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# DOE STANDARD

## NUCLEAR EXPLOSIVE SAFETY STUDY PROCESS



U.S. Department of Energy  
Washington, D.C. 20585

AREA SAFT

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**FOREWORD**

1. This Department of Energy (DOE) Standard is approved by the Deputy Assistant Secretary for Military Application and Stockpile Operations and is available for use with DOE O 452.2B, SAFETY OF NUCLEAR EXPLOSIVE OPERATIONS, by all DOE components and their contractors who are responsible for the nuclear explosive operations and associated activities and facilities.
2. Standards are used to identify methods that DOE finds acceptable for implementing the Department's requirements. Beneficial comments (recommendations, additions, deletions) and any pertinent data that may be of use in improving this document should be addressed to:

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3. All DOE nuclear explosive operations require a Nuclear Explosive Safety Study as set forth in DOE O 452.2B. This Technical Standard provides requirements and guidance for the Nuclear Explosive Safety Study Process.

**1. PURPOSE**

This Technical Standard provides specific requirements and guidance for nuclear explosive safety (NES) studies, surveys, revalidations, and performance reviews in accordance with DOE O 452.2B, SAFETY OF NUCLEAR EXPLOSIVE OPERATIONS.

**2. SCOPE**

This Technical Standard describes the responsibilities and procedures for the NES study process. This Standard does not apply to response to unplanned events (e.g., Accident Response Group activities), which are addressed in DOE 5300-series Orders and DOE O 151.1, COMPREHENSIVE EMERGENCY MANAGEMENT SYSTEM.

**3. BACKGROUND**

Nuclear explosives by their design and intended use require collocation of high explosives and fissile material. The design agencies are responsible for designing safety into the nuclear explosive. The design and production agencies are responsible for designing safety into processes involving the nuclear explosive, including considerations of facility interfaces. In addition, safety is assured through comprehensive, independent safety reviews involving the national laboratories, Operations Offices, Headquarters, and applicable Area Offices and operating contractors with expertise in nuclear explosive safety.

A NES Study is an evaluation of the adequacy of positive measures to meet the NES standards.

The Nuclear Explosive Safety Study Group (NESSG) evaluates nuclear explosive operations against the Nuclear Explosive Safety Standards specified in DOE O 452.2B using systematic evaluation techniques. These Safety Standards must be satisfied for nuclear explosive operations.

**4. RESPONSIBILITIES**

1. Deputy Assistant Secretary for Military Application and Stockpile Operations (DP-20) shall:

- (1) Implement a training and qualification program for Headquarters personnel.
  - (2) Approve NES Studies and Revalidation Reports.
- b. Managers, Operations Offices, as appropriate, shall:
- (1) Recruit three personnel to serve as senior NESSG members.
  - (2) Implement a special orientation program for new senior NESSG members.
  - (3) Implement a training and qualification program for operations office personnel who will serve as NESSG members.
  - (4) Appoint a DOE employee as Chairperson of a specific NESSG.
  - (5) Approve the proposed membership list for each NESSG.
  - (6) Schedule NESSG activities.
  - (7) Ensure that each NESSG has sufficient technical, administrative, and logistical resources.
  - (8) Evaluate NESSG reports, and make appropriate recommendations to DP-20.
  - (9) Provide copies of approved NES Survey and NES Performance Review reports to DP-20.
  - (10) Submit request to DP-20 to administratively extend the expiration date of a NES Study.
  - (11) Ensure approved NESSG recommendations are implemented.

- c. Operations Office NESSG Chairperson shall:
  - (1) Organize, convene, and conduct the NESSG.
  - (2) Compile and forward the NESSG Report, or NES Performance Review report to the manager of the Operations Office.
  - (3) Suspend an NESSG activity, if unable to fulfill the requirements of DOE O 452.2B.
  
- d. Design and Production Agencies shall:
  - (1) Provide input documentation, briefings, and demonstrations to the NESSG, as required.
  - (2) Certify the accuracy of input documentation.
  - (3) Implement a training and qualification program for personnel who will serve as NESSG members.
  - (4) Provide and verify the qualifications of NESSG members and technical advisors who support the NESSG activities.
  - (5) Take appropriate action on approved NESSG recommendations for which they have responsibility.

**5. NEED FOR NES STUDIES, SURVEYS, REVALIDATIONS, OR PERFORMANCE REVIEWS**

- a. A NES Study shall be performed:
  - (1) For all proposed nuclear explosive operations.



