Kennett Square, PA 19348
610-444-0107

Safety Health and Environmental Management/Business Experience

Over 30 years experience with DuPont in all aspects of business management and a special emphasis on safety, health and environmental services
An internationally recognized expert in safety management systems and a certified safety professional, has had substantial impact for DuPont , both internal and external to the company, on safety performance. Directed implementation of a "Discovery Team" program which led DuPont to new world record, a 40 percent reduction in total recordable injuries within one year, to a frequency rate of 0.5.
Created and managed DuPont Safety and Environmental Management Services Business, a major business with revenues of $50 million and strong after tax earnings. Responsible for all aspects of the business from strategic direction to day to day operations; including creation of business vision and strategic directions, planning, staffing, financial performance management, product development and delivery and customer satisfaction.
Personally led delivery of consulting services to some 100 major organizations; with resultant reductions in injury frequency rates averaging 50 percent within two years and ranging to 90 percent, and similarly significant environmental improvements.

Career History

1996 to Present — National Safety Council, Director Occupational Safety and Health.
- Responsible for all aspects of Occupational Safety and Health affairs of the National Safety Council.
- Leading strategic business planning, organizational restructuring and business process improvement.

1965 to 1996: E. I du Pont de Nemours and Company

1995- 1996: Director - Discovery Team Implementation
- Led discovery and implementation of directions to achieve step-change improvement in corporate safety and health performance. Reduced injury and illness rates by 40 percent in one year to a new corporate record, a total recordable frequency rate of 0.5.

1992-1995 — Business Manager, Safety and Environmental Management Services
Chairman of the Board, SAFER Emergency Systems (Subsidiary).
- Managed all aspects of global Safety, Health and Environmental Management Consulting Services Business. Grew revenues to $50 Million with excellent earnings. Led

the acquisition and financial performance turnaround of SAFER Emergency Systems, accessing important new technology and expanding revenues.

- Played leadership role in DuPont internal safety, health and environmental policy and management systems.

1989-1992 Manager, Safety and Environmental Management Consulting.

- Directed successful consulting delivery to some 500 major international clients, e.g.: "The Chunnel", EXXON International, Union Pacific Railroad, etc. Developed international reputation in safety.

1981-1992 Marketing and Sales Manager, Safety and Environmental Management Consulting Services.

- Led worldwide marketing and sales for consulting services. Developed business vision, mission and strategies and created organizational alignment with the vision which resulted in revenue growth of 20 percent per year for a ten year period.

1979-1981 Marketing and Sales Manager, International Consumer Products

- Responsible for all aspects of consumer products business in countries outside the US.
-

1977-1979 Manufacturing, Technical, Distribution and Office Systems Manager, Consumer Car Care Products.

- Led technical, operations, customer service/office operations for a major business. Implemented consumer product safety systems and standards, consumer "hot-line" service. Improved productivity by implementation of IS technology.

1972-1977 Research and Development Supervisor, Consumer Household and Automotive Products.

- Managed a group of 15-25 research scientists in new product development and technical support for a broad range of consumer products; including the "Reach" Toothbrush and "Rain Dance Car Wax".

1965-1972 Research Chemist

- Research projects including new materials for high temperature applications, high temperature composites for aerospace.

1961-1965 U.S. Air Force - Russian Linguist

Professional Credentials

Certified Safety Professional.
National Safety Council: Chairman, Chemical Section; Executive Committee, Business and Industry Division; Executive Committee, Business and Industry Division; and Member of the Research Projects Advisory Committee.
Professional Member of the American Association of Safety Engineers.
Member of the American Institute of Chemical Engineers and the Center for Chemical Process Safety.
Editorial Advisory Boards, Occupational Health and Safety Magazine and Stevens Publishing.
Author of numerous papers and presentations on Safety Management Systems.
Chairman, Kennett Township Safety Committee and Emergency Response Organization.

Education

Graduate Management Program, The Wharton School, University of Pennsylvania, Philadelphia, PA.
B.S. Chemical Engineering, Drexel University, summa cum laude, Philadelphia, PA.
U.S. Air Force Military Service, Russian Language Program, Syracuse University, Syracuse, NY.

Personal

Native Philadelphian. Married to Elsie M. for 35 years. Three children: Charlotte, David C. and Douglas.
Enjoy family, fitness, local government/politics, travel and gardening.

~~9/20/96~~
3/10/97

BIOGRAPHICAL SKETCH - ROBERT L. LONG

PRESENT POSITION - Retired 12/1/96 - Consultant

11/30/96
9/01/96-Present: Vice President & Director of the NS&TS Division which includes Licensing & Regulatory Affairs, Nuclear Safety Assessment, Training and Education, Emergency Preparedness, Radiological Health & Safety, Industrial Health & Safety, Environmental Affairs, and the SNEC Facility Decommissioning Project.

9/95 - 9/01/96: Vice President and Director of the Nuclear Services Division, GPU Nuclear Corporation. The Nuclear Services Division included Planning & Regulatory Affairs, Human Resources, Radiological Health & Safety, Training and Education, Environmental Affairs, Medical, and the SNEC Facility.

1993-1995:	Vice President & Director, Services Division
1994-1995:	Member, GPU Nuclear Board of Directors
1990-1993:	Vice President & Director, TMI-2 Division, GPU Nuclear Corp.
1989-1993:	Vice President & Director, Corporate Services Division, GPU Nuclear Corp.
1987-1989:	Vice President & Director, Planning & Nuclear Safety, GPU Nuclear Corp.
1982-1987:	Vice President & Director, Nuclear Assurance, GPU Nuclear Corp.
1980-1982:	Director-Training & Education, GPU Nuclear Corp.
1979-1980:	Director-Reliability Engineering, GPU Service Corp.
1978-1979:	Manager-Generation Productivity Department, GPU Service Corp.
1975-1978:	Chairman, Chemical & Nuclear Engineering Department, University of New Mexico
1974-1975:	Acting Chairman, Chemical & Nuclear Engineering Department University of New Mexico
1965-1978:	Faculty Member-Chemical & Nuclear Engineering Department, University of New Mexico

EDUCATION

1958:	B.S., Electrical Engineering, Bucknell University
1959:	M.S., Nuclear Engineering, Purdue University
1962:	Ph.D, Nuclear Engineering, Purdue University
1965-78:	Various courses in engineering education/management and minicomputer technology
1978-Present:	Various GPU training programs in teamwork and leadership, management and business skills
1982:	EEI Executive Management Program
1994:	GPU Penn State Executive Institute

PROFESSIONAL MEMBERSHIPS - American Nuclear Society, American Association for Engineering Education, Society for Risk Analysis, Professional Reactor Operators Society, Nuclear Energy Institute

AWARDS

1958-1959:	USAEC Nuclear Engineering Fellowship
1989:	Fellow, American Nuclear Society
1993:	Purdue University Distinguished Engineering Alumnus

REVIEW COMMITTEES

Have served on Review Committees of National Science Foundation, National Academy of Sciences, Electric Power Research Institute, Institute of Nuclear Power Operations, U.S. Department of Energy Argonne National Laboratory Division of Educational Programs, Advisory Council of the National Academy for Nuclear Training, the Accreditation Board of Engineering & Technology Board of Directors, the EEI Nuclear Power Executive Advisory Committee and the EPRI Nuclear Power Division and Exploratory Research Advisory Committees. Currently serve as member and Vice Chair of the Los Alamos National Laboratories External Review Committee for Environmental, Safety and Health Division and the NEI Nuclear Strategic Issues Advisory Committee, and the Bucknell University Engineering Alumni Association Board of Directors.

