

JUN 30 1997

SANDIA REPORT

SAND97-1392 • UC-600
Unlimited Release
Printed June 1997

D

Environment, Safety, and Health (ES&H) Self-Assessment Guide

RECEIVED

JUL 03 1997

OSTI

Robert T. Reese, Nathan L. Golden, John R. Romero, Steven Yesner

Prepared by
Sandia National Laboratories
Albuquerque, New Mexico 87185 and Livermore, California 94550

Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy under Contract DE-AC04-94AL85000.

Approved for public release; distribution is unlimited.



Sandia National Laboratories

MASTER

Issued by Sandia National Laboratories, operated for the United States Department of Energy by Sandia Corporation.

NOTICE: This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government, any agency thereof, or any of their contractors or subcontractors. The views and opinions expressed herein do not necessarily state or reflect those of the United States Government, any agency thereof, or any of their contractors.

Printed in the United States of America. This report has been reproduced directly from the best available copy.

Available to DOE and DOE contractors from
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831

Prices available from (615) 576-8401, FTS 626-8401

Available to the public from
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Rd
Springfield, VA 22161

NTIS price codes
Printed copy: A03
Microfiche copy: A01

Environment, Safety, and Health (ES&H) Self-Assessment Guide

Robert T. Reese
Nathan L. Golden
John R. Romero
ES&H Assessments Department

and

Steven Yesner
Program and Training Definition and Integration Department

ES&H Assessments Department
Sandia National Laboratories
P.O. Box 5800
Albuquerque, New Mexico 87185-0346

Abstract

This document has been prepared as a guide for conducting self-assessments of ES&H functional programs and organizational (line) implementation of these programs. This guide is intended for use by individuals and/or teams involved in or familiar with ES&H programs and line operations (e.g., the "self" in self-assessment). Essential elements of the self-assessment process are described including: schedule and priorities, scope and approach, assessment criteria (e.g., performance objectives and measures), information gathering and analysis techniques, and documentation of planning efforts and results. The appendices in this guide include: (1) an assessment prioritization process, (2) generic performance objectives for line implementation and for ES&H functional programs, (3) sources for ES&H assessment information, (4) systemic factors (developed for SNL's root cause analysis program), (5) Lockheed Martin audit questions for management systems, compliance and validation, and specific areas and concerns, (6) DOE facility representatives checklist, and (7) assessment tools and resources developed at SNL and other DOE/Lockheed Martin sites.

This document is a product of the efforts associated with the SNL ES&H Oversight Pilot Project conducted from June 1995 to January 1997. This Pilot was part of the overall initiative by DOE to reduce burdensome agency oversight by placing greater reliance on contractor self-assessment.

Acknowledgements

The authors appreciate the discussions, reviews, and help obtained from the ES&H Pilot Oversight Project Team - Joe Stiegler, Judy Mead, Mick Jones, Al Stanley, Karen Higgins, John Campisi and DOE members - Dan Dilley, Elizabeth Hetfeld, Willy Molina, and John-Olav Johnsen. We would also like to thank all who contributed to the prototype self-assessments and validation efforts. These include: Hoisting and Rigging (Craig Hauber team leader, Bob Clevenger, Tom Hobart, Nibby Grelle, Vella Strickland, Herb Myers, Christine Tamez, Brian M. Kelly, Ralph Fevig (DOE), Alex Griego (DOE), Willy Molina (DOE); Construction Safety (Danny Donald team leader, Steve Yesner as coordinator, John Norwalk, Carol Meincke, Scott Stafford, Dan Nester, Richard Baehr, John Romero, Tom Goss (DOE), and Julian Biggers (DOE), and Ron Reif (DOE); Division 9000 (Gerry Zawadskas team leader, Nathan Golden as coordinator, Johnny Vaughan, Rob McKay (DOE), Ron Reif (DOE), Brian Min (DOE), and David Steffes (DOE); and the Mini-Pilot with Bess Campbell-Domme as Team Leader and Marsie Howard De Oliveira (DOE).

DISCLAIMER

**Portions of this document may be illegible
in electronic image products. Images are
produced from the best available original
document.**

Contents

1. Introduction- What are Self-Assessments and Why Do We Perform Them	1
2. Terms and Terminology of Assessments	2
3. Self-Assessment Process	3
4. Essential Elements of Self-Assessment	3
4.1 Planning the Assessment	5
4.1.1 Schedule and Priorities	5
4.1.2 Obtaining Background Information	5
4.1.3 Scope and Approach	6
4.1.4 Assessment Criteria - Requirements, Performance Objectives and Measures ..	6
4.1.5 Assessors and Resources Needed	7
4.1.6 Communicating with those Who Need to Know About the Assessment	7
4.1.7 Reporting Assessment Results	8
4.1.8 Improvements Based on Self-Assessments	8
4.2 Conducting the Assessment	8
4.2.1 Methods and Techniques to Gather Information	8
4.2.2 Analysis of Self-Assessment Information	9
4.2.3 Organizing Assessment Results	10
4.3 Reporting and Documentation	10
4.4 Using the Results - Implementing Improvements	10
5. Evaluation of Assessment Processes	10
6. Standardized Reporting Requirements for SNL Division's ES&H Performance and for ES&H Functional Programs	11
7. Assessment Support	12
7.1 Tools and Resources	12
7.2 Assessment Training	12
8. References	13
9. Appendixes	13
A. Self-Assessment Prioritization Process	14
B. Generic Performance Objectives for Line Implementation of ES&H	15
C. Generic Performance Objectives for ES&H Support	16
D. Details of Information Sources for ES&H Assessment Information	17
E. Details of Systemic Factors (Performing Root Cause Analysis and Developing Corrective Actions - GN470036)	19
F. Lockheed Martin - Management Systems Audit Checklist	20
G. Lockheed Martin Corporate ES&H Compliance and Validation Audit Checklist	23
H. Lockheed Martin - Audit Of Specific Areas / Activities	26
I. DOE Facility Representative Checklist Summary Topics - "Safety Envelope" - November 1996	28
J. Tools and Resources for Self-Assessment Activities Developed by ES&H Assessments Department	29

ES&H Self-Assessment Guide

1. Introduction - What Are Self-Assessments And Why Do We Perform Them

Self-assessments are performed to determine the status of our operations and functional programs relative to ES&H performance expectations. They contribute to the establishment and maintenance of safe and healthy work places and protection of the environment (References 1 and 2). Self-assessments gives Sandia National Laboratories (SNL) senior management the ability to see that requirements and expectations are being met and problems are being identified and solved. They are also used to satisfy Lockheed Martin corporate requirements for an annual self-assessment and to assure to those overseeing laboratory operations and facilities that SNL is providing the necessary safety, health, and protection of the environment. Performing self-assessments is a part of the feedback and improvement portion of the SNL Integrated Safety Management System (ISMS) (Reference 3).

Self-assessments are on-going reviews that add value to the operations, projects, facilities, and organizations being assessed. Value is added by increasing awareness of and familiarity with the requirements and good management practices. This guide was developed from work performed on the DOE/SNL ES&H Oversight Pilot Project. SNL's self-assessment processes are the foundation upon which SNL bases ES&H oversight, and include the following separate levels of self-assessment activities (Reference 4):

- 1. Line Organization Self-Assessment** - This is an evaluation of the organizations achievement in meeting ES&H standards/requirements and performance objectives (POs). Organizational self-assessments occur at all levels and vary with respect to the degree of formality required per severity of identified hazards in the facility or activity being assessed and/or applicable regulatory requirements.
- 2. Functional Program Self-Assessment** - This is an evaluation of the performance of the ES&H program and supplied services and fulfills program owner responsibilities. These self-assessments are performed by subject matter experts and their scope and frequency is dictated, in part, by specific regulations, corporate requirements or DOE orders which require them.
- 3. Internal Independent Assessment** - This is an evaluation of either ES&H program areas and/or effectiveness of ES&H in line organization areas as performed by ES&H Assessment Department. These evaluations are performed by assessors including subject matter experts who have no direct responsibility for the assessed activities. Internal, independent assessments are conducted as required by regulation or DOE directive, or at the request of a functional program owner or line manager. Internal, independent assessments are also conducted to provide an objective view of ES&H status to senior management and/or because indications that significant problems are occurring or systemic problems exist.