- (2) When determined to be necessary by the NES change evaluation process.
  - (3) When determined to be necessary by a NES Survey, Revalidation, or Performance Review.
- b. A NES Survey may be performed for a proposed operation that is similar to an operation studied previously and for which a current and approved NES Study Report exists. The initial determination will be made by the cognizant Operations Office.
  - c. For studies with expiration dates, a NES Study Revalidation may be conducted for those operations that are expected to be performed more than five years past the NES Study approval. Additional information is located in Section 11, NES Study Revalidation Process.
  - d. A NES Performance Review shall be conducted once every 36 to 48 months for all programs, processes, or activities for which a NES Study without an expiration date, was approved. Additional information is located in Section 10, NES Performance Review Process.

**6. OBJECTIVES**

The objectives of a NES Study and other NES evaluations are to:

- a. Evaluate the adequacy of positive measures to meet the Nuclear Explosive Safety Standards.
- b. Evaluate and make appropriate recommendations on proposed operations, including immediate-action procedures and specific safety rules.
- c. Document the NES evaluation.

7. NESSG PERSONNEL REQUIREMENTS

7.1 NESSG COMPOSITION

- a. The Operations Office Manager will give consideration to the individual members's professional experience, NES qualifications, and dynamic traits (e.g., inquisitive personality) when selecting the NESSG membership. Although no organization will have no more than one participant per review, no member will be assigned solely to represent an organization. The members of each NESSG will be nominated by the NESSG Chairman in coordination with the member's organizations, and approved by the operations office manager.

NESSG size will be scoped to the number needed for an effective review of the topic at hand. The NESSG shall consist of not less than seven persons and no more than eleven persons per review. The core NESSG is:

- one chairperson (responsible operations office for the nuclear explosive activity);
- two senior members
- one Sandia National Laboratory member
- One Lawrence Livermore member.
- One Los Alamos National Laboratory member.
- One Pantex Plant Management and Operating (M&O) Contractor for AL NESSs.

If a larger NESSG membership is desired, it will be assembled around the core members.

Additional NESSG members can be drawn from the following organizations with NES responsibilities:

**Federal Government**

Albuquerque Operations Office  
Amarillo Area  
Nevada Operations Office  
Oakland Operations Office  
DOE Headquarters-Associate Deputy Assistant  
Secretary for Nuclear Weapons Surety

**National Laboratories and Contractors**

Lawrence Livermore National Laboratory  
Los Alamos National Laboratory  
Sandia National Laboratory  
Pantex Plant Management and Operating  
contractor for AL NESSs

- b. NESSG members for a specific study, survey, revalidation or NES performance review should not be changed for its duration.

**7.2 NESSG MEMBER QUALIFICATION REQUIREMENTS**

To support the NESSG mission and desired group characteristics, individual members must qualify by technical ability, independence, and temperament. The requirements for technical background, knowledge, and independence are outlined in sections 7.2b, 7.4d(4), and 7.6 of this Standard.

A key qualification is the ability to apply NES expertise in evaluating nuclear explosive operations (NEOs). NESSG members must have the ability and willingness to question and challenge the line management safety statement, line of logic, and justification for all issues with the potential to impact NES. Members must be able and willing to actively participate as part of a team, and to take an unpopular stand when warranted. They also need the oral communication skills to participate effectively in deliberations, and the written communication skills to clearly document findings.

- a. Three senior NESSG members will be recruited based on their background and experience. Senior members shall receive special NES training and orientation prior to participating on a NESSG.
- b. NESSG members, other than senior members, shall be independent, knowledgeable personnel having:
  - (1) Experience with or working-level knowledge of nuclear explosive development, testing, production, and/or transportation.

- (2) Working-level knowledge of DOE directives, policies, and procedures governing nuclear explosive safety.
- (3) Working-level knowledge of nuclear explosive safety technology and principles.
- (4) A minimum education of a Bachelor's degree in engineering or related field from an accredited college or university, or equivalent and relevant on-the-job experience.
- (5) Two years of experience in nuclear explosive design, safety, operations, or management thereof.
- (6) Participated in two NESSG activities (Study, Survey, Revalidation or NES Performance Review) as an observer or member within the last five years.
- (7) Knowledge of the Master Studies of the sponsoring Operations Office.
- (8) Successfully completed a NESSG Training Program, as described below.