ANS ACTIVITIES

1965-1978:	Treasurer, Program Chairman, Executive Committee, Trinity Section
1967-1976:	Secretary, Several Committee Chairs, Executive Committee, Education Division
1974-1975:	Chairman, Education Division
1975-1976:	Chairman, NE Department Heads Organization
1986-1987, 1989-90:	Chairman, Northern New Jersey Section
1980:	ANS 25th Anniversary Exceptional Member Award
1974-Present:	Nuclear Engineering Accreditation Visitor
1983-1986:	ANS Alternate Representative to ABET BOD
1987-1990:	ANS Representative ABET Board of Directors
1990-1991/1991-92:	ANS President Elect/President
1990-1994:	ANS Board of Directors
1994-Present:	Chair, ANS Special Committee Management Issues
1995-Present:	2nd Vice Chair International Nuclear Societies Council (Chair - 1999-2000)

BIOGRAPHICAL SKETCH
ROBERT L. LONG

Dr. Robert L. Long is Vice President and Director of the Nuclear Services Division of GPU Nuclear Corporation. The Nuclear Services Division includes the SNEC Facility Decommissioning Project, Planning & Regulatory Affairs, Human Resources, Training and Education, Emergency Preparedness, Medical, Radiological Health & Safety, and Environmental Affairs. He joined GPU in 1978 and was actively involved with TMI-2 recovery and cleanup and TMI-1 restart and operational activities. Prior to joining GPU, he was Professor and Chairman of the Chemical & Nuclear Engineering Department at the University of New Mexico. He holds the Ph.D Degree in Nuclear Engineering from Purdue University. He is a Fellow of the American Nuclear Society (ANS) and served as ANS President during 1991-92. Currently he is Second Vice-Chair and will become Chair in 1999-2000 of the International Nuclear Societies Council.

Robert L. Long
4/15/96

G707

Revised 2/23/95

RESUME
OF
ROBERT L. LONG

CURRENT POSITION: Vice President, Services & Nuclear Assurance Divisions, GPU Nuclear Corporation, One Upper Pond Road, Parsippany, NJ 07054

DEGREES: B.S., Electrical Engineering, Bucknell University, 1958
M.S., Nuclear Engineering, Purdue University, 1959
Ph.D., Nuclear Engineering, Purdue University, 1962

WORK EXPERIENCE:

1995-Present:	Vice President, Nuclear Services Division, GPU Nuclear Corporation
1993 - 1995:	Vice President, Services Division, GPU Nuclear Corporation
1990 - 1993:	Vice President, TMI-2 Division, GPU Nuclear Corporation
1990 - 1993:	Vice President, Corporate Services Division, GPU Nuclear Corporation
1987 - 1989:	Vice President, Planning & Nuclear Safety Division, GPU Nuclear Corporation
1982 - 1987:	Vice President, Nuclear Assurance Division, GPU Nuclear Corporation
1980 - 1982:	Director, Training & Education, GPU Nuclear Corporation
1979 - 1980:	Director, Reliability Engineering, GPU Service Corporation
1978 - 1979:	Manager, Generation Productivity Department, GPU Service Corporation
1976 - 1977:	Sabbatical leave-Project Engineer, Electric Power Research Institute (EPRI)
1970 - 1971:	ASEE - Ford Foundation Resident Fellow, Associate Reactor Engineer, Indian Point Nuclear Power Station, Con Edison of New York, Inc.
1965 - 1968:	Research Participant in the field of fast burst reactor reflector effects and high yield burst reactors, one-half time at Sandia Corporation
1966 - 1967:	Leave of absence from UNM - Research Associate, Nuclear Research Division, Atomic Weapons Research Establishment, Aldermaston, Berkshire, England
1964 - 1965:	GS-14, Civil Service, Reactor Specialist, Nuclear Effects Branch, White Sands Missile Range, NM
1962 - 1964:	1st Lt., U.S. Army, Nuclear Effects Engineer, Reactor Specialist, Nuclear Effects Branch, White Sands Missile Range, NM
1960 - 1962:	Student Research Associate, Argonne National Laboratory, Argonne, IL
Summer 1960:	Instructor and technical reader, Purdue University, Lafayette, IN

CONSULTING:

1981 - 1987:	Argonne Universities Association Review Committee for Division of Educational Programs at Argonne National Laboratory
1981:	National Research Council, Academy of Engineering, Nuclear Manpower Committee
1979 - 1980:	National Science Foundation Review Committee for Engineering Chemistry and Energetics
1977 - 1979:	Consultant to Nuclear Engineering & Operations Department, EPRI, Palo Alto, CA
1976:	Lecturer overseas (Southeast Asia) for U.S. Information Agency
1973 - 1978:	Consultant to U.S. Department of Energy (formerly ERDA and USAEC) on Citizen's Workshops on Energy and the Environment
1971 - 1978:	Occasional consultant for utilities and universities on public education aspects of nuclear energy
1971 - 1973:	Consultant on Power Reactor Operator Training to General Physics Corporation, Columbia, MD
1965 - 1973:	Part-time consultant to Fast Burst Reactor Facility, White Sands Missile Range, NM

TRAINING/SEMINARS: Numerous Technical and Educational Short Courses/Seminars including:

- EEI Executive Management Program (4 weeks) 1982
- Utility Finance & Accounting Workshop (3 days) 1986
- Teamwork and Leadership Seminar (6 days) 1986
- Excellence in Strategic Management (2 days) 1989
- Deming's Methods for Management of Productivity and Quality (4 days) 1989
- Human Resources Law Update (2 days) 1990

UNIVERSITY OF NEW MEXICO SERVICE:

1965-1968: Assistant Professor of Nuclear Engineering
1968-1973: Associate Professor of Nuclear Engineering
1973-1978: Professor of Nuclear Engineering
1972-1974: Assistant Dean, College of Engineering
1974-1975: Acting Chairman, Chemical & Nuclear Engineering Department
1975-1978: Chairman, Chemical & Nuclear Engineering Department

SCIENTIFIC & PROFESSIONAL SOCIETIES OF WHICH A MEMBER:

- American Nuclear Society (have held numerous responsibilities on national and division committees)
- U.S. Council for Energy Awareness
- Society for Risk Analysis
- Newcomen Society
- Not presently active in Sigma Xi, AAAS, IEEE, AIChE, ASEE

HONORS & AWARDS:

1958 - 1959:	USAEC Nuclear Engineering Fellowship
1974 - 1975:	Chairman, Education Division, American Nuclear Society
1975 - 1976:	Chairman, Nuclear Engineering Department Heads Committee
1980:	ANS 25th Anniversary Exceptional Member Award
1989:	Elected Fellow of the American Nuclear Society
1990 - 1991:	Vice President/President-Elect, American Nuclear Society
1991 - 1992:	President, American Nuclear Society
1993:	Purdue University Distinguished Engineering Alumnus

DESCRIPTION OF PROFESSIONAL EXPERIENCE:

5/93-Present: On May 1, 1993, the Corporate Services and Site Services Divisions were combined into the Services Division, which includes the departments of Human Resources, Licensing & Regulatory Affairs, Corporate Planning, Security, OC Site Services and TMI-1 Site Services.

