

# **STANDARDS/REQUIREMENTS IDENTIFICATION DOCUMENT**

**FUNCTIONAL AREA 00.0**

**S/RID PURPOSE AND DEVELOPMENT**

**(Facility List Only this submittal)**

**SEPTEMBER 18, 2019**

**REVISION 19-01**

**This document was approved by DOE-SR on the above date**

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## 00.00 INTRODUCTION

Standards/Requirements Identification Document (S/RID) Functional Area 00, S/RID Purpose and Development contains general information which applies to all of the following 20 functional areas, and is pertinent to the understanding of the information provided in the other functional areas.

As used in this document, the term "standard" includes all appropriate consensus standards, as well as requirements or policy of the Department of Energy (DOE) as established in directives, rules, safety guides, DOE standards, limited standards, other Departmental policy documents, or other sources of relevant standards and guidance (e.g., international standards, established plant safety practices).

In agreement with the DOE instructions (References 1 and 2), the S/RID Program has distinct phases involving:

- (1) S/RID Initial Development;
- (2) S/RID Initial Adequacy Assessment and Approval; and
- (3) S/RID Maintenance.

Compliance activities associated with the S/RID requirements are continual programs, reflecting S/RID requirement changes and resolution of situations of noncompliance, as well as general updates to compliance reference information. Although the following two phases often overlap in implementation, they are typically cited as two distinct phases:

- (1) S/RID Phase 1 (Administrative/Programmatic Assessments); and
- (2) S/RID Phase 2 (Adherence) Assessments.

The five S/RID and compliance phases are discussed in more detail in the following sections and subsections.

## 00.01 S/RID INITIAL DEVELOPMENT

The initial phase of the S/RID Program involved the specification of the scope of the S/RID, the process for developing the S/RID, and the application of that process to develop the content of the S/RID.

Sections 00.01.01 through 00.01.03 (below) discuss these elements in detail. Section 00.01.04 has been included to provide details concerning the specification/layout of requirements and the applicability of those requirements within the S/RID. An understanding of Section 00.01.04 is important to the proper reading of the S/RID requirement tables.

### 00.01.01 S/RID Scope

The approach to S/RIDs at Savannah River Site (SRS) is structured to result in a single Savannah River Remediation LLC (SRR) S/RID that includes requirement-by-requirement applicability determinations for SRS facilities. Since most Environment, Safety, and Health (ES&H) requirements that apply to SRS apply broadly to all (or most) facilities, the single S/RID approach represents a cost-effective application of the DOE instructions. This cost-effective application is furthered through the presentation of S/RID requirements, applicability of the requirements, and compliance materials associated with the requirements.

The SRR S/RID is arranged into 20 functional areas and sub areas in general alignment with the July 30, 1993 version of the DOE-Headquarters ES&H Configuration Guide (Reference 3). The process was

intentionally structured to preclude the placement of the same requirement in more than one functional area.

Therefore, when instances arose where the Configuration Guide called for the same requirement to be covered in more than one functional area, the contractor selected the most appropriate functional area (usually based on contractor organizational "ownership") for requirement inclusion. The selected functional area is then referenced in any other functional area(s) that called for the same requirement. (Beyond this general application of the Configuration Guide that applies to all 20 S/RID functional areas, certain unique applications of the Configuration Guide were also applied to some individual functional areas. These applications are described in the applicable individual S/RID functional areas.)

S/RID requirements are drawn from a variety of sources. Sources of appropriate standards/requirements include:

- Applicable Federal, State, and local laws and regulations, including DOE Rules;
- DOE Orders and other directives;
- Relevant industry (consensus) codes and standards;
- Other sources of relevant standards and guidance (e.g., international standards, established plant safety practices)

Each S/RID functional area contains a list of reference documents. This list includes only those documents which are cited as requirement sources, and is not intended to be an all-inclusive list of documents related to the functional area. Unless otherwise specified, the latest version of any cited Federal, State, or Local law is assumed to apply. In addition, any omission from the S/RID of an ES&H-related Federal, State, or local regulation applicable to SRR does not constitute an exemption for SRR. Such exemptions must be pursued through proper regulatory channels regardless of S/RID exclusion.

## 00.01.02 S/RID Initial Development Process

The process for initial development (under the prior SRS Management & Operations contractor) of the S/RID was structured along organizational responsibilities that existed for day-to-day operations and activities, rather than some form of temporary organizational structure that would produce the product and disband. Regulatory Compliance Engineers were assigned to coordinate the development of each S/RID functional area. Functional Area Managers and Subject Matter Experts were also assigned to each of the 20 S/RID functional areas in full alignment with existing responsibilities for the content of the respective functional areas (e.g., the Quality Assurance Department Manager was the assigned Functional Area Manager for the Quality Assurance S/RID functional area, the Training Department Manager was the assigned Functional Area Manager for the Training and Qualification S/RID functional area). Qualified individuals from within the Functional Area Managers' organizations were assigned by the Functional Area Managers as Subject Matter Experts.

After initial development of the S/RID functional area by the Subject Matter Expert, reviews of the drafts were completed by Facility Technical Experts. Many of the Facility Technical Experts had day-to-day responsibilities within the various operating organizations associated with regulatory compliance matters for the organization. The assigned Facility Technical Experts obtained additional review of the S/RID functional areas as they determined to be necessary from other technical resources within their respective organizations. Final review and internal approval of the S/RID was also coordinated through the Facility Technical Experts. These individuals ensured appropriate reviews and concurrence by impacted individuals within their divisions prior to securing final signature approval from their respective senior managers.