### **7.3 TECHNICAL ADVISORS TO THE NESSG**

The NESSG may use experts (non-voting participants) in specific technical disciplines to provide technical advice in their specialty as it relates to the specific nuclear explosive operation. Advisors in risk assessment; environment, safety, and health; security; use control; mechanical design; electrical design; one-point safety; high explosives; and other disciplines may be required, as determined by the NESSG chairperson. Advisors should meet the same criteria for independence as members. Advisors for a specific NES study, survey, revalidation, or performance review should not be changed for its duration.

### **7.4 NESSG MEMBER TRAINING PROGRAM**

- a. Organizations providing NESSG personnel shall develop and implement a training and qualification program for their NESSG members. The training and qualification program shall contain the following elements:

- (1) Qualification requirements that include specific criteria for education, experience, and training.
- (2) A process for periodic requalification to provide members and advisors with new technical information, updates to NES issues, lessons learned, and weapon updates. This may be accomplished through annual NES conferences or other formal training venues.
- (3) Training and qualification records.
- (4) NESSG members must possess a working level knowledge of certain topical areas to effectively evaluate nuclear explosive operations. This knowledge may be achieved either through formal training or evidence of experience in the topical areas in order to meet the course objectives. These include:
  - Nuclear explosive design theory, operation, and safety principles
  - High-explosive characteristics, technology, and safety
  - Characteristics and hazards of plutonium, uranium, and tritium and their effect on nuclear explosive safety
  - NES Study process and associated DOE directives
  - Safety analysis techniques and their application to nuclear explosive operations
  - Electrical equipment and tester design, construction, and use as they relate to and affect nuclear explosive safety
  - Facility designs, infrastructures, and worker safety programs as they relate to

and affect nuclear explosive safety

- On-site and off-site transportation operations and associated equipment and their effect on nuclear explosive safety
  - The design, control, use and effect of tooling as it pertains to nuclear explosive safety
  - Implementation of Integrated Safety Management as it relates to nuclear explosive safety
- b A mentoring or intern program should be established to provide new personnel the opportunity to gain the necessary background and knowledge from experienced personnel. Details and special assignments should also be considered to enhance knowledge and experience.
- c. A special orientation program shall be developed for senior members.

## 7.5 NESSG CERTIFICATION

- a. Management at NESSG member organizations will certify each of their NESSG members' abilities to participate as a productive NES study member. This certification will be based on the individual satisfying the training and qualification requirements in Sections 7.2 and 7.4. Management may consider additional certification requirements such as oral boards and supervisor feedback. Certification shall be in the form of a certification letter to the appropriate operations office that is reviewed and updated as required.
- b Certification is valid for one year, and must be current for all NESSG members at the time the NESSG convenes.
- c. Certifying authorities shall be designated by:

- (1) DP-20.
- (2) Operations Office managers.
- (3) Area Office managers.
- (4) Laboratory directors.
- (5) Production Agency managers.

## **7.6 NESSG MEMBER INDEPENDENCE**

NESSG members shall not have current responsibility for the design, development, production, or testing of the specific nuclear explosive or operation being evaluated. Members shall not participate in the preparation of the input documentation or in the preparation or presentation of briefings. Members shall make unbiased and independent judgments regarding the nuclear explosive safety of the system, operation, or process under consideration. Members shall not have responsibility for advocacy of special interests of any organization, including their own.

## **8.0 NES STUDY PROCESS**

### **8.1 PLANNING MEETING**

The cognizant Operations Office shall conduct a planning meeting with the principal participants (appropriate Operations Office organizations, design agency, production agency, and Area Office, as needed). The purpose of the planning meeting is to define the scope and objectives of the NES Study; identify required input document contents; assign organizational responsibilities for input document preparation; develop a schedule for input document preparation and submission; identify organizational points of contact; and plan briefings, demonstrations, and resources as required to support the study. This information shall be documented and distributed to appropriate agencies and personnel.

## 8.2 NESSG MEMBER AND ADVISOR PREPARATION

NESSG members and advisors are responsible for reviewing input documentation prior to commencing the study. Members and advisors shall be given sufficient time and resources to read and evaluate the input documentation, references, and applicable Master Studies prior to the start of the study. The NESSG Chairperson shall schedule an input document adequacy review approximately 5-10 working days after receipt of the input document. Each member and each advisor shall provide an initial judgement of the adequacy of the input document to conduct the study. The NESSG shall document, to the preparing organizations, the need for any additional information or clarification.