12/89 - 4/93: On December 1, 1989 a realignment of functions resulted in having added the Human Resources Department to Licensing & Regulatory Affairs and Corporate Planning to make up the Corporate Services Division. The addition of Human Resources gives me an opportunity to be involved in a wide variety of corporate management activities. On July 1, 1990 I was also appointed Director of the TMI-2 Division. This involves managing the final preparation of TMI-2 for Post Defueling Monitored Storage and leading the corporate team in the Atomic Safety Licensing Board Hearings process which began in late-1991.

6/87 - 11/89: On June 1, 1987 I was reassigned as Vice President and Director of the newly-created Planning & Nuclear Safety Division, GPU Nuclear Corporation. This Division included the Licensing & Regulatory Affairs, Corporate Planning, Nuclear Safety Assessment and Risk Management Departments. The new Division broadened and raised the level of nuclear safety/risk assessment, and provided increased interest in and understanding of nuclear safety issues within GPU Nuclear.

4/82 - 5/87: On April 1, 1982 I was elected Vice President & Director of the Nuclear Assurance Division, GPU Nuclear Corporation, which included the Quality Assurance, the Nuclear Safety Assessment, Training & Education, and Emergency Preparedness Departments. I also served as Acting Director of this Division from February - September 1980.

DESCRIPTION OF PROFESSIONAL EXPERIENCE (cont'd)

2/80 - 3/82: Director, Training & Education, GPU Nuclear Corporation. I had responsibility for the direction of Corporate, TMI-1, TMI-2, and Oyster Creek Training Departments, and the System Laboratory.

8/79 - 1/80: Director, Reliability Engineering, GPU Service Corporation, Parsippany, NJ. I was responsible for the direction of five functions providing technical support to the TMI Generation Group and the three GPU operating companies. These functions included Quality Assurance Department, the System Laboratory, the Information Management Department, the Nuclear Safety Assessment Department, and the Generation Operations Support staff.

4/79 - 7/79: Member of TMI-2 Recovery Team. Arriving on site March 29, 1979, I had varied responsibilities including organization of the Data Reduction and Management Group, head of the Accident Assessment Documentation Team and Supervisor of the Technical Planning Group. I also was appointed to the GPU Accident Investigation Task Force.

6/78 - 3/79: Manager, Generation Productivity, GPU Service Corporation. I was responsible for the staffing and program development of the newly-formed Generation Productivity Department. Activities included the development of an availability improvement program for implementation throughout the GPU System. The program was concerned with total plant performance for all fossil and nuclear units.

1965 - 1978: Faculty member, Nuclear Engineering Department, University of New Mexico. Except for the two leaves-of-absences in 1966-1967 and 1970-1971, and a sabbatical leave in 1976-1977 I was actively engaged in teaching and research, primarily in experimental reactor physics. During 1965-1966 I was engaged in half-time research at Sandia Laboratories and served as Project Engineer for the design of the SPR-II, fast burst reactor. During 1967-1969, again half-time, I participated in the design and carrying out of experiments to characterize the dynamic behavior of SRP-II. During 1969-1970 I directed a campus fast reactor physics experimental facility and directed the Ph.D thesis of C. C. Price on reflector effects on fast burst reactors.

I was a licensed Senior Reactor Operator on the UNM AGN-201M training reactor, 1967-1978, and served as Chief Reactor Supervisor.

1968-70 & 1973-76 - In 1969-70 I supervised the move of the reactor into a new laboratory, complete redesign and assembly of the nuclear instrumentation and control system, and an increase in maximum operating level from 0.1 to 5 watt. Served as Director of the Nuclear Engineering Labs, 1971-1976.

During 1972-1974 I served as Assistant Dean (half-time) of the College of Engineering. During that time period I also served as principal investigator for a contract with Consolidated Edison Company of New York to analyze axial xenon redistribution and power shaping in large pressurized water reactors. Under contract with the USAEC, I also developed two "neighborhood TV short courses" on nuclear energy and energy and the environment for use in public education efforts.

Effective July 1, 1974 I was appointed Acting Chairman of the Department of Chemical and Nuclear Engineering, and in February 1975 I was appointed to a four-year term as Department Chairman to begin July 1, 1975.

From 1974-1976 I supervised the design, development and on-campus installation of a fossil power plant simulator (Ph.D dissertation for R. Busch) under sponsorship of the New Mexico Energy Resources Board and Public Service Company of NM.

From 1977-1978 I served as principal investigator on a project, sponsored by the New Mexico Energy Institute, to determine generally accepted pre-activity background levels for radon in the very active uranium mining and milling Grants/Ambrosia Lake area of New Mexico.

DESCRIPTION OF PROFESSIONAL EXPERIENCE (cont'd)

Together with M. J. Ohanian, University of Florida, I worked as a representative of the Nuclear Engineering Department Heads Committee to increase the support of government sponsored energy R&D in university engineering colleges. This activity included successful introduction through the U.S. Senate of education support amendments to the 1974 ERDA and 1977 DOE Authorization Acts. It also included organization of university/government exchange meetings with USAEC, ERDA, and NRC and an EPRI/University exchange meeting.

My teaching was centered around the development and presentation of effective laboratory courses, while also periodically teaching the following lecture courses: Introduction to Nuclear Engineering, Applications of Nuclear Energy for Non-Engineers, Reactor Kinetics and Control, Nuclear Systems Design.

1976 - 1977: On sabbatical leave with the Electric Power Research Institute, Palo Alto, CA. During my 12-month sabbatical I worked as a project engineer in the Nuclear Engineering and Operations Department with responsibility for managing projects in availability engineering and development of an "optimized" utility power systems data base. I also supervised and worked with an EPRI contractor to complete a PWR steam-generator performance survey. These various projects provided an opportunity to visit and closely interact with many utility, manufacturer, and government agency personnel.

1977 - 1979: Consultant, EPRI. Upon return to the UNM campus, I continued as as an EPRI consultant to monitor reliability data base and records management projects. I also coordinated the conduct of an EPRI Availability Engineering Workshop held in Albuquerque in October 1977. While with GPUSC I have continued as consultant to EPRI on availability engineering programs.

1971 - 1972: Consultant, General Physics Corporation. I rewrote the Reactor Engineering Volume of the General Physics Corporation "Academic Program for Nuclear Plant Personnel."

1970 - 1971: ASEE-Ford Foundation Resident Fellow, serving as Associate Reactor Engineer with Con Edison of NY, Inc. During my 13-month assignment I was involved primarily in the coordination and planning of the repairs to the Indian Point Unit #1 primary coolant system. I also performed various tasks of the Unit #1 reactor engineer. I was principal co-author with R. B. Hayman of the Company's initial Quality Assurance program report for Unit #1. On a few occasions, I also assisted in the training program for the Unit #2 operators and in the preparation of Unit #2 procedures.