2. Terms And Terminology Of Assessments

Listed below are common assessment terms and terminology used for reference and assistance. Terms are divided into four basic areas as given below.

Assessment Processes and Activities

Appraisal	A documented activity performed in accordance with procedures using specified criteria for the purpose of evaluation.
Assessment/ Audit	A planned and documented activity using specified criteria to examine and evaluate the objective evidence to determine effectiveness of program, processes and procedures.
Audit	An independent review to examine and evaluate activities following specified standards and procedures.
Evaluation	A comparison to specified criteria.
Inspection	A checking or testing against established requirements.
Internal Audit	An independent appraisal function established within an organization to examine and evaluate its activities as a service to the organization.
Investigation	A review focused on a specific concern.
Oversight	The activity followed to provide assurance that performance of individuals and organizations meets defined expectations.
Review	A generic term that encompasses audit, assessment, or appraisal.
Survey	A collection of data for analysis of some aspect of a group or area.
Verification / Validation	To establish the truth, accuracy or reality of an activity.

Adjectives / Qualifiers Describing Processes and Activities

Baseline	Initial assessment.
Compliance	Conforming to requirements.
Function(al)	An activity with a specific focus.
Independent	Not under the influence, not bound by or committed to an entity.
Internal	Activity within SNL.
Line	A Sandia organization.
Management	Those who have the authority and responsibility to directly operations and work processes.
Performance	The extent to which expectations are met.
Self	Having a single character or quality throughout.
Worker	An SNL or contract employee.

Terms Associated with Results of Assessment Process

Baseline	A set of critical observations or data used for comparison or a control.
Concern	Potential deficiency.
Control	Method used to achieve objectives.
Deficiency	A condition not meeting requirements.
Finding	A factual statement of a condition which currently exists which must be corrected.
Issue	Deficiency with potential Lab-wide effects and beyond the capabilities of the assessed organization to solve.

<i>Noteworthy Practice</i>	A practice that is an outstanding process that has elements which, when shared, will benefit other organizations in meeting their performance objectives.
<i>Observation</i>	A statement of fact made during a review and substantiated by objective evidence.
<i>Strength</i>	An attribute indicating exceptional performance.

Other Related Terms

<i>Accident</i>	unplanned or uncontrolled event resulting in personal injury or other damage
<i>Near Miss</i>	unplanned or uncontrolled event which typically would result in personal injury or damage (but not in this instance)
<i>Unsafe Act</i>	performance of people or presence of conditions which result in unplanned or uncontrolled events

3. Self-Assessment Process

The self-assessment process is described in five basic steps: (1) planning the assessment, (2) conducting the assessment, (3) analyzing and integrating the information gathered, (4) reporting and documenting the results, and (5) effectively using the results of self-assessments (follow-up and corrective actions). These six steps with the supporting activities are shown in Figure 1. An additional aspect is the need for improving the self-assessment process. Each step plus the improvement process is numbered to link with the descriptions given in the assessment plan outlined in Section 4. Also included in Figure 1 is the relationship of the SNL integrated Safety Management System (ISMS) to self-assessment. The use of this guide will help satisfy the fifth part of ISMS (feedback and improvement).

4. Essential Elements of Self-Assessment

The basic process statement for self-assessment implies three questions: (1) where are we now in terms of providing safe, healthy, and environmentally sound work places, operations, facilities and programs supporting these efforts, (2) where do we want to direct our efforts to improve, and (3) what do we have to do to get to where we want to be. The following essential elements are needed in a self-assessment in order to provide answers to these three questions:

- **Planning**
 - **Schedule and Priorities**
 - **Obtaining Background Information**
 - **Scope and Approach**
 - **Assessment Criteria - Requirements, Performance Objectives and Measures**
 - **Assessors and Resources Needed**
 - **Communicating with those Who Need to Know About the Assessment**
- **Conducting the Assessment**
 - **Methods and Techniques to Gather and Analyze Information**

- Strengths, Noteworthy Practices, Problems, Concerns, and Issues
- Reporting
- Using Results of Self-Assessments (Feedback and Resolving)

It is a good practice to document these essential elements into a plan. A plan may be a process description which is to be used each time an assessment is conducted. A plan may also be developed for a specific assessment. A plan can also combine parts of a multiple use process description and those used for a specific assessments

The following subsections describe these essential elements. Regardless of the type of plan used, these elements should be included in every self-assessment.

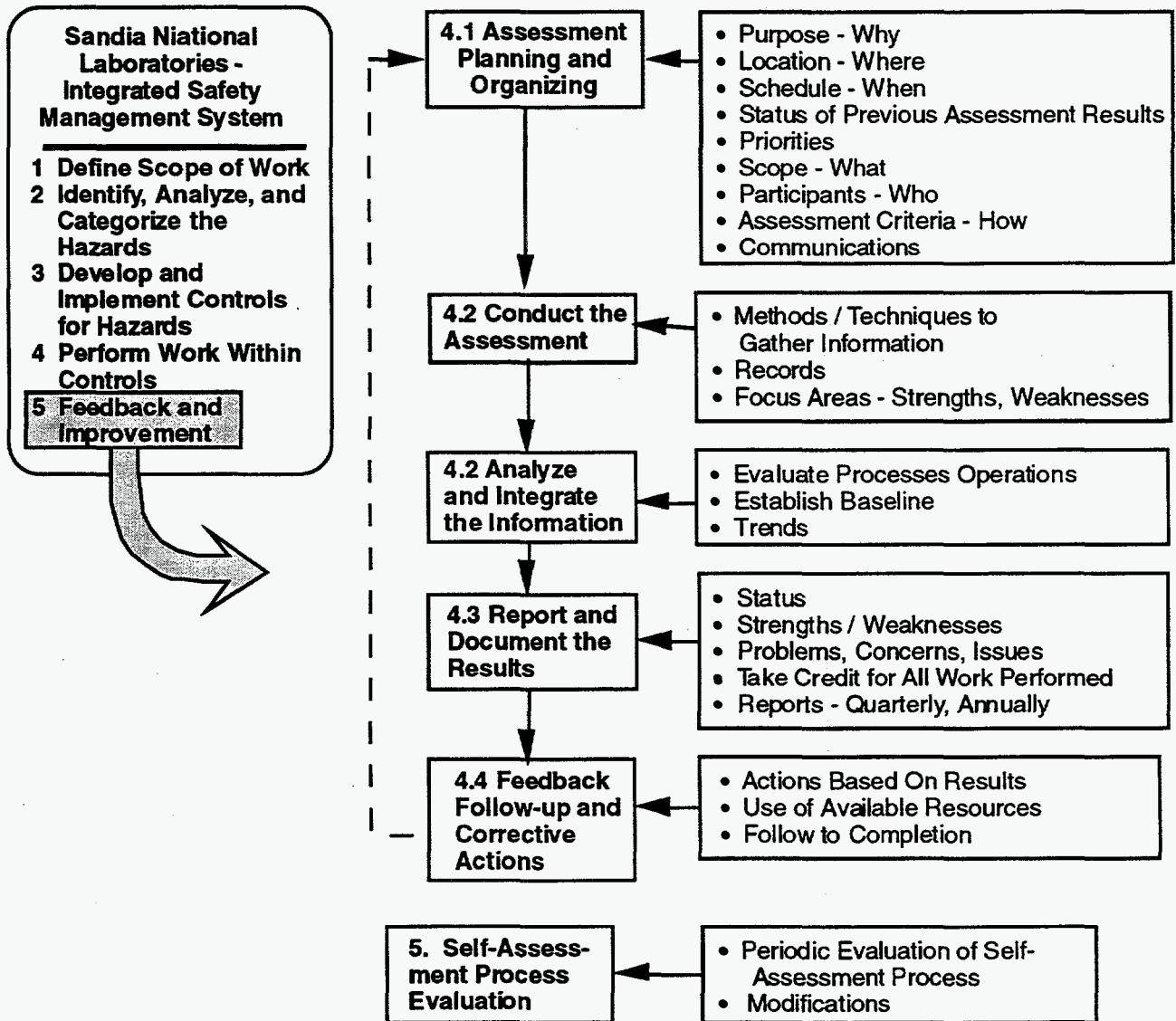


Figure 1. Self-Assessment Process

4.1 Planning the Assessment

Planning the assessment consists of determining the areas and activities to be assessed, obtaining background information, developing a schedule to complete the assessment, developing an approach and defining a scope for the assessment, developing assessment criteria, determining the assessors and resources needed to conduct the assessment, and communicating with those involved in the assessment.