After the NESSG judges the input document to be adequate, the NESSG shall coordinate with the Project Team to schedule the NES Study. Normally, the time needed to prepare for a NES Study is 15-20 working days after completion of the adequacy review. This period is for the members and advisors to perform a detailed review of the input document in preparation for the NES Study and for any additional preparation by the Project Team.

The above time frames are provided as general guidance. For specific NES studies, the time frames may differ depending on the scope and complexity of the study.

Preparation for, and conduct of, a NES Study shall be the primary responsibility of the designated NESSG members and advisors for the duration required to support a specific NES Study. Conflicts shall be resolved in favor of NESSG duties from the date the input document is scheduled to arrive until conclusion of the NES Study. However, individual technical advisors may be released early upon unanimous agreement by the NESSG members.

## 8.3 STUDY ELEMENTS

The following elements of nuclear explosive safety shall be considered in the NES Study, if applicable to the operation:

- a. Isolation of nuclear explosives from unwanted energy sources. Energy sources include but are not limited to electrical, thermal, mechanical, and chemical energy sources.



- b. One-point safety.
- c. High explosive safety.
- d. Design safety features.
- e. The nuclear explosive safety theme.
- f. Electrical tester design and safety including the interface between the tester and the nuclear explosive.
- g. Design, safety, and use of materials, tooling, and mechanical and electrical equipment.
- h. The adequacy of written procedures for the safe conduct of the operation.
- i. The threat to nuclear explosive safety from human error.
- j. Potential threats to nuclear explosive safety from security operations.
- k. The safety of the equipment and procedures for transporting nuclear explosives.
- l. Potential threats to nuclear explosive safety from associated systems (e.g., spin or rocket motors, parachute deployment systems, use control features, and instrumentation for nuclear explosive test devices).
- m. Other potential threats to nuclear explosive safety particular to the operation (e.g., high explosive dissolution process, command disablement tests, accelerated aging tests, and separation system tests).

#### 8.4 MASTER NES STUDIES AND OPERATION-SPECIFIC NES STUDIES

There are two types of NES studies: Master Studies and operation-specific studies. NES Master Studies evaluate processes, facilities, equipment and tooling, and management systems that are common to many nuclear explosive operations. Operation-specific NES Studies include the interfaces with applicable Master Studies and other studies. Operations Offices shall determine the scope of Master Studies appropriate for their operations. The following are examples of Master Studies:

a. For AL:

- (1) Over-the-Road Transportation. Reviews of all DOE nuclear explosive offsite transportation operations. This study includes evaluation of equipment and procedures to accomplish this task and potential threats to nuclear explosive safety from the associated security operations (not security adequacy).
- (2) Security Master Study. Reviews of security operations at the Pantex Plant for potential threats to nuclear explosive safety. The NESSG does not evaluate the adequacy of security measures. The security adequacy is assessed by security organizations through other processes.
- (3) Electrical Equipment Control Program. Reviews of the design process, control, calibration, and maintenance of electrical equipment used during nuclear explosive operations at the Pantex Plant.
- (4) General-Use Handling and Transportation Equipment. Reviews of onsite transportation; handling equipment; hoisting equipment; and tooling design, fabrication, and inspection processes at the Pantex Plant.
- (5) General-Use Processing Facilities. Reviews of special-purpose facilities, equipment, and processes at the Pantex Plant, such as vacuum chamber, x-ray, mass properties, accelerated aging, and separation testing.

- (6) Operating and Staging Facilities. Reviews the bays, cells, and magazines at the Pantex Plant. This includes facility design and equipment.

b For NV:

- (1) Assembly, Storage, and Transportation. Reviews of the assembly and disassembly of generic nuclear explosive test devices; design, control, and maintenance of facilities and common equipment; storage of components and assembled devices; and onsite transport of the test device.
- (2) Security Master Study. Reviews of security operations for potential threats to nuclear explosive safety. The NESSG does not evaluate the adequacy of security measures. Security adequacy is assessed through other processes.
- (3) Installation and Emplacement. Reviews of the installation of the test device in the test canister/rack and the emplacement at the test location.
- (4) Arming & Firing, Timing & Control. Reviews of the design process, control, calibration, operation, and maintenance of facilities and equipment used to accomplish detonation of nuclear explosive test devices.