1966 - 1967: Temporary Research Associate, Nuclear Research Division, Atomic Weapons Research Establishment. During my 14-month assignment I prepared the commissioning schedule for VIPER, Mark I, a fast burst reactor, assisted in the safety analysis and evaluation of the reactor and served as a senior reactor physicist and shift supervisor during the initial startup. I also planned the training program and presented some of the lectures for the initial startup staff.

1962 - 1965: Reactor Specialist (GS-14), WSMR Fast Burst Reactor Facility. I served as the facility supervisor during the final design, construction, startup, and first year of operation of the FBRF, a fast burst reactor. This included responsibility for training of the staff, monitoring of contractor performance, preparation of the Final Safety Analysis Report, preparation of the startup and operating procedures, and analysis of the reactor physics operational data.

1960 - 1962: Student Research Associate, Argonne National Laboratory. I was trained and certified as a co-operator, operator, and supervisor on the Argonne Thermal Source Reactor (ATSR) while performing my doctoral dissertation research. I designed and built a reactivity measuring system for determination of neutron absorption resonance integrals. I also assisted in the training of replacement operators for the ATSR.

PRINCIPAL PUBLICATIONS:

- "An Electrical Analogy of Nuclear Reactor Neutron Flux," with J. R. Eaton, Nuclear Science and Engineering, 12, 82-90 (1962).
- "Precision Limitations in the Measurement of Small Reactivity Changes," with E. F. Bennett, Nuclear Science and Engineering, 17, 425-432 (1963).
- "Operational Characteristics of the WSMR Fast Burst Reactor," Neutron Dynamics and Control, AEC Symposium Series, 7, CONF-650413 (May 1966).
- "Measurements of the Physics Characteristics of the Fast Pulsed Reactor, VIPER," with M. H. Taggart et al., IAEA Symposium Series, Fast Reactor Physics and Related Safety Problem, Karlsruhe, Germany, November 1967.
- "Reactivity Contributions in the Glory Hole of the Sandia Pulsed Reactor-II," Trans. Am. Nuc. Soc., 11, 1 (1968). Also published in Nuclear Applications, 6, 1 (1969).
- Fast Burst Reactors, Editor with P. D. O'Brien, Proceedings of the ANS National Topical Meeting on Fast Burst Reactors, The University of New Mexico, January 28-30, 1969, AEC Symposium Series, CONF-690102 (1969).
- "Reflector and Decoupling Experiments with Fast Burst Reactors," with R. L. Coats, AEC Symposium Series, Fast Burst Reactors, CONF-690102 (1969).
- "Prompt Neutron Decay Constants in a Reflected Fast Burst Reactor," with C. C. Price, Proceedings of the Symposium on Dynamics of Nuclear Systems, University of Arizona, March 23-25, 1970.
- "Repair of Thermal Sleeve and Primary Coolant Pipe at Indian Point Unit #1," with D. J. McCormick, Trans. Am. Nuclear Soc., 14 Supplement 2 (1971).
- "Environmental Problems Associated with the Repair of a Nuclear Power Reactor Primary Coolant System," with G. L. Liebler, Proceedings of the Institute of Environmental Sciences (May 1972), pp. 388-392.
- "Courses About the Environment for Non-Technical Students," Proceedings of the Institute of Environmental Sciences (May 1972), pp. 398-399.
- "Educational Aspects of the Energy Crisis," New Mexico Academy of Science Bulletin, 14, No. 2, pp. 45-48 (December 1973).
- "Status of Nuclear Engineering Education," with M. J. Ohanian, Proceedings of AEC/ANS Nuclear Engineering Department Heads Workshop on Research in Nuclear Power Systems, pp. 2-20, University of New Mexico, (January 1975).
- "A Nuclear Energy Elective for 'Engineers', with J. W. Lucey and R. L. Carter, Engineering Education, 65, No. 7, pp. 752-754, (April 1975).
- "Axial Power Shaping in Large Pressurized Water Reactors," with H. M. Jorge and S. N. Purohit, Proceedings of the Second Power Plant Dynamics, Control and Testing Symposium, pp. 25-1 to 25-11, Knoxville, (September 3-5, 1975).
- "Proceedings of U.S./Japan Seminar on Fast Pulse Reactors, Editor with S. An and H. Wakabayashi, University of Tokyo, (January 1976).
- "Enhancement of Electric Power Plant Reliability Data Systems," with R. J. Duphily, Proceedings of the Fourth Reliability Engineering Conference for the Electric Power Industry, EEI, New York, (June 1977).
- "Methods to Improve Electric Power Plant Availability," Proceedings of the 1977 Power Generation Conference, ASME, Long Beach, California (September 1977).
- "Introduction to Availability Engineering," Proceedings of the EPRI Availability Engineering Workshop, Editor, R. L. Long, et al, EPRI Report NP-759-WS (March 1978).
- "Engineering for Availability," with E. B. Cleveland, Power Engineering, 82, No. 7 (July 1978).
- "Survey of Electric Power Industry Data Needs," with E. B. Cleveland, Inservice Data Reporting and Analysis, PVP-PB-032, ASME (December 1978).
- "Three Mile Island Accident Technical Support," with T. M. Crimmins and W. W. Lowe, Nuclear Technology, 54, pp. 155-173 (August 1981).
- "Applications and Development of RAM Information Systems at GPUN," with J. L. Weiser, Proceedings 1979 Reliability Conference to the Electric Power Industry (April 1979).
- "A Post TMI-2 View on the Responsibilities of Nuclear Engineering Educators," 1980 ASEE Annual Conference Proceedings, ASEE, Amherst, MA (June 1980).
- "Use of Behavioral Learning Objectives for Simulator Training," with R. A. Knief, Proceedings of the Society of Applied Learning Technology (September 1981).
- "Operator Training and Requalification at GPU Nuclear," with R. J. Barrett and S. L. Newton, Proceedings of CSNI/OECP/NEA, Charlotte, NC (October 1981), NUREG/CP-0031, Vol 1, pp. 299-313 (June 1982).