Assessments are usually a people-intensive activity and many discussions and interactions will be involved in an assessment. The logistics of coordinating these discussions and interactions are implied in the scheduling part of planning.

4.1.1 Schedule and Priorities

The schedule and priorities used should be described including the rationale for how the schedule and priorities were established. The schedule should be comprehensive so that all facilities, operations, or programs under the responsible management are assessed at some intervals (e.g., annually to every three to five years).

Assessment schedules are based on many factors including:

- Risk (hazards based)
- Programmatic concerns
- Availability of subject matter or other experts
- Anticipated reviews by external organizations
- Regulatory requirements and DOE Orders
- Management concerns
- Laboratory initiatives

Also, the following should be considered when scheduling and prioritizing:

- Areas/programs evaluated
- Frequency with which elements are assessed
- Time period established for reevaluations (frequency for comprehensive coverage)
- Description of any prioritization processes influencing schedule (e.g., areas with good performance but high risk - there is a tendency to do assessments based on failures, not risk).

Note: See Appendix A for further information on a self-assessment prioritization process.

4.1.2 Obtaining Background Information

Background information is needed for the assessment. This information is available from reviews of documents (e.g., training records, hazards assessments, permits, operating procedures). Another source of similar information is obtained from results of past appraisals, assessments, and audits.

Appendix D contains many additional sources of information for assessments.

4.1.3 Scope and Approach

Descriptions of Facilities/Operations to be assessed should be included. The ES&H functional programs should describe the program scope, areas covered by the ES&H functional program, and interfaces with other ES&H programs. The scope for functional program evaluations and for assessing line implementation should define who is performing the assessment, who is being assessed, where the assessment will occur, how the assessment will be conducted, and why the assessment is being performed.

4.1.4 Assessment Criteria - Requirements, Performance Objectives and Measures

Programs, projects, and operations in facilities are expected to meet SNL policy and objectives, contractual agreements, regulatory requirements, and accepted industry standards, laws, orders, and other requirements. Defining how these standards and requirements are identified and implemented into programs and operations are key elements of an assessment. The self-assessment should use these standards and requirements as criteria providing reference points, guides, performance expectations, and compliance requirements for planning and conducting the assessment.

Performance-based management involves managing work according to identified performance objectives (POs). At the corporate level, ES&H performance **objectives** are statements of desired ES&H performance **outcomes** and include: protected people and environment, compliance with requirements, and use of good management practices.

SNL is a large and complex enterprise. Line divisions performing widely varying activities are responsible for ES&H implementation and central ES&H organizations and personnel support assisting, developing, coordinating, and monitoring work performance relative to specific ES&H disciplines (functional areas). The tasks associated with ES&H implementation and support may be further defined as follows:

Implementation

protect
comply
manage

Support

assist / consult
develop / coordinate
monitor

This "division of labor" (with different performance objectives) allows optimization of SNL corporate resources. This model also allows line and support organizations to develop appropriate self-assessment improvements for the ES&H roles and responsibilities they "own".

In order to accomplish the high-level corporate ES&H objectives, a set of lower-level generic performance objectives is helpful to communicate expectations (e.g., requirements) in terms of implementation and support process. These reflect the "whats" that implementers and supporters are expected to accomplish in achieving

their objectives.

Assessments should have objectives, measures, or criteria to focus assessment efforts to find strengths and noteworthy practices. These criteria will assist the assessment team in determining strengths of programs and operations and for evaluating practices for exemplary status so they can be shared within SNL.

Assessments should also encourage the identification of problems, concerns, and issues (as defined in Section 2).

Note: Appendix B contains the generic performance objectives for ES&H implementation and Appendix C contains the generic performance objectives for ES&H support.

4.1.5 Assessors and Resources Needed

A process should be developed and followed for selecting assessors. This process should include how assessors are selected and describe their qualifications and/or training. Participants should receive assessment training if needed (see Section 7.2)

Assessors can include the following:

- Manager of assessed organization or ES&H Program Owner
- Members of the assessed organization or those involved in developing, maintaining, or implementing the ES&H program
- Members from the same division / center, particularly those performing similar work
- Subject matter or other experts (e.g., industrial hygienist, conduct of operations)
- Others as available (e.g., contract support)

The available resources (e.g., personnel and funding support) needs to be evaluated. If additional resources are needed, consider the use of subject matter experts, contracted support, and other means of supplementing the assessment team (e.g., borrowing personnel). The ES&H Assessments Department is considered a corporate resource and is also available to assist functional program owners and line organizations implement self-assessment programs.

4.1.6 Communicating With Those Who Need to Know About the Assessment

Communications are needed from the assessment team or individuals to the assessed organization and others participating. Among the items communicated are: (1) the scope and approach, (2) the schedule and those to be contacted for interviews during the assessment, (3) the performance objectives and measures to be used (along with other assessment criteria), (4) documents and records to be made available, (5) the members of the assessment team, and (6) to whom and how the results will be communicated.

4.1.7 Reporting Assessment Results

The planning phase needs to identify who will receive the results of the self-assessments. The knowledge gained needs to benefit the "self" in self-assessment (the assessed organization and their immediate management) as well as SNL senior management. Planning should also identify the general format and structure of the report. By identifying who will receive the assessment results and the format for the reports can influence how the assessment is planned and conducted.

4.1.8 Improvements Based on Self-Assessments

The results reported from self-assessments should describe the status of the assessed organization's efforts in making improvements. Significant emphasis is placed at all management levels in terms of finding and fixing problems. These efforts need to be included in the results of the assessment and credit taken for them in reports. Planning efforts need to address how to incorporate results and how they will be most effectively used.

Two additional types of improvement efforts also need to be described. One effort is on those items in which improvements have been initiated but results have not been completed. The other effort is on those larger systemic issues which require the participation of the assessed organization and /or its immediate management. Some description of the efforts made to resolve these larger systems issues is needed.

The assessed organization needs to track those initiatives underway and the resolution process for systemic problems.

4.2 Conducting the Assessment

This section describes how assessments are conducted and how the assessment process is used. The intent of conducting any assessment is to find strengths and weaknesses. Value in assessments occurs when problems, concerns, and issues are found leading to initiation of the resolution process. Another value is realized to SNL when strengths, noteworthy practices, and issues are shared with other organizations or functional programs.

4.2.1 Methods and Techniques to Gather Information

The development of ES&H information for organizational self-assessments or ES&H functional program evaluations needs to satisfy both the organization itself and senior management needs. Assessment information is gathered using the following:

- Review of documentation (e.g., training records, hazards assessments, permits, operating procedures)
- Review past appraisal reports and results
- Review applicable sections of the SNL ES&H Manual and supplements
- Review other applicable requirements
- Use of performance objectives and supporting performance measures for each

objective

- Identify key people to interview
- Conduct field interviews using the performance objectives and measures or other assessment criteria
- Focus on interfaces where responsibilities are passed from one organization or person to another

Additional sources of ES&H information available at SNL are described in Appendix D.

4.2.2 Analysis of Assessment Information

Three methods of analysis of assessment information are briefly described in this section: (1) systemic factors analysis hierarchy used in the SNL root cause analysis, (2) the SNL Formality of Operations checklist evaluation framework, and (3) the SNL ISMS five core functions and seven guiding principles. These methods can be applied to information obtained for the assessed organization or program and for information rolled up to SNL Senior Management. Self-assessments conducted using performance objectives and measures or similar criteria will yield results which can be acted on directly by the assessed organization or facility. For those larger, systemic issues which lie beyond the control of the assessed organization to effect a solution, a different approach is needed to roll up information to SNL Senior Management.