## 8.5 NES STUDY INPUT DOCUMENTS

Input documentation shall include detailed information and analysis. A designated agency shall compile all input information into an integrated document and ensure delivery to the NESSG members and technical advisors. The Planning Meeting shall determine the technical information required.

Examples include:

- a. One-point safety analysis including a summary of test results, if available.
- b. A description of the nuclear explosive including non-DOE supplied components, when these components are a part of the nuclear explosive while it is in DOE custody.

- c. Nuclear explosive safety theme and description of the nuclear explosive design safety features.
- d. A description and process flow of the proposed nuclear explosive operation.
- e. The nuclear explosive hazards assessment (e.g., Hazards Analysis Report (HAR) and safety controls documentation) for the specific nuclear explosive operation.
- f. Onsite and offsite transportation tie-down requirements and analysis/testing.
- g. Recommended specific nuclear explosive safety rules (NESRs).
- h. Identification of positive measures and supporting rationale with analysis and/or test data, as applicable.
- i. Recommended immediate-action procedures.
- j. Analysis of electrical circuits in the nuclear explosive.
- k. Description of electrical test equipment and interface connections.
- l. Characteristics of electro-explosive devices.
- m. Description of tooling and equipment.
- n. Description of telemetry hazards.
- o. Description of electromagnetic radiation/electromagnetic pulse susceptibilities.
- p. Description of nuclear explosive shipping containers.
- q. Description of any conditions unusual to the nuclear explosive or high explosive.

- r. Safety considerations in quality evaluations and other inspection requirements.
- s. Information from other applicable NES Study reports.

## **8.6 CONDUCTING THE NES STUDY**

The NES Study process relies upon comprehensive input documentation and briefings; interaction among the NESSG, briefers, advisors, and individuals providing the demonstrations; and the NESSG deliberations to evaluate and judge the adequacy of nuclear explosive safety of the proposed operations and determine whether the proposed operations meet the Nuclear Explosive Safety Standards. Based on this evaluation, the NESSG identifies any nuclear explosive safety concerns and writes appropriate findings.

Technical advisors to the NESSG contribute as consultants, sources of information, or participants in the evaluation. Technical advisors should participate in the evaluation of issues related to their expertise. NESSG members draw conclusions considering these evaluations and technical advice.

Demonstrations are often conducted to evaluate the nuclear explosive safety impacts of each operation. For a NES Study, demonstrations should be conducted in a manner that provides the most realistic simulation practicable. Demonstrations should be conducted as follows:

- a. In an actual bay or cell representative of conditions under which the operations are to be conducted, or in a training facility set-up to accurately replicate the actual facility in size and layout. The accuracy of the replication will be verified.
- b. By trained and qualified production technicians.
- c. Employing actual or representative equipment, tools, tooling, and support equipment to the maximum extent.
- d. Using mature written procedures for the operation being evaluated.

- e. If applicable, address issues related to operations involving multiple weapons that might be collocated in the bay or cell while the primary operations are being conducted.

## 8.7 NES STUDY REPORT

- a. NES Study Reports shall include the NESSG conclusions and recommendations with supporting discussions concerning the adequacy of the positive measures to meet the DOE Nuclear Explosive Safety Standards of DOE Order 452.2B. The findings shall be prepared by the NESSG members, who alone will make the final determination of their content .
- b. NESSG member(s) who disagree with the majority shall submit a minority opinion to the Chairperson prior to completion of the NES Study.
  - (1) Minority report(s) should include recommendation(s).
  - (2) Minority report(s) shall be included in their entirety in the NESSG report.
  - (3) The NESSG majority shall prepare and include an evaluation of the technical merits of the minority report(s) in the NESSG Report.
  - (4) The Operations Office manager shall address the minority report(s) in the endorsement letter to DP-20.
  - (5) DP-20 shall comment on the actions taken regarding the minority report(s) in the approval or disapproval of the NES Study Report.
- c. The NESSG members shall sign the NES Study Report. Signature represents concurrence with the NESSG conclusions and recommendations, unless noted in minority opinion(s). Signing the report does not imply that the organization represented by the signer concurs with the contents. Changes made to the report after it is signed must be coordinated with the signing members.

d. The NESSG Report, as a minimum, should contain the following information. The content items listed below are the minimum topics that must be included.