PRINCIPAL PUBLICATIONS (cont'd)

- "Nuclear Personnel Training After TMI-2: The GPUN Response," with D. P. Gaines and R. A. Knief, Progress in Nuclear Energy, Pergamon Press, Vol 10, Number 3, pp 349-361 (1982).
- "Summary Report of the GPU Nuclear TMI-2 Lessons Learned Workshop," Proceedings of ANS Executive Conference, TMI-2 A Learning Experience (10/13-16/85).
- "Emergency Planners, Look Back at TMI-2," Proceedings of ANS Topical Meeting on Radiological Accidents: Perspectives and Emergency Preparedness, CONF-860932, USDOE, 47-49 (March 1987).
- "Human Factors Contributions to Nuclear Power Safety: A Progress Report," with J. Christensen, American Association for the Advancement of Science (May 1985).
- "Evolution of GPU Nuclear's Training Program," with R. P. Coe, Proceedings of CSNI Specialist Meeting on Training of Nuclear Reactor Personnel, Orlando, FL (April 21-24, 1987).
- Approximately thirty five summaries in the Transactions of ANS, 1962-present, on various topics including fast burst reactors, power reactor experiences, nuclear engineering, training and educational methods, public education in energy and environment issues, and availability engineering.
- Numerous technical reports on research design and development projects.
- "Risk Management at GPU Nuclear," R. L. Long, et al, Risk Management Reports, Vol XVII, No. 1 (Jan-Feb 1990).
- "Training & Qualification of Licensed Reactor Operators at GPUNC," with R. P. Coe (The Nuclear Engineer, Volume 33, No. 6, December 1992)

REVIEW COMMITTEES:

Have served on Review Committees of National Science Foundation, National Academy of Sciences, Electric Power Research Institute, Institute of Nuclear Power Operations, Argonne National Laboratory Division of Educational Programs, Advisory Council of the National Academy for Nuclear Training and DOE. Most recently served on NUMARC Board of Directors, the Accreditation Board of Engineering Technology Board of Directors, the Advisory Committee of the EPRI Nuclear Power Division, the EPRI Exploratory Research Advisory Committee, the Edison Electric Institute Nuclear Power Executive Advisory Committee and the DOE Metal Barrier Selection Criteria Peer Review Panel.

ANS ACTIVITIES:

1965-1978:	Treasurer, Program Chairman, Executive Committee, Trinity Section
1967-1976:	Secretary, Several Committee Chairs, Executive Committee, Education Division
1974-1975:	Chair, Education Division
1975-1976:	Chair, NE Department Heads Organization
1980:	ANS 25th Anniversary Exceptional Member Award
1974-Present:	NE Accreditation Visitor
1983-1986:	ANS Alternate Representative to ABET BOD
1986-1987:	Chair, Northern New Jersey Section
1987-Present:	ANS Representative ABET BOD
1988-Present:	ANS Professional Development & Accreditation Committee
1988-1989:	Vice Chair, Northern New Jersey Section
1989-1990:	Chair, Northern New Jersey Section
1990-1991:	Vice President, American Nuclear Society
1991-1992:	President, American Nuclear Society
1990-Present:	ANS Board of Directors

REFERENCES: Available on request.

PERSONAL DATA:

Date of Birth:	September 9, 1936
Family -	Wife, Ann, Children: Beth, Jeff, Mark
Other Interests -	church school leadership and choir, woodworking, reading, athletics (spectator and participant)
Home Address -	104 Brooklawn Drive, Morris Plains, NJ 07950
Telephone -	Home: (201) 455-0087 / Office: (201) 316-7484 / FAX (201) 316-7997

ROBERT L. LONG - Principal Publications

- "An Electrical Analogy of Nuclear Reactor Neutron Flux," with J. R. Eaton, Nuclear Science and Engineering, 12, 82-90 (1962).

- "Precision Limitations in the Measurement of Small Reactivity Changes," with E. F. Bennett, Nuclear Science and Engineering, 17, 425-432 (1963).

- "Operational Characteristics of the WSMR Fast Burst Reactor," Neutron Dynamics and Control, AEC Symposium Series, 7, CONF-650413 (May 1966).

- "Measurements of the Physics Characteristics of the Fast Pulsed Reactor, VIPER," with M. H. Taggart et al., IAEA Symposium Series, Fast Reactor Physics and Related Safety Problem, Karlsruhe, Germany, November 1967.

- "Reactivity Contributions in the Glory Hole of the Sandia Pulsed Reactor-II," Trans. Am. Nuc. Soc., 11, 1 (1968). Also published in Nuclear Applications, 6, 1 (1969).

- Fast Burst Reactors, Editor with P. D. O'Brien, Proceedings of the ANS National Topical Meeting on Fast Burst Reactors, The University of New Mexico, January 28-30, 1969, AEC Symposium Series, CONF-690102 (1969).

- "Reflector and Decoupling Experiments with Fast Burst Reactors," with R. L. Coats, AEC Symposium Series, Fast Burst Reactors, CONF-690102 (1969).

- "Prompt Neutron Decay Constants in a Reflected Fast Burst Reactor," with C. C. Price, Proceedings of the Symposium on Dynamics of Nuclear Systems, University of Arizona, March 23-25, 1970.

- "Repair of Thermal Sleeve and Primary Coolant Pipe at Indian Point Unit #1," with D. J. McCormick, Trans. Am. Nuclear Soc., 14 Supplement 2 (1971).

- "Environmental Problems Associated with the Repair of a Nuclear Power Reactor Primary Coolant System," with G. L. Liebler, Proceedings of the Institute of Environmental Sciences (May 1972), pp. 388-392.

- "Courses About the Environment for Non-Technical Students," Proceedings of the Institute of Environmental Sciences (May 1972), pp. 398-399.

- "Educational Aspects of the Energy Crisis," New Mexico Academy of Science Bulletin, 14, No. 2, pp. 45-48 (December 1973).

- "Status of Nuclear Engineering Education," with M. J. Ohanian, Proceedings of AEC/ANS Nuclear Engineering Department Heads Workshop on Research in Nuclear Power Systems, pp. 2-20, University of New Mexico, (January 1975).

- 'A Nuclear Energy Elective for 'Engineers', with J. W. Lucey and R. L. Carter, Engineering Education, 65, No. 7, pp. 752-754, (April 1975).

- "Axial Power Shaping in Large Pressurized Water Reactors," with H. M. Jorge and S. N. Purohit, Proceedings of the Second Power Plant Dynamics, Control and Testing Symposium, pp. 25-1 to 25-11, Knoxville, (September 3-5, 1975).

- "Proceedings of U.S./Japan Seminar on Fast Pulse Reactors, Editor with S. An and H. Wakabayashi, University of Tokyo, (January 1976).

- "Enhancement of Electric Power Plant Reliability Data Systems," with R. J. Duphily, Proceedings of the Fourth Reliability Engineering Conference for the Electric Power Industry, EEI, New York, (June 1977).

- "Methods to Improve Electric Power Plant Availability," Proceedings of the 1977 Power Generation Conference, ASME, Long Beach, California (September 1977).

ROBERT L. LONG - Principal Publications
(cont'd)

- "Introduction to Availability Engineering," Proceedings of the EPRI Availability Engineering Workshop, Editor, R. L. Long, et al, EPRI Report NP-759-WS (March 1978).

- "Engineering for Availability," with E. B. Cleveland, Power Engineering, 82, No. 7 (July 1978).

- "Survey of Electric Power Industry Data Needs," with E. B. Cleveland, Inservice Data Reporting and Analysis, PVP-PB-032, ASME (December 1978).

- "Three Mile Island Accident Technical Support," with T. M. Crimmins and W. W. Lowe, Nuclear Technology, 54, pp. 155-173 (August 1981).

- "Applications and Development of RAM Information Systems at GPUN," with J. L. Weiser, Proceedings 1979 Reliability Conference to the Electric Power Industry (April 1979).

- "A Post TMI-2 View on the Responsibilities of Nuclear Engineering Educators," 1980 ASEE Annual Conference Proceedings, ASEE, Amherst, MA (June 1980).