A system of safety management attributes is necessary to integrate and analyze the ES&H information from these sources. A detailed system of safety management attributes already established at SNL is the Systemic Factors Analysis (SFA) hierarchy used in root cause analysis (Reference 5). The SFA hierarchy identifies seven categories of systemic factors - Management, Design / Specifications, Equipment / Materials / Tools, Procedures, Training, Operations, and External Considerations. The details of these systemic factors are given in Appendix E.

The various ES&H information sources provide evidence of positive and negative performance in these attribute areas. Repetitive positive or negative evidence correlated to an attribute, particularly where suggested by different sources of information, indicates systemic areas of good performance or opportunities for improvement.

The patterns of positive and negative attributes provide interpretive context for numerical performance indicator data. The persistence of a pattern provides valuable feedback on the effectiveness of ES&H management initiatives implemented to address performance improvement.

The Integrated Safety Management Systems (ISMS) addresses a similar system of attributes structured around the ISMS five core functions and seven guiding principles. The advantage of ISMS is its sequential logic (Reference 3).

The Formality of Operations checklist outlines 18 factors that can be used to evaluate assessment information (Reference 6).

The use of Malcolm Baldrige criteria for self-assessment also offers additional means of analyzing information (Reference 7).

4.2.3 Organizing Assessment Results

Assessments should have objectives, measures, or criteria to focus assessment efforts to find **strengths and noteworthy practices**. These criteria will assist the assessment team in determining strengths of programs and operations and for evaluating practices for exemplary status so they can be shared within SNL.

Assessments should also encourage the identification of **problems, concerns, and issues** (as defined in Section 2).

4.3 Reporting and Documentation

The plan should identify who should receive assessment reports and the general format or structure of the report.

Contained in Section 6 are Standardized Reporting Requirements for both SNL Divisions and ES&H Functional Programs.

4.4 Using the Results - Implementing Improvements

A process description should outline how improvement efforts will be implemented and how the organization / facility is meeting the corporate commitment for self-governance. The important aspect is to use the results of self-assessments - make the changes and improvements needed in operations, facilities, and projects.

Documentation of deficiencies and actions necessary to correct those deficiencies is maintained by the self-assessing organization. Only issues that require senior-level management action to correct, those that may be of significance to other organizations, or that relate to compliance with requirements are required to be corporately reported and tracked.

5. Evaluation of Assessment Processes (continuous improvement of the self-assessment process)

A process description should have a periodic evaluation of the processes used for self-assessment encouraging continuous improvement and could include the following:

- Ensure information/analyses result in "finding and fixing." (An indicator of effectiveness could be the percentage of findings identified during external reviews that are not identified during self-assessments).

- Process (and effectiveness of process) for identifying systemic and/or one-time problems (indicators of whether process is working or not could be number of repeat findings and/or ratio of number of open to number of closed).
- Evaluation of the process in terms of cost effectiveness.
- Calibration of the process versus those used by independent groups (internal or external to SNL).

6. Standardized Reporting Requirements For SNL Division ES&H Performance And For ES&H Programs

A. Individual Self-Assessments

Each self-assessment should be reported and documented within the organization.

B. Quarterly Status Reporting

Each Division and each ES&H Functional program manager is to provide information quarterly to the ES&H Compliance and Metrics Department communicating results of self-assessment activities. Briefly address the following topics relevant to self-assessment activities this quarter as described below.

Scope of Self-Assessment Activities: *(requirements, identification and control of hazards)*

- Work Areas/Activities
- Performance measures relating to requirements and operational goals or objectives monitored this quarter .
- For Divisions, Operational/Programmatic changes that introduce or eliminate hazards
- For ES&H Programs, changes that introduce, modify, or eliminate requirements

Status/Progress: *(identify control systems and processes used)*

- Status in meeting objectives, operational goals, and/or requirements
- Strengths, and noteworthy practices
- Systemic trends
- Significant concerns, problems, and issues
- Near-misses

Fixing and Follow-Up:

- Actions or improvements for problems identified in status/progress
- Disposition/status of previous actions or improvements
- Proposed solutions for unresolved ES&H issues
- Implementation of lessons learned

7. Assessment Support

7.1 Tools and Resources

Tools and resources available to assist organizations and program coordinators with Self-Assessment are located in appendices. The following list of references are offered as guidance to assist in your Self-Assessment activities. These guides will be available electronically on the WEB (instructions to be provided at a later date), you may also contact the appropriate Subject Matter Experts (SME's) for questions, assistance, and support that you may require in any one subject area.

- ES&H Manual and Supplements (MN471001)
- ES&H Assessment Resources and Tools (Subject Areas/Question Sets given in Appendix J)
- DOE Facility Representative Checklist Summary Topics - "Safety Envelope" - Nov. 1996 (Appendix I)
- Lockheed Martin - Management Systems Checklists (Appendix F)
- Lockheed Martin - Corporate ES&H Compliance and Validation Procedural Checklist (Appendix G)
- Lockheed Martin - Audit of Specific Areas/Activities (Appendix H)
- ES&H Self-Assessment for Office Area Only Activities and Space (Appendix J)

7.2 Assessment Training

Available Training for assessments from ES&H Assessment Department includes the following:

- Assessment definitions, terms, and terminology
- Six steps: planning and organizing, conducting the assessment, analysis and integration of information and data, reporting and documenting, follow-up and completion, and process improvements
- Principal outcomes of an assessment: observations, strengths, noteworthy practices, deficiencies, concerns, problems, issues, and lessons learned
- Assessment principles: planned activities, freedom from bias, conducted by designated personnel, and communication of results
- Assessor communication skills: open-mindedness, sound judgment, analytical skills, tenacity, realistic perceptions, management skills, fluent in jargon/terms of the operations / facility / program being assessed, not subject to pressures which could bias assessment

8. References

1. _____, Standards for the Professional Practice of Internal Auditing, The Institute for Internal Auditors, Altamonte Springs, FL, 1995.
2. _____, Government Auditing Standards, 1994 Revision, U.S. General Accounting Office, Washington, DC, 1994.
3. Guth, J. R. and Madigan, C. J., Sandia National Laboratories' Integrated Safety Management System, EH471000, Issue B, March 31, 1997
4. Higgins, K., Campisi, J. A., and Kelly, B. M., *ES&H Self-Assessment and Improvement Program*, SAND97-1393
5. Johnson, D. K., *Performing Root Cause Analysis and Developing Corrective Actions* Issue C, (GN470036), 1993.
6. Davis, Allison, *Formality of Operations Manual Issue A*, Sandia National Laboratories, November 15, 1996
7. _____, *Malcom Baldrige Self-Assessment Training for Service Organizations*, American Society for Quality Control, 1994.

9. Appendixes

- A. Self-Assessment Prioritization Process
- B. Generic Performance Objectives for Line Implementation of ES&H
- C. Generic Performance Objectives for ES&H Support
- D. Details of Information Sources for ES&H Assessment Information
- E. Details of Systemic Factors (Performing Root Cause Analysis and Developing Corrective Actions - GN470036)
- F. Lockheed Martin - Management Systems Audit Checklist
- G. Lockheed Martin Corporate ES&H Compliance and Validation Audit Checklist
- H. Lockheed Martin - Audit Of Specific Areas / Activities
- I. DOE Facility Representative Checklist Summary Topics - "Safety Envelope" - November 1996
- J. Tools and Resources for Self-Assessment Activities Developed by ES&H Assessments Department

Appendix A

Self-Assessment Prioritization Process

A prioritization process provides to the user an organized approach for selecting possible topics. Risk-based and administrative constraints are factors chosen to enable evaluation of both division activities and ES&H programs. The actual selection of assessment topics will likely include management reviews and approvals. The process described below is a shortened version of a more detailed ranking system that is available from Dept. 12870 (based on the DOE Albuquerque Ranking Model). This more detailed system is used to determine the topics for the corporate audit center.