- Abstract
- Table of Contents
- Signature Page
- Identify input documentation
- Purpose and Background (including identification of all existing NESSG reports that are applicable to the proposed nuclear explosive operation)
- Scope (a statement that defines the proposed operations evaluated by the NESSG)
- Criteria (a general statement of the criteria used to evaluate the nuclear explosive safety of the proposed operation; e.g., the Nuclear Explosive Safety Standards)
- Activities (a statement of the activities of the NESSG and the time and place the study was conducted)
- Summary Descriptions of the Nuclear Explosive and Studied Operations
- Findings (issues, conclusions, and recommendations, with supporting rationale) and summary of substantive discussions
  - Adequacy of positive measures to meet the DOE Nuclear Explosive Safety Standards of DOE O 452.2B.
  - Applicability of Master Studies to the proposed operations

- Proposed NESRs and immediate-action procedures
  - Nuclear explosive safety concerns, if any
  - Identify recommendations that should be closed prior to start
  - Identify recommendations that may be deferred until after start
- 
- Minority Report(s), if any
  - References (including specific publication date, revision number, etc.)
  - Appendices:
    - Appointment documentation for NESSG members and advisors
    - Participants (name, organization, and function)

**9. NES SURVEY PROCESS**

The purpose of a NES Survey is to conduct a comparative analysis of a proposed nuclear explosive operation with an operation that is similar and documented in a NES Study Report.

The NESSG for a NES Survey shall have the same composition and personnel qualification requirements as for a NES Study. Input documents for a NES Survey shall clearly describe the similarities and differences between the proposed operation and the operation upon which approval of the survey will be based.

The NESSG shall assess differences between the proposed operation and the approved operation to determine if process and equipment have been substantially modified. If the NESSG determines that a proposed operation is substantially different than the approved operation, a NES Study shall be performed.



**10. NES PERFORMANCE REVIEW PROCESS**

**10.1 PURPOSE**

A NES Performance Review evaluates an existing NEO to ensure it continues to satisfy the NES standards as evaluated during a NES study and maintained by a change control process. A NES Performance Review shall reach one of the following conclusions:

- a. The operation continues to meet the NES Standards.
- b. The operation continues to meet the NES Standards, but actions (poststart) should be taken to address specific NES concerns.
- c. The operation does not meet the NES standards and shall be suspended. Actions (prestart) shall be taken to meet the NES standards prior to resuming operations.
- d. The operation has changed significantly since the NES study and it can not be determined that the NES standards can be met. Therefore, operations shall be suspended, and a new NES Study is required.

**10.2 ADMINISTRATION**

A NES performance Review shall be conducted once every 36 to 48 months on all activities evaluated by a NES Study in accordance with DOE O 452.2A or later revision. NES Performance Reviews need not be performed for Master Study(s).

- a. The Operations Manager will convene NES Performance Reviews.
- b. The NES Performance Review team may be a subset of the full membership for a NES Study. At a minimum, the review shall consist of at least five NESSG-qualified individuals as determined by the review Chairman. Technical advisors may be used to support the NESSG.

- c. The Operations Office Manager is the approval authority for the NES Performance Review report. If the report contains findings requiring action or any minority opinions, the Operations Office Manager shall append a cover letter addressing the disposition of these items.

## **11. NES STUDY REVALIDATION PROCESS**

### **11.1 PURPOSE**

A NES Study Revalidation is conducted by the NESSG to determine whether a nuclear explosive or a nuclear explosive operation has changed sufficiently (since the last NES Study was approved) to the extent that the previous NES Study is no longer valid because the scope of the operation has diverged from the scope of the NES Study. A NES Study Revalidation shall reach one of the following conclusions:

- a. The NES Study remains valid (unanimous agreement by NESSG members is required),  
or,
- b. A new NES Study is required.

### **11.2 ADMINISTRATION**

- a. The convening authority for a NES Study Revalidation is the Operations Office manager. The approval authority is DP-20.
- b. The NESSG membership and personnel qualifications for a NES Study Revalidation are the same as for a NES Study. A convening letter will be sent to NESSG members at least 30 days prior to the Revalidation.
- c. The approval letter from DP-20 will be appended to the Revalidation report and be distributed to all NES Study report holders.

### 11.3 CRITERIA

As stated in DOE O 452.2B, the purpose of a NES Study Revalidation is "to determine whether a nuclear explosive operation has significantly changed since the NES Study was approved." Thus, a Revalidation calls for a different approach from that used in a NES Study.