- "Use of Behavioral Learning Objectives for Simulator Training," with R. A. Knief, Proceedings of the Society of Applied Learning Technology (September 1981).

- "Operator Training and Requalification at GPU Nuclear," with R. J. Barrett and S. L. Newton, Proceedings of CSNI/OECP/NEA, Charlotte, NC (October 1981), NUREG/CP-0031, Vol 1, pp. 299-313 (June 1982).

- "Nuclear Personnel Training After TMI-2: The GPUN Response," with D. P. Gaines and R. A. Knief, Progress in Nuclear Energy, Pergamon Press, Vol 10, Number 3, pp 349-361 (1982).

- "Summary Report of the GPU Nuclear TMI-2 Lessons Learned Workshop," Proceedings of ANS Executive Conference, TMI-2 A Learning Experience (October 13-16, 1985).

- "Emergency Planners, Look Back at TMI-2," Proceedings of ANS Topical Meeting on Radiological Accidents: Perspectives and Emergency Preparedness, CONF-860932, USDOE, 47-49 (March 1987).

- "Human Factors Contributions to Nuclear Power Safety: A Progress Report," with J. Christensen, American Association for the Advancement of Science (May 1985).

- "Evolution of GPU Nuclear's Training Program," with R. P. Coe, Proceedings of CSNI Specialist Meeting on Training of Nuclear Reactor Personnel, Orlando, FL (April 21-24, 1987).

- "Risk Management at GPU Nuclear," R. L. Long, et al, Risk Management Reports, Vol XVII, No. 1 (Jan-Feb 1990).

- "Training & Qualification of Licensed Reactor Operators at GPUNC," with R. P. Coe (The Nuclear Engineer, Volume 33, No. 6, December 1992)

- Approximately thirty summaries in the Transactions of the American Nuclear Society, 1962-present, on various topics including fast burst reactors, power reactor experiences, nuclear engineering, training and educational methods, public education in energy and environment issues, and availability engineering.

- Numerous technical reports on research design and development projects.

X-Sender: u120158@wwwjci.lanl.gov
Date: Mon, 07 Apr 1997 12:58:23 -0600
To: carlo@lanl.gov
From: John Palmer <palmer_p_john@lanl.gov>
Subject: Palmer Bio
X-UIDL: 2fbfcbe95de1821e330ceb85051822b1

Carl :

I understand that my biographical data went astray somehow. I'll try to provide a summary (quickly) below. I hope this will suffice for your needs. I'll leave out publications, presentations, awards, professional certifications, and all that as I guess that you're only interested in a brief breakdown.

Education

B.A.Sc - University of Toronto in Applied Chemistry and Chemical Engineering

M. Phil. - Loughborough University (U.K.) in Chemical Engineering

Experience

Provincial Office of the Fire Marshal, Ontario Canada - Fire Protection Engineer, provided expertise in fire and explosion phenomena, investigated criminal and civil fire and explosion cases, qualified expert witness, hazard analysis and risk assessment expert for Ontario government

Primatech Inc., Princeton, NJ - Senior Engineer, provided expertise to the process industries on hazard analysis, risk assessment, accident investigation, process safety management, created and implement safety programs for industry, fire and explosion investigations, training of industry safety and production personnel on safety, project management

Primatech Inc., San Francisco, CA - Manager of Process Safety Services, managed western division of a consulting company providing safety services to the process industries, technical oversight and QA, strategic planning for major process industry clients on safety programs

JCI, Los Alamos, NM - Manager of Health and Safety, manage H&S program for major subcontractor to LANL, provide technical oversight for H&S department and input to development and implementation of a complete safety program.

Date: Thu, 17 Apr 1997 12:58:00 -0600 (MDT)
X-Sender: u088554@pobox1663.lanl.gov
Mime-Version: 1.0
To: palmer_p_john@lanl.gov
From: carlo@lanl.gov (Carl Ostenak)
Subject: Re: Additional bio info
Cc: lindasalazar@lanl.gov

Hi John,

Many thanks for the additional info. You bring alot of value to the Confirmation Team. Best regards... Carl

****
>X-Sender: u120158@wwwjci.lanl.gov
>Date: Thu, 17 Apr 1997 09:19:46 -0600
>To: carlo@lanl.gov
>From: John Palmer <palmer_p_john@lanl.gov>
>Subject: Additional bio info
>X-UIDL: c5e33c23cf8569f3bc1b6d7a53bd0070
>
>Carl :
>
>I've added some dates to my bio information for you. I hope that this meets your needs.
>
>Provincial Office of the Fire Marshal, Ontario Canada - Fire Protection Engineer, provided expertise in fire and explosion phenomena, investigated criminal and civil fire and explosion cases, qualified expert witness, hazard analysis and risk assessment expert for Ontario government (1987 - 90)
>
>Primatech Inc., Princeton, NJ - Senior Engineer, provided expertise to the process industries on hazard analysis, risk assessment, accident investigation, process safety management, created and implement safety programs for industry, fire and explosion investigations, training of industry safety and production personnel on safety, project management (1990 - 1994)
>
>Primatech Inc., San Francisco, CA - Manager of Process Safety Services, managed western division of a consulting company providing safety services to the process industries, technical oversight and QA, strategic planning for major process industry clients on safety programs (1994 - 96)
>
>JCI, Los Alamos, NM - Manager of Health and Safety, manage H&S program for major subcontractor to LANL, provide technical oversight for H&S department and input to development and implementation of a complete safety program. (1996 - present)
>
>
>

Paul D. Rice
3583 Oakmont Court
Augusta, GA 30907

Paul Rice has worked for 35 years in the nuclear field. Mr. Rice began his career in the Naval Reactors Program in 1957 and served in positions which ranged from reactor operator, to design of nuclear plant components, to Director in the Department of Energy Senior Executive Service with responsibility for the radiological controls, health physics, decommissioning and disposal, and emergency planning for the 160 Naval nuclear reactor plants then in operation. In 1982, Mr. Rice joined Georgia Power Company and served in varied positions including Vice President and General Manager of Quality Assurance and Radiological Safety, Vice President of Nuclear Engineering, Vice President and Project Director of the Vogtle Nuclear Generating Plant, and Executive Vice President of the Southern Company's Engineering Department. In 1989, Mr. Rice went into private practice as a management consultant. In October 1990, Mr. Rice joined the Westinghouse Savannah River Company as a Vice President and General Manager to lead the efforts to restart the Department of Energy's production reactors. Following the restart and testing of the Savannah River K Reactor, Mr. Rice returned to private practice as a management consultant. Mr. Rice served a three-year appointment to the *Advisory Committee on Nuclear Facility Safety*, an independent oversight committee reporting to the Secretary of Energy on safety issues at the Department of Energy's nuclear facilities. During the last four years Mr. Rice has worked with DOE national laboratories, DOE production facilities, and private industry organizations in such areas as organizational design, project management, re-engineering, safety and programs development. Mr. Rice is a graduate of Vanderbilt University and now lives in Augusta, Georgia.