Each factor described below is to be evaluated in terms of how it applies to the ES&H program or line operations as appropriate (all factors may not apply and other factors should be added as they may apply). Each factor needs to have a score associated with it for each possible topic. The result is a matrix summary having columns as factors to consider and rows of possible topics.

Factors to Consider

Evaluate potential assessment topics using the matrix for the risk-based activities. Develop a score for each topic. Scores can be weighted as appropriate for the program or organizational need. Combine the risk-based score with scores from the administrative/ operational aspects to develop summary scores. Further evaluation can include feasibility of performing assessments, management concerns, and factors appropriate to your programs, operations, and facilities.

Risk Based

- Potential Adverse impacts to Public Health and Safety
- Potential Adverse impacts to SNL Personnel Health and Safety
- Potential Adverse impacts to Environment
- Possible Reduction or Expansion in Mission (Division, Center, Department, Team)
- Deviations from Regulatory Compliance
- Adverse External Perception

Administrative / Operational Aspects

- Timing and Timeliness (Time since previous assessment/disruption to operations/activities/ maturity of activity / operation)
- Results of Prior Assessments (Corrective Action Status)
- System / Operations Modifications / changes
- Management Discretion
- Preparation for Assessment / Audit by Outside Organization
- Others that apply to the facility, operations, or projects

Appendix B

Generic Performance Objectives for Line Implementation of ES&H

PROTECT people and the environment:

- ES&H hazards, potential hazards, and risks are anticipated, identified, and assessed.
- Unacceptable hazards and risks are mitigated through engineered and/or administrative controls.
- Workers and visitors receive general hazard awareness and/or job-specific training as applicable, and workers are capable of performing assigned activities safely and correctly.
- Operating procedures and instructions are established, made available, understood, accepted, and followed to prevent injuries, adverse health exposures, adverse environmental releases, and property losses.
- Process improvements incorporating pollution prevention and conservation techniques are identified and implemented as practicable.
- Emergency response procedures and contingencies are planned and prepared.
- Property damage and contaminated sites that require remediation to an acceptable condition are identified and appropriate actions taken.

COMPLY with ES&H requirements:

- ES&H requirements (in accordance with SNL policy) that are applicable to the work are known, understood, and implemented or otherwise addressed.
- ES&H requirements (in accordance with SNL policy) that are applicable to workers and visitors are known, understood, and implemented or otherwise addressed.
- ES&H requirements (in accordance with SNL policy) that are applicable to the space use are known, understood, and implemented or otherwise addressed.

MANAGE ES&H using good business practices:

- ES&H management policy (including goals, expectations, and clearly defined roles, responsibilities, and accountability) is established, understood, and followed.
- Workplace conditions, work operations, and management processes are examined, evaluated, and reported, and weaknesses are fixed or improved.
- Documentation is generated, tracked, maintained and reporting is performed, consistent with ES&H policy and applicable requirements.
- Documentation, data, and tasks are reviewed and verified when the potential for adverse ES&H or programmatic consequences or risk is high.
- ES&H information, including lessons learned from reviews, assessments, and occurrences, is communicated and incorporated into processes and procedures as applicable.
- Resources are managed to ensure line mission success while meeting ES&H performance objectives.

Appendix C.

Generic Performance Objectives for ES&H Support

ASSIST ES&H program implementers:

- Based upon corporate, line needs, and mission value, ES&H program policies and core processes are agreed upon (negotiated with line), documented, and communicated.
- Based upon corporate, line needs, and mission value, centralized operations are agreed upon (negotiated with line), documented, and communicated.
- Subject-matter expertise is available for anticipating, identifying, assessing, and addressing vulnerabilities, hazards, risks, requirements, and controls.

COORDINATE ES&H program structure:

- Requirements related to ES&H disciplines (including laws, regulations, orders, directives, contract provisions, codes, industry standards, SNL policies and procedures) are researched, identified, interpreted, documented, and communicated.
- ES&H program roles, responsibilities, authorities, and personnel qualifications (for implementation and support functions) are agreed upon (negotiated with line), documented, and communicated.
- Program functions, boundaries, and interfaces are agreed upon (negotiated with line), documented, and communicated.

MONITOR program performance:

- Program implementation is observed (spot checked), discussed with responsible managers and others, and used as the basis for determining program support needs.
- Program support functions are assessed, and deficiencies are prioritized and fixed on the basis of significance, severity, and available resources.
- Opportunities for continuous improvements (e.g., feedback, lessons learned, noteworthy practices) are solicited and those with potential to add value are implemented.

The Formality of Operations policy in the context of the Integrated Safety Management System (ISMS) provides a structure of performance expectations related to five core functions:

- work planning
- hazard analysis
- hazard controls
- work performance
- self-assessment

A mapping of the generic implementation and support POs listed above to the ISMS structure should enhance the overall understanding and effectiveness of ISMS on the part of line and ES&H support organizations.

Performance measures are the data one collects to indicate whether a performance objective is being met. These reflect the "hows" by which implementers and supporters achieve their objectives.

Appendix D

Details of Sources for ES&H Assessment Information

There are 14 line divisions represented by division ES&H coordinators (several divisions share ES&H coordinators), except that Division 7000 (Laboratory Support) is represented by center ES&H coordinators at this time. The ES&H Center (7500) provides support to the line organizations in six primary functional program areas. The Safeguards & Security Center, Facilities Management Center, and Operations & Maintenance Center are other Division 7000 line functions which either have a cross-cutting ES&H function (e.g., packaging & transportation, sites management) or impact ES&H in a significant way. High level ES&H information is also available from the Performance Indicator program.

ES&H functional programs are organized into six primary disciplines containing a number of sub-disciplines, plus several ES&H functions that cut across all six functional areas. The six ES&H functional areas include:

- Environmental Protection
- Industrial Hygiene
- Nuclear Criticality & Safety
- Radiation Protection
- Safety Engineering

The cross-cutting ES&H functions include:

- Emergency Response
- ES&H Appraisal
- ES&H Community ES&H issues
- ES&H Concerns and Complaints
- ES&H Performance Objectives / Performance Indicators
- ES&H Self-Assessment
- ES&H Training
- Events Information Management
- Fire Protection
- Medical Services
- National Environmental Protection Act (NEPA)
- Packaging & Transportation
- Reapplication/Recycling
- Risk Management
- Stop Work and Restart

There are 13 standing ES&H committees at this time, some representing ES&H functional areas (e.g., radiation protection) but most represent sub-programs (e.g., explosives safety) or ES&H cross-cutting functions (e.g., pollution prevention). The standing committees include:

- Corporate Fire Protection Council
- Electrical Safety Committee

- Explosives Safety Committee
- Hoisting & Rigging Safety Committee
- Joint Firearms Safety Committee
- Packaging & Transportation Safety Committee
- Pollution Prevention Core Team
- Pressure Safety Committee
- Sandia Nuclear Criticality Safety Committee
- Sandia Radiation Protection Safety Committee
- SNL/CA Safety, Health & Environment Advisory Committee
- Traffic Safety Committee
- Union Management Safety Committee

Other ES&H information sources internal to Sandia include:

- Board of Directors
- Contract Center
- DOE / SNL Site and Program Integration Board
- Integrated Safety Management System (ISMS) Project Team
- Laboratory Operations Council
- Legal Center
- Line Implementation Working Group
- Sandia Information Management System
- Sandia Quality Leadership Council
- Self-Governance Committee
- TEDS (Training and Education Development System)

External ES&H information sources include:

- Department of Defense (including DNFSB)
- Department of Energy (including DP, EH)
- Lockheed Martin Corporation
- Regulators (including EPA, NMED)

Appendix E

Details of Systemic Factors (Performing Root Cause Analysis and Developing Corrective Actions, Issue D - GN470036)

Systemic factors facilitate the analysis of how requirements are implemented in the workplace at Sandia. These factors may be used proactively in self-assessments or to identify problems and propose corrective actions (root cause analysis).