The task of the NESSG in a Revalidation is to examine changes approved since the NES Study, and determine whether those changes, individually and collectively, have altered the process to the extent that the previous NES Study does not adequately cover the present operation. A Revalidation is not structured to provide all the information needed to make new safety judgements of the entire operation. A necessary assumption is that the operation evaluated in the previous approved NES Study was a safe operation (i.e., the NESSG conclusion of conformance to the DOE Nuclear Explosive Safety Standards was a valid conclusion, at that time).

Therefore, briefings and demonstrations for a Revalidation emphasize changes in processes, hardware, and knowledge since the NES Study. Judgments made by the NESSG in a Revalidation focus on the changes; they do not reflect any new nuclear explosive safety evaluation of the entire operation proposed for revalidation.

Although the focus of a Revalidation is changes since the NES Study, the NESSG will also evaluate any additional recommended safety enhancements. Any such potential enhancements the NESSG endorses will be documented in the report and entered into the change control process for further consideration.

### 11.4 REVALIDATION TOPICS

Prior to the Revalidation, assigned NESSG members will review the NESSG report for the NES Study being proposed for revalidation. Topics to be reviewed by the NESSG during a NES Study Revalidation include:

- a. Description of the nuclear explosive (with emphasis on any component changes since the NES Study).

- (1) Include any new knowledge applicable to nuclear explosive safety (e.g., aging, one-point safety analysis, etc.) gained since the NES Study.
- (2) Include review of applicable weapon surveillance and reliability testing reports.
- b. Include any new knowledge applicable to nuclear explosive safety (e.g., new information or analysis regarding the safety envelope)
- c. Description and process flow of the nuclear explosive operations for which revalidation is desired.
- d. Action taken on applicable prior NESSG recommendations.
- e. Process changes since the NES Study.
  - (1) Procedures.
  - (2) Tooling, testers, and other equipment.
  - (3) Interfaces with facilities.
- f. Summary of any applicable Occurrence Reports since the NES Study.
- g. Any proposed process safety enhancements.
- h. Demonstrations (as required to ensure NESSG understanding of process changes.)

## 11.5 SUPPORTING DOCUMENTATION

The following information will be available at the NESSG meeting location during a Revalidation:

- a. Applicable written operating procedures (current revisions, and as the procedures existed at the time of the NES Study).
- b. Summary of changes since the NES Study.
- c. Applicable Occurrence Reports.
- d. Summary of applicable weapon surveillance and reliability testing.
- e. NESSG report of the NES Study being considered for revalidation.
- f. Applicable NES Master Study reports.
- g. Master Tester List.
- h. Master Equipment List.
- i. Specific Nuclear Explosive Safety Rules.
- j. Immediate-Action procedures.

#### **11.6 NES STUDY REVALIDATION REPORT**

The NES Study Revalidation Report will include:

- a. Rationale and justification supporting the conclusions of the NESSG, including summary comments on changes to the operation, changes to the nuclear explosive, and any process safety enhancements that the NESSG considers desirable.
- b. A short summary of the presentations to the NESSG.

**12. NESSG RECOMMENDATIONS**

- a. All approved recommendations designated as pre-start must be closed by the cognizant Operations Office prior to commencement or continuation of operations.
- b. Status reports on approved NESSG findings that require actions shall be provided quarterly to DP-20.

**13. DOE APPROVAL PROCESS**

The NESSG chairperson shall provide the NES Study, Survey, or Revalidation report to the Operations Office Manager for review and action. Within 60 days, the Operations Office manager shall concur and forward the report to DP-20, or notify DP-20 of non-concurrence. The manager's endorsement letter shall contain a statement that the proposed operation meets the DOE Nuclear Explosive Safety Standards, the status and resolution plan for NESSG recommendations, and other appropriate recommendations the manager may have. DP-20 is the approval authority for NES Studies and Revalidations. The Operations Office manager is the approval authority for NES Surveys and shall provide copies of approved NES Survey reports to DP-20. Within 30 days of receipt, DP-20 shall notify the appropriate Operations Office manager of the NESSG report approval, or the reasons for its disapproval.

CONCLUDING MATERIAL

**Review Activity:**

DOE

DP

EH

EM

NE

NN

Field Offices

Albuquerque Operations Office

Amarillo Area Office

Kirtland Area Office

Los Alamos Area Office

Nevada Operations Office

Oakland Operations Office

**Preparing Activity:**

DOE-DP-21

**Project Number:**

SAFT-XXXX

National Laboratories

LANL

LLNL

SNL