Gene E. Runkle
Director
Occupational Safety and Health Division (OSHD)
US Department of Energy
Albuquerque Operations Office

Mr. Runkle is responsible for planning, coordinating and executing the oversight of and technical support for the occupational health protection and safety programs at the AL weapons production facilities, national laboratories, and projects. Technical areas include occupational safety and health; health physics; industrial hygiene; medical programs; epidemiology; occupational and construction safety; fire protection; firearms safety; worker protection during environmental restoration activities and the technical and programmatic aspects of OSHA compliance.

Other assignments within the DOE include serving as the Environment, Safety and Health Advisor to the Office of Assistant Secretary for Defense Programs at DOE Headquarters in Washington, D.C., Interim Radiological Improvement Manager and Co-Restart Manager for the 771 Restart Project at the Rocky Flats Plant, and as Chair of the Radiological Control Coordinating Committee (RCCC).

Prior to his career with the DOE, Mr. Runkle worked with Sandia National Laboratories, where he developed dose and health effect models to complement a Risk Assessment methodology for the High Level Radioactive Waste Disposal in Deep Geologic Media. Mr. Runkle also held various positions with the Inhalation Toxicology Research Institute (ITRI).

Mr. Runkle is a graduate of Lycoming College where he received his B.A. in Biology and Chemistry. He received his M.S. in Radiobiology and Dosimetry from the University of New Mexico. He has authored/co-authored some 45 technical publications and presentations in internal and external dosimetry; health effects; high level radioactive waste management; hazardous chemical waste; aerosol physics and quality assurance.

Name: Peter J. Selde, CSP

Title: Director of Environment, Safety and Health and Quality Assurance.

Experience Summary: Senior leader in both the Department of Defense and Department of Energy. Primarily responsible for the safety and quality of security force operations at Los Alamos National Laboratory. Worldwide responsibility for the safety, security and reliability of U.S. nuclear weapons and for the safety and environmental preservation of Field Command Defense Nuclear Agency facilities and sites as Deputy Director of Assessments and Training, Field Command Defense Nuclear Agency. Commander Submarine Forces Pacific Representative to Pearl Harbor Naval Shipyard responsible for the safety, readiness and training of the (seven) Submarines and Crews undergoing maintenance in the Shipyard. Deputy Commander, Submarine Squadron Seven, Pearl Harbor, during Desert Storm. Commanding Officer, USS James Monroe (SSBN 622)(GOLD). Twenty four years experience in the design and implementation of safety and quality programs to the standards of the Naval Nuclear Propulsion program in many capacities.

Current Assignment: Director of Environment, Safety and Health and Quality Assurance (10/2/95 to Present). This position is responsible for providing effective Environment, Safety and Health (ES&H) and Quality Assurance (QA) leadership and support for the Company. The primary objective is to effectively implement the strategic processes of loss control (ES&H) and quality (QA) through their successful integration into day-to-day activities and institutionalization in management systems so that Safety and Quality become Company operating norms and a strategic part of its culture. Additionally, this position is responsible for the creation, implementation and evaluation of Conduct of Operations (COPs) standards throughout the Company, and acts as the interface with LANL and DOE in these matters.

Education: Certified Safety Professional (CSP/15008); Masters of Business Administration, Chaminade University of Honolulu; formerly qualified for Command and Engineer Officer of US nuclear powered submarines; graduate of United States Navy Nuclear Power Training School and Prototype, Mare Island California and Idaho Falls Idaho; Bachelor of Science Degree in Mechanical Engineering, United States Naval Academy.

Technical Qualifications: Certified Safety Professional (CSP/15008).

Description(s) of Experience:

1995 - Present: Director of Environment, Safety and Health and Quality Assurance, PTLA, Los Alamos, New Mexico.

Assisted line managers in establishing management systems which reduced vehicle accidents 273% and work related injuries 236% in two years.

Led revitalization of the continuous improvement culture within the Company which continues to produce customer performance ratings of "excellent " and improving.

Established professional safety standards and processes within the safety staff for the first time.

Established professional quality assurance standards and processes within the quality assurance staff for the first time.

1992 - 1995: Deputy Director, Assessments and Training, Field Command, Defense Nuclear Agency, Albuquerque, New Mexico.

Spearheaded the right-sizing of Field Command, Defense Nuclear Agency Inspection and Support Directorates.

Supervised the world-wide assessment of United States Department of Defense nuclear weapons safety, security and reliability for the Chairman of the Joint Chiefs of Staff and the Secretary of Defense.

Developed and managed consolidated environment and occupational safety and health compliance assessment programs for all Field Command Defense Nuclear Agency facilities.

Achieved a 50% reduction in personnel time to full utilization through improved training and qualification procedures.

Attained 30% improvement in standardization of inspection procedures through process improvement teams.

Reduced corrective action backlog to zero through use of improved corrective action accountable procedures.

Achieved 100% reduction in time to product availability while simultaneously increasing the analysis content of the product.

1989-1992: Commander Submarine Forces Pacific Representative, Pearl Harbor Naval Shipyard, Pearl Harbor, Hawaii.

Established and successfully managed the first customer representative office at Pearl Harbor Naval Shipyard.

Devised and implemented customer quality procedures which reduced a 3 year, $700 million backlog to zero in two years while maintaining schedule on current projects.

Teamed with management and trades to produce innovative maintenance procedures which improved shipyard performance to budget and schedule and saved the customer more than $1 million.

Coordinated customer participation in Shipyard Total Quality Management.

1986-1989: Commanding Officer, USS James Monroe (SSBN 622)(Gold), Charleston, South Carolina.

Led a team of 165 professionals to on-time and under-budget operation of complex engineering systems, including power generation, in a challenging marine environment while maintaining continually improving performance in all areas as measured by external assessments.

Achievements and Awards: Assisted line management in establishing management systems which have reduced work related injuries 236% and work related vehicle accidents 273% in two years while improving the quality of service and initiating a continuous improvement culture.

Name: **Philip Thullen,** Program Manager for Red Team Reviews (EM/RT)

Affiliation: Los Alamos National Laboratory, Los Alamos, New Mexico, 87545 USA.

Education: B.S. in Mechanical Engineering, with highest honors and honors in mechanical engineering, Purdue University, 1965
S.M. in Mechanical Engineering, Massachusetts Institute of Technology, 1967
Sc.D., Massachusetts Institute of Technology, 1969

Experience: Dr. Thullen established Independent Technical Review as a Los Alamos program in June of 1991, and shortly thereafter became the Program Manager for "Red Team" Reviews. Since that time he has led and participated in over 25 ITRs throughout the US Department Of Energy Complex and a former Soviet site. Dr. Thullen's work in this field has been recognized as instrumental in introducing change at many Defense Complex sites by the past and present Assistant Secretaries for Environmental Management, and many other DOE managers.

In the spring of 1995, Dr. Thullen led a review of the former Soviet Naval Reactor Training Facility at Paldiski, near Tallinn, Estonia. During this review Dr. Thullen was required to coordinate the interaction among U.S. DOE personnel from four DOE sites, former high ranking Soviet Navy officers and enlisted personnel, and officials of the Estonian Government including the Minister of Energy. Although the initial interaction appeared confrontational, Dr. Thullen was able to form a cohesive working group and bring the DOE review to a successful conclusion.