- **Management**
 - Identification and interpretation of requirements
 - Planning - development of overall goals, objectives, and policies
 - Organizing - structure, resources responsibilities, authorities, and interfaces
 - Directing - implementation of management plans
 - Hazard control - identification, evaluation, and control of hazards and risks
 - Assessment- evaluation of operations
- **Design**
 - Adequacy of design specification
 - Procurement - specifying and buying services, equipment, and material.
 - Configuration control - documentation of as-built configurations
 - Human-Machine interface - equipment used to communicate information to/from systems
- **Equipment / Materials**
 - Handling (packaging, shipping, receiving, handling, storage)
 - Manufacturing / construction / installation
 - Maintenance / testing
 - Equipment / system performance
- **Procedures**
 - Format and content of a written procedure or guidance.
 - Availability - procedures developed and available for use
 - Used correctly
- **Training**
 - Certification of personnel - testing, maintaining and/or documenting qualifications
 - Development of training materials
 - Presentation of training materials
 - Content of training materials
 - Qualifications - education, work experience, or training levels
- **Operations**
 - Direct supervision
 - Verbal communications and information exchange
 - Physical conditions of workplace
 - Capabilities of personnel - physical and emotional
 - Performance of work
- **External**
 - Human factors beyond the direct control of Sandia.
 - Non-human factors beyond the direct control of Sandia.

APPENDIX F

Lockheed Martin - Management Systems Checklists

This management system checklist is used by the Lockheed Martin Corporate ESH in performing audits of the LM sites.

I. POLICIES AND PROCEDURES

A. Requirement: CPS-015, Paragraph 4.2

1. Are site ESH Policies and Procedures current?
2. Do the Policies/Procedures include any references to documents that are out-dated, have changed numbers, or no longer exist?
3. Is each applicable program area from the SME assignment list addressed by the procedures?
4. If not, did the SMEs assess the need for procedures in that area?
5. Is the content of the procedures adequate?
6. Is the site in compliance with the site procedures?
7. Are site procedures readily available to workers on the floor?
8. Do workers know where the procedures are located?

II. SELF-AUDIT PROGRAM

A. Requirement: ESH-01, Paragraph 1.2

1. Has the site prepared and implemented an annual written plan to assess its facilities for compliance with ESH requirements?
2. Does the plan identify what areas will be assessed, the rationale for selection, and the process for conducting the assessment?
3. Are results of the compliance assessments provided annually to the Company President?
4. Does the self-audit plan provide adequate coverage to ensure internal compliance with ESH requirements?
5. Does the site have an ESH self-audit procedure?
6. If so, is the site in compliance with the procedure?
7. Does the site maintain audit files that adequately document the audits?
8. Do the files indicate the self-audits are finding any significant ESH problems?
9. Are all findings tracked until closure?
10. Does closure include a revisit to ensure effective corrective actions?
11. Does a revisit of a sample of closed findings indicate effective corrective actions and closure?
12. Was the self-audit program effective in identifying the types of deficiencies found by the other SMEs in this audit?
13. Are ESH audit findings from external audits (customer, regulatory agencies, Corporate, etc.) incorporated in the self-audit program?

III.EMPLOYEE TRAINING

A. Requirement: CPS-015, Paragraph 4.2; ESH-01, Paragraphs 1.10, 1.16.2

1. Is the site meeting the requirements of the Compliance Program Plan as submitted?
2. Has the site implemented a documented training program which addresses supervisor awareness of safety and health hazards and control measures to prevent injuries / illnesses?
3. Have ESH related employee training requirements been defined for each ESH/ ESH-related position?
4. Do these training requirements include all training required by ESH laws or regulations?
5. Do these training requirements include all training required on specific hazards and control measures relevant to job tasks and work areas?
6. Do these training requirements include actions to be taken by an employee if an ESH hazard is identified?
7. Do these training requirements include actions to be taken in the event of an ESH emergency (e.g., fire, chemical spill, employee accident, improper waste disposal, unusual reaction to a substance)?
8. Does a system exist to ensure that required training is received by employees in a timely manner?
9. Do employee training records indicate that employees are receiving the required training?
10. Is the content of training courses adequate to meet the training requirements?
11. Do the results of employee interviews indicate training is adequate?

IV.SUBCONTRACTOR MANAGEMENT

A. Requirement: ESH-01, Paragraph 1.7

1. Does the site have a written program for managing ESH issues and overseeing ESH activities related to contractors and/or subcontractors performing work at their facilities?
2. Does the program address contractual requirements for compliance with applicable ESH laws and regulations?
3. Does the program ensure contractors are provided safety and health requirements prior to bid?
4. Does the program ensure that LM has the authority to stop any unsafe work?
5. Does the program include direction to the contractor to obtain the necessary ESH permits to conduct the work in compliance with ESH regulation and site requirements?
6. Does the program include certification of training by the contractor and/or subcontractor of its employees in all applicable ESH requirements necessary for the performance of the work?
7. Does the program include control of chemical used by the contractor?

8. Does the program include management of waste generated by the contractor's activities?
9. Does the program include appropriate controls to ensure that Lockheed Martin employees and visitors are protected from safety and health hazards associated with contractor activities?
10. Does the program include a contractor orientation and monitoring program that alerts contractors to their ESH and contract compliance responsibilities?
11. Does the program include an evaluation of the contractor orientation program to ensure safety and health requirements and expectations are clearly communicated?
12. Does the monitoring program ensure contractors are complying with their Safety and Health Plan?
13. Does the monitoring program include the inspection of work sites for unsafe conditions / behaviors?
14. Does the monitoring program include special focus on the following high risk activities: elevated work, electrical, flammable, cranes / industrial vehicles, and confined space?

V. INJURY AND ILLNESS PREVENTION PROGRAM

A. Requirement: ESH-01, Paragraph 1.16

1. Has the site implemented a written safety and health program that satisfies state and local requirements and ensures the prevention of injuries and illnesses?
2. Does the program address the following elements: hazard identification and control, training and communication?
3. Has a plan been established to identify workplace hazards?
4. Does the plan include workplace reviews which identify:
 - a. Unsafe Conditions?
 - b. Unsafe Behavior?
 - c. Unsafe Work Practices?
 - d. Potential Environment and Ergonomic Stressors?
5. Does the program include an evaluation of jobs, processes, or procedures with the potential to overexpose employees to physical, chemical, or biological agents?
6. Does the program include a review of injury and illness records (e.g., OSHA 200 logs, Workers Compensation loss runs, near misses)?
7. Does the program include an investigation of accidents, incidents - including appropriate follow-up?
8. Does the program include workplace inspections; and a system that encourages employees to report hazards, and tracking of hazards to closure?
9. Has a process been implemented to abate identified hazards?
10. Has documented training program been implemented?
11. Has a program for routine communications with employees on safety and health matters shall be implemented?

APPENDIX G.

Lockheed Martin Corporate ES&H Compliance and Validation Checklist

This procedural checklist is used by the LM ESH Compliance and Validation organization in performing audits on LM sites.

Policies and Procedures (CPS-015, Paragraph 4.2)

Activities to Perform

- Interview key senior managers, operations managers, and ESH Managers as appropriate to determine if responsibilities for ESH compliance and performance are clearly and appropriately assigned and commitment and accountability established.
- Review organization charts, functions and responsibilities statements and performance evaluation criteria to determine if documentation supports the information stated in the interviews.
- Review all ESH Policies and Procedures for currentness and obvious anomalies.
- Develop and distribute procedure packages for each of the SMEs consisting of all of the procedures related to their individual audit assignments.
- Ensure SMEs review the procedures for adequacy of content.
- Sample two procedures (one safety, one environmental) for internal compliance.
- Perform floor checks to determine that procedures are readily available and that people are familiar with and using them.
- Ensure any findings or observations for this area are written daily.
- Attend daily auditor meetings to determine if findings discussed by other SMEs are adequately addressed by the site policies and procedures. This helps to measure effectiveness of the procedures.
- Complete Management Systems Assessment Checklist and Policies and Procedures Program Assessment form when field work is finished for this area.
- Ensure any work performed in this area is addressed daily in the results column. When all work is complete in this area, indicate that this area is complete in that day's entry.
- Interview key senior managers, operations managers, and ESH Managers as appropriate to determine if responsibilities for ESH compliance and performance are clearly and appropriately assigned and commitment and accountability established.
- Review organization charts, functions and responsibilities statements and performance evaluation criteria to determine if documentation supports the information stated in the interviews.
- Interview the person responsible for self-audit to determine existence and adequacy of program.
- Review self-audit plan to ensure adequate coverage to ensure internal compliance with applicable ESH requirements.
- Review self-audit procedure if one exists and ensure that site is in compliance with the procedure.
- Review a sample of audit files for the last year to determine if files adequately document and match the self-audit procedure, and determine if the self-audits are finding any problems.
- Review tracking and closure of findings.

SELF-AUDIT PROGRAM (ESH-01, PARAGRAPH 1.2)

Activities to Perform

- Revisit a sample of closed findings from the selected audit files to determine effective closure.
- Ensure any findings or observations for this area are written daily.
- Attend daily auditor meetings to determine if findings discussed by other SMEs are adequately addressed by the self-audit program. This helps to measure effectiveness of the program.
- Complete Management Systems Assessment Checklist and Self-Audit Program Assessment form when field work is finished for this area.
- Ensure any work performed in this area is addressed daily in the results column. When all work is complete in this area, indicate that this area is complete in that day's entry.

EMPLOYEE TRAINING (CPS-015, PARAGRAPH 4.2, ESH-01, PARAGRAPH 1.10)

Activities to Perform

- Interview key senior managers, operations managers, and ESH Managers as appropriate to determine if responsibilities for ESH compliance and performance are clearly and appropriately assigned and commitment and accountability established.
- Review organization charts, functions and responsibilities statements and performance evaluation criteria to determine if documentation supports the information stated in the interviews.
- Review the Compliance Program Plan submittal for the site and determine if the site is meeting the requirements as submitted.
- Interview the person(s) responsible for employee training to determine if ESH related employee training requirements have been defined for each ESH/ESH related position (Usually via a training matrix or an appendix to a procedure).
- Determine if an adequate system exists to ensure that required training is received by employees in a timely manner.
- Review a sample of employee training records to determine if employees are actually receiving the required training.
- Ensure SMEs review the content of training courses related to their assigned areas.
- Ensure that SMEs include questions on adequacy of training in each of their interviews. This will help you assess the adequacy of the training program.
- Ensure any findings or observations for this area are written daily.
- Attend daily auditor meetings to determine if findings discussed by other SMEs are adequately addressed by the employee training program. This helps to measure effectiveness of the program.
- Complete Management Systems Assessment Checklist and Employee Training Program Assessment form when field work is finished for this area.
- Ensure any work performed in this area is addressed daily in the results column. When all work is complete in this area, indicate that this area is complete in that day's entry.

SUBCONTRACTOR MANAGEMENT (ESH-01, PARAGRAPH 1.7)

Activities to Perform

- Interview key senior managers, operations managers, and ESH Managers as appropriate to determine if responsibilities for ESH compliance and performance are clearly and appropriately assigned and commitment and accountability established.
- Review organization charts, functions and responsibilities statements and performance evaluation criteria to determine if documentation supports the information stated in the interviews.
- Interview the person responsible for subcontractor management to determine if the site has a written program for managing ESH issues and overseeing ESH activities relating to contractors/subcontractors performing work at their facilities.
- Review procedures or plans that document the program.
- Review a sample of records of oversight of subcontractor ESH performance.
- Ensure any findings or observations for this area are written daily.
- Attend daily auditor meetings to determine if findings discussed by other SMEs are related to subcontractor management. This helps to measure effectiveness of the program.
- Complete Management Systems Assessment Checklist and Subcontractor Management Program Assessment form when field work is finished for this area.
- Ensure any work performed in this area is addressed daily in the results column. When all work is complete in this area, indicate that this area is complete in that day's entry.

ILLNESS AND INJURY PREVENTION PROGRAM (ESH-01, PARAGRAPH 1.16)

Activities to Perform

- Interview key senior managers, operations managers, and ESH Managers as appropriate to determine if responsibilities for ESH compliance and performance are clearly and appropriately assigned and commitment and accountability established.
- Review organization charts, functions and responsibilities statements and performance evaluation criteria to determine if documentation supports the information stated in the interviews.
- Interview the person responsible for Injury and Illness Prevention to determine if the site has and has implemented a written program that satisfies state and local requirements and ensures the prevention of injuries and illnesses.
- Review the plan and procedures that document the program.
- Evaluate for adequacy and test the controls that have been implemented to abate hazards that have been identified by executing the plan.
- Ensure any findings or observations for this area are written daily.
- Attend daily auditor meetings to determine if findings discussed by other SMEs are related to injury and illness prevention. This helps to measure effectiveness of the program.
- Complete Management Systems Assessment Checklist and Injury and Illness Prevention Program Assessment form when field work is finished for this area.
- Ensure any work performed in this area is addressed daily in the results column.

APPENDIX H.

Lockheed Martin - Audit Of Specific Areas / Activities

This checklist is used to evaluate 30 specific areas of major concern to LM Corporate ESH Audit organization. The major requirements and areas of inquiry are outlined.

Specific Area	Major Requirements
Clean Air Act (40 CFR 50 - 82)	Emissions inventorying and permitting, Records, Operational requirements, Ozone-depleting chemicals (ODCs)
Clean Water Act (40 CFR 112, 117, 122, 136, 141, 401, 403)	NPDES permit requirements, SPCC requirements, Safe drinking water applicability, Oil pollution act applicability, Discharge notifications
Electrical Safety (29 CFR 1910.269, .303 - .335)	Guarding of live parts, Employee training, Marking and access to electrical panels, Clothing, Hazardous (classified) locations, Use of flexible cords
Emergency Response (29 CFR 1910.38, .120)	Employee emergency / fire prevention plans, Training, Hazardous waste operations / remedial actions,
Employee Training	Compliance with Program Plan Submittal, Training tracked / documented, Training defined, Training effective
Explosive Safety (29 CFR 1910.109, Customer Requirements)	Handling, Transportation, Storage, Siting
Fall Protection (29 CFR 1910.22- .30, 1910.66 - .68)	Protection for elevated working surface, Fixed / Portable ladders, Standard railings / Toe boards, Powered platforms
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (40 CFR 156, 170-171)	Certification, Management of controlled pesticides, Disposal requirements
Hand and Power Tools (29 CFR 1910.242 - .244)	Inspection program, Availability of safe hand tools
Hazard Communication (29 CFR 1910.1200)	Written programs, Training of all exposed employees, Label system, MSDS management system
Hazardous Materials (29 CFR 1910.101 - .111 except .109)	Flammable/combustible materials management, Special electrical designs / equipment, Spray finishing / dip tanks, Tank storage, Compressed gas safety
Hazardous Materials Transportation (49 CFR 171-178) (Regulated Waste Only)	Labeling, packaging, placarding, and shipping of waste, Manifests / shipping papers, Use of approved vendor lists
Injury & Illness Prevention (FP-ESH-01)	Written Safety and Health Program, Supervisor and Employee Training, Hazard identification and control, Employee Communication
Life Safety (29 CFR 1910.37, .156 - .165, .252 - .255)	Exits clear, marked adequate, Portable fire suppression, Fixed fire suppression, Training, Inspections / maintenance, Hot work - PPE / equipment / practices
Lockout / Tagout (29 CFR 1910.147)	Training, Written program, Machine procedures, Device specifications, Group LOTO, Annual evaluations
Machine Guarding (29 CFR 1910.169, .212 - .219)	Guarded moving parts, Air receivers, Guarded point of operations