During Dr. Thullen's career at Los Alamos (from 1976), he has worked primarily on engineering applications of super-conductivity and the design of electro-magnetic systems for plasma-fusion applications. He was a principal participant in the construction of the Confinement Physics Research Facility (CPRF), the most recent magnetic fusion experiment at Los Alamos. From 1985 to 1991 he was the Program Manager for Construction of the CPRF. Construction activities ranged from conventional bricks and mortar to sophisticated scientific equipment. This broad experience has given Dr. Thullen a depth of experience in applied research and the organization and management of R&D facility construction.

Previous to his career at Los Alamos, from 1969 through 1976, Dr. Thullen was Assistant and Associate Professor of Mechanical Engineering at MIT. He was a member of the Thermal and Fluid Sciences Division performing research on the application of superconductors to electrical power equipment, and teaching classical thermodynamics, cryogenic engineering and related subjects. He authored many fundamental papers on superconducting generator design, received four patents for generator components, and several awards for technical paper excellence.

Dr. Thullen has numerous publications on electro-magnetics and superconductivity, and holds four patents on key design elements of superconducting generators. Over the last five years he has written and edited numerous reports resulting from Red Team Reviews including his work at Paldiski.

Philip Thullen

Home Address:
2 Maya Court, Los Alamos, NM 87544

Work Address:
Los Alamos National Laboratory, EM/RT, P. O. Box 1663, MS K570, Los Alamos, NM 87545

Home Phone: 505/672-9387
Work Phone: 505/665-6295

Objective: Deputy Program Director for Environmental Management (EM)

Experience:
Dr. Thullen is currently working as the Program Manager of the Integration Safety Management Office under the Director of Los Alamos National Labortory.

Dr. Thullen established Independent Technical Review (ITR) as a Los Alamos program in June of 1991, and shortly thereafter became the Program Manager for "Red Team" Reviews. Since that time he has led or participated in over 20 ITRs and numerous spin-off activities derived from review results. Reviews are typically focused on environmental restoration, waste management, and facility transition. Subjects have included:

The Hanford Waste Vitrification Plant
Hanford Site Tank Waste Disposal Strategy
Hanford Tank Farm Operations
Savannah River Site Defense Waste Processing Facility Technical Issues
Hanford PUREX Plant Transition to Deactivation
In-Tank Precipitation (ITP) at the Savannah River Site
Rocky Flats Plant
Bin and Alcove Test Programs at the Waste Isolation Pilot Plant
Oak Ridge National Laboratory Isotopes Facilities Shutdown Program
The Mound Plant
The Pinellas Plant
Sandia National Laboratories Environmental Restoration Project
Sandia National Laboratories Human Resources Program
Environmental Restoration at Los Alamos National Laboratory
The Controlled Air Incinerator and the Proposed Expansion of Material Disposal Area G at Los Alamos National Laboratory
Efficiency of Building Base Activities at Rocky Flats

Past and present Assistant Secretaries for Environmental Restoration and Waste Management, and other DOE managers recognize Dr. Thullen as instrumental in introducing change at these sites. Dr. Thullen and core Red Team Members received a Los Alamos National Laboratory Distinguished Performance Award for their review of the WIPP Bin and Alcove Test Programs.

Prior to his work with Red Team Reviews, beginning in 1976, Dr. Thullen was a staff member, Deputy Group Leader and Program Manager in energy related programs at Los Alamos. He was a principal participant in activities that culminated in funding of the Confinement Physics Research Facility (CPRF), a recent Los Alamos fusion experiment. From 1985 to 1991 he was the Program Manger for Construction of the CPRF, responsible for managing $87M and 100 staff members during the seven year long DOE Major System Acquisition process. Construction activities ranged from conventional bricks and mortar to sophisticated scientific equipment. As part of the construction activities, Dr. Thullen was instrumental in obtaining, installing and testing a 1430 MVA generator, one of the largest generators ever manufactured. At its conclusion, the project was within the required scope, cost and schedule. From January to June 1991 he was a member of the Los Alamos New Production Reactor, Safety Project Office supervising system integration. This broad experience has given Dr. Thullen a depth of experience in applied research and the organization and management of R&D facility construction.

Before joining Los Alamos, from 1969 through 1976, Dr. Thullen was Assistant and Associate Professor of Mechanical Engineering in the Thermal and Fluid Sciences Division of the Mechanical Engineering Department at MIT. He performed research on the application of superconductors to electrical power equipment, and taught classical thermodynamics, and related subjects. He wrote many fundamental papers on superconducting generator design, received three patents for major generator components, and earned several technical-paper excellence-awards.

Education:
B.S. with highest honors and honors in Mechanical Engineering, Purdue University, 1965
S.M., Mechanical Engineering, MIT, 1967
Sc.D., MIT, 1969

George J. Werkema
Experience Summary

George J. Werkema earned the Ph.D. degree in physical chemistry from the University of Colorado in 1965. He joined the Energy Research and Development Administration in 1975, and is currently Manager of Nuclear Technology Programs in the DOE Albuquerque Operations Office (DOE/AL). In his present capacity, he is responsible for management of nuclear material inventories in custody of DOE/AL contractors, nuclear material science and technology programs funded through DOE/AL, technical support for nuclear materials process development and stewardship programs, DOE/AL point of contact and coordinator for implementation of the Defense Nuclear Facilities Safety Board Recommendation 94-1 (plutonium stabilization and packaging), and serves as the Technical Point of Contact for a Cooperative Agreement with the State of Texas.

He has 33 years experience in the Nuclear Weapons Complex, including assignments as research chemist in plutonium chemistry and instrument development, principal scientist for studies of accelerated aging of weapon components, and manager of a site environmental monitoring and reporting program. His experience with DOE includes 12 years managing the development and implementation of DOE/AL site radiological environmental protection programs and 9 years directing and performing health and environmental protection program appraisals at DOE/AL sites. He served as Chief of the Nuclear Management Branch from 1986 to 1989. In April 1989, he was selected as Assistant Manager of the Rocky Flats Area Office, and served in that capacity through March 1990. Prior to his current assignment, he was Chief of the Safety Analysis Reports Branch, DOE/AL, where he was responsible for developing management systems to establish the authorization basis for DOE/AL facility operations.

He has served as the DOE Radiological Assessment Director assigned to the Accident Response Group in numerous nuclear weapon accident response exercises since 1983 and in 1991, he led the DOE Tiger Team assessment of the Stanford Linear Accelerator Center. He directed the preparation of DOE/AL guidance for performing health and environmental protection and safety management appraisals in 1979, and guidance for conduct of operational readiness reviews and evaluations in 1992. Dr. Werkema's operational readiness review experience includes the following:

- Team Leader for the Operational Readiness Evaluation of the Explosive Component Test Facility at the DOE Mound Plant (1992).
- Team Leader for the Operational Readiness Evaluation of the W-79 Preparation for Disposal at the Pantex Plant (1993).
- Special Advisor to the Team Leader and reviewer for the Lessons Learned program for the second Operational Readiness Evaluation of the W-79 Preparation for Disposal at the Pantex Plant (1994).