Specific Area	Major Requirements
Material Handling and Storage (29 CFR 1910.176-184)	Safe operation of powered industrial trucks, cranes, slings, Written program, Inspections / Maintenance, Testing / certification
Medical Programs (29 CFR 1903, 1910.20, 1910.151, 1910.1030)	Recording injuries / lost and restricted days, Employee access to records, Medical services and first aid, Bloodborne pathogens
National Environmental Policy Act (NEPA) (40 CFR 1502)	Environmental assessments, Environmental impact statements, Applicability to new projects
Occupational Safety and Health Administration (OSHA) Toxics (29 CFR 1910.1000 - 1450, except 1030 and .1200)	Training for asbestos personnel, Labeling of asbestos material, Toxic chemical monitoring notification, Lab hood velocity checks, Lab chemical hygiene plans
Permit Required Confined Space Entry (29 CFR 1910.146)	Written program, Employee training, Permit program, Contractor program, Atmosphere testing
Personal Protective Equipment / General Environmental Controls (29 CFR 1910.94, .95, .132 - .138, .141, .144, .145)	Hazard analysis / workspace assessment, Adequate ventilation, Certification / training, Noise exposure, Respirator selection / fit testing, Sanitation, Signage
Policies and Procedures (CPS-015, FP-ESH-01)	Flow down to company - specific procedures, Current and followed, Distributed to appropriate employees, Reporting, Configuration management
Process Safety Management (29 CFR 1910.119)	Determination of applicability, Addresses 14 major requirements
Radiation Safety (29 CFR 1910.96, .97, NRC Licenses, Customer Requirements)	Inventory of all sources, Nuclear criticality safety (if applicable), Inspections, Nuclear system safety (if applicable), Appointment of radiation safety officer
Resource Conservation and Recovery Act (40 CFR 260-280)	Hazardous waste characterization, storage, and disposal, Underground storage tanks, Used oil and solid waste, Recordkeeping (training, manifests, logs, operating record, etc.
Superfund Amendments and Reauthorization Act (SARA) (40 CFR 302, 355, 370, 372)	Toxic release inventory, Emergency planning, Chemical inventory system, Release Reporting
Self-Audit (FP-ESH-01)	Annual self-assessment, Identify, track, and correct deficiencies, Cover all major ESH areas, Distribution to company president
Subcontractor Management (FP-ESH-01)	Written program, Oversight of contractor activities, Orientation / monitoring element
Toxic Substances Control Act (TSCA) (40 CFR and Sections 4, 5, 8, 12, and 13)	Manage PCBs and related spills, Process / manufacture, recordkeeping, and reporting, Export / import of regulated chemicals, Test and significant new use rules

APPENDIX I.

DOE Facility Representative Checklist Summary Topics - "Safety Envelope" - November 1996

- 1.0 All essential SNL personnel know the safety envelope for their facility. (formal training, required reading, on-the-job training on the safety envelope, personnel knowledge of and response to limits and authorization bases for safety, structures, systems, components, and procedures, oral boards and examination results reflect challenging questions, effects of organization and process changes)
- 2.0 Training program provides the required information to essential personnel. (review of training, examinations, qualifications, retraining, relationships to safety envelope, configuration control, identified personnel, requirements for training, percent of management and staff trained)
- 3.0 Required safety documentation (SARs, SAs, PHAs) is in place and current. (rigor of safety documentation meets expectations and work activities, documents current, maintained, and available, hazards identified, as-builts, facility specific procedures,
- 4.0 At the facility level, procedures implement/reflect safety limits. (authorization basis) (procedures containing safety limits are identified, controlled, and annotated to be easily identifiable, personnel able to identify safety limits and the basis for the limits,)
- 5.0 Safety documentation is available to essential personnel. (safety documentation is available and used or personnel know how to obtain this documentation,

Authorization Bases: Those documents required by DOE for documenting the facility safety bases, design bases and approval bases

Essential Personnel: personnel who can affect the authorization bases by their actions, decisions or documents.

APPENDIX J.

Tools and Resources for Self-Assessment Activities

These question sets were designed for assessment of ES&H implementation. Each subject area has one or more sets of assessment questions. Users are encouraged to review these questions and use and/or modify the questions so they apply to their operations, facilities, and projects.

The approaches used for questions range from compliance with specific requirements to performance over a broader area. Most of the question sets have the requirements (e.g., regulations, DOE orders) referenced. The sources of question sets include Lockheed Martin Sites, DOE Sites (Allied Signal Kansas City Division and Oak Ridge National Laboratory), and those prepared by the ES&H Assessments Department. The Systemic Factors approach was used at SNL in the development of the self-assessment question sets. These tools and resources will be available on the SNL internal network.

Assessment Resource / Question Set / Area of Inquiry	Assessment Resource / Question Set / Area of Inquiry
<p>Abatement and Corrective Actions Air Quality And Ventilation Biological Hazards Chemical Use Confined Space Entry Construction / Construction Like Activities / Building Modifications Electrical Safety Emergency Preparedness Gravitational Hazards</p> <p style="padding-left: 20px;">A. Hoisting And Rigging B. Walking / Working Surfaces, Areas, and Systems</p> <p>Hazard Communications and Conditions Hazardous Materials</p> <p style="padding-left: 20px;">A. Controls For and Storage Of B. Explosives and Energetic Materials C. Metals, Batteries, And Inorganic Materials D. Organic Materials</p> <p>Investigations - Accidents And Incidents and Employee Suggestions Lockout / Tagout Maintenance (Conduct of) Management Aspects, Organization, Issues Materials Handling and Forklifts Mechanical Hazards</p> <p style="padding-left: 20px;">A. Equipment And Components B. Machine Guarding</p>	<p>C. Packaging And Transportation</p> <p>Nuclear Criticality Safety Office Safety for Sandia Labs Office / Work Place Safety and Fire Protection</p> <p style="padding-left: 20px;">A. Ergonomics B. Work Place Safety / Fire Protection C. Hearing Conservation D. Office Assessments E. Work Place Safety - Sprinkler Systems and Fire Extinguisher F. Water Controls</p> <p>Operations (Conduct Of) And Control Systems Permits Personal Protective Equipment and Systems Piping Labeling Pressure Systems and Vessels Quality Assurance of ES&H Radiant Energy</p> <p style="padding-left: 20px;">A. Lasers B. Other Sources</p> <p>Radiation Protection Reproductive Health Thermal and Cryogenic Hazards Training (ES&H) Waste Materials</p> <p style="padding-left: 20px;">A. Hazardous Wastes B. Radioactive and Mixed Wastes</p> <p>Wetlands</p>

Distribution:

LIWG Members:

<u>M/S</u>	<u>Org.</u>	<u>Name</u>
1041	7522	John Guth, Chair
0112	3000	Kay Sanderville (2)
0112	10000/12000/15000	Linda Worden (3)
0463	5000	Liz Scott-Patterson (4)
0513	1000/2000	Bess Campbell-Domme (6)
0724	4000/6000	Suzanne Weissman (2)
0871	14000	Robert Welberry (2)
1041	7522	Chris Tolentino (10)
1170	9000	J. Zawadzkas (6)
9105	8000	T. Tazwell Bramlette
9105	8000	Paula Painter (6)
0957	1400-1	Johnny Vaughan

Center 7500 Support:

<u>M/S</u>	<u>Org.</u>	<u>Name</u>
0369	7523	Al Bendure
1035	7526	Gary Yeager
1037	7527	Bill Jenkins
1041	7522	Chris Madigan
1041	7522	Steve Yesner (3)
1054	7500	Tom Blejwas
1054	7521	Terri Lovato
1054	7501	Dick Rohde
1054	7511	Steve Ward
1094	7524	Paul Yourick
1094	7525	Betsy Forbes
1314	7571	Earl Conway
0361	7000	J. D. Martin

Audit Center 12800

<u>M/S</u>	<u>Org.</u>	<u>Name</u>
0123	12800	W. W. Hollis
0125	12820	C. Phillip
0125	12830	W. C. Potter
0125	12850	G. W. Kuswa
0346	12870	K. L. Higgins
0346	12870	R. T. Reese
0346	12870	J. A. Campisi
0346	12870	N. L. Golden
0346	12870	B. M. Kelly
0346	12870	J. Lewis (20)
0346	12870	J. R. Romero
0407	12860	D. P. Finnegan

<u>M/S</u>	<u>Org.</u>	<u>Name</u>
9018	8940-2	Central Technical Files
0899	4916	Technical Library (5)
0619	12690	Review & Approval Desk for DOE/OTSI (2)