A record of the qualifications of individuals serving as Regulatory Compliance Engineers, Subject Matter Experts, and Facility Technical Experts was maintained. A brief summary of the qualifications for these individuals follows:

(1) Regulatory Compliance Engineers

Possess a technical degree or equivalent, 6 or more years of related industry experience or related professional certification, and have 5 or more years of experience in Engineering, Maintenance, Facility Operations, Regulatory Compliance, Program Management, or relevant experience in the application of codes and standards.

(2) Subject Matter Experts

Possess a technical degree or equivalent, 6 or more years of related industry experience or related professional certification, and have 10 or more years of experience related to their particular functional area, with knowledge in more than one functional area preferred. Experience in the functional area includes codes and standards experience in the commercial or Naval nuclear industry or the chemical industries, as appropriate.

(3) Facility Technical Experts

Possess extensive knowledge of the implementing practices, procedures, and documents which specify hazards (e.g., Safety Analysis Reports, Technical Safety Requirements, Hazards Analysis Reports) at the facility or facilities related to the assigned functional areas. This knowledge is generally gained from one or more years of experience working or managing in the particular facility and functional area.

### 00.01.03 S/RID Content (Historical Initial Development)

SRS facilities and activities encompass a very broad range of nuclear, radiological, chemical, and worker safety hazards, and SRS missions associated with facilities and activities undergo frequent change. Therefore, the approach to initial development of the S/RID was structured to include a conservative specification of functional area requirements to ensure coverage of the ES&H hazards present in any type of facility or activity. The conservative set of applicable S/RID requirements can then be refined by individual facilities or individual activities over time, based upon further consideration of the actual ES&H hazards for that facility/activity, when the proper documentation for any such refinement receives formal DOE-Savannah River (SR) approval as an S/RID change.

This conservative approach to S/RID development involved the mandatory inclusion of all requirements applicable to the contractor from the following source documents:

- (1) ES&H Federal and State regulations (i.e., applicable portions of 10 Code of Federal Regulations (CFR), 40 CFR, 49 CFR, and South Carolina Department of Health and Environmental Control regulations);
- (2) DOE Orders of Interest to the Defense Nuclear Facilities Safety Board (DNFSB) (listed in Appendix III to Reference 4); and
- (3) DOE-SR Directive Implementation Instructions associated with the DOE Orders for Interest to the DNSFB.

(Note that mandatory inclusion of requirements from these source documents does not mean that duplicative

requirements were included. Where the same requirement appears in more than one of these source documents, the requirement was only specified in the S/RID once and assigned to the highest-level source document. For example, if the same requirement appears in a Regulation and a DOE Order, then the requirement was included only once and assigned to the Regulation. The internal S/RID database maintained by SRR includes a record of the requirements omitted from the S/RID based on being "duplicates" of other requirements.)

In any instances where these mandatory source documents invoke the requirements of other documents (e.g., an ANSI Standard, NFPA Codes), the applicable requirements from these invoked documents are also treated as mandatory. Inclusion of the requirements for this type of document is accomplished in one of two ways, depending on the specific instance. In many cases the actual text from the invoked source document has been extracted and placed verbatim in the appropriate S/RID functional area. In other instances, the source document is simply included as a requirement statement by direct reference to the document. This approach to inclusion of requirements from invoked source documents is structured to provide a meaningful blend of requirement text and requirement references in recognition of the impracticalities (and cost-ineffectiveness) of reproducing documents like the National Electric Code, the American Society of Mechanical Engineers (ASME) Codes, and the full series of National Fire Protection Association (NFPA) Codes.

The set of requirements adopted in the S/RID includes many specific requirements that are directed at the development and issuance of specific documents that often involve contractor obligations to then comply with the commitments included in the specific documents. Examples of these are various types of implementation plans, technical safety requirements, agreements, and permits. Since these types of documents represent evidence documentation in terms of complying with the requirements to have such documents, the individual commitments in these types of documents were not extracted from the documents and cited as specific S/RID requirements, except in the area of environmental restoration where the requirements from the Federal Facility Agreement are included as primary source for S/RID Functional Area 14. (In this instance, no other source documents produced a meaningful, adequate set of requirements).

SRR fully supports the DOE's policies relating to protection of the environment, and the health and safety of the workers and the public. These policy statements can be found in a number of sources, including DOE P 450.1, Environment, Safety and Health Policy for the Department of Energy Complex (now superseded by DOE P 450.7, Environment, Safety and Health Goals) and other policies in the "DOE P" series. SRR has policies which support many of the DOE policies. These DOE policy statements are not, however, typically included as requirements in the S/RID. Instead, specific, assessable requirements which support and implement the policy statements are included in the S/RID. The collection of requirements in the S/RID is intended to reflect the principles of DOE and contractor policy commitments to environmental, safety, and health excellence.

For the DOE Orders of Interest to the DNFSB and certain DOE regulations, the S/RID utilized the breakdown of requirements available in the DOE STRIDE database to the extent practical. Instances where the STRIDE breakdown was not utilized primarily involved situations where the contractor determined that a finer breakdown of the requirements was appropriate in consideration of the contractor approach to Phase 1 programmatic compliance, or when the STRIDE breakdown included a mix of statements that applied and did not apply to the contractor. The STRIDE database also includes a suggested S/RID functional area for each requirement in relation to the numbering of the DOE-HQ ES&H Configuration Guide (Reference 3). The S/RID utilized these suggested functional area location numbers in many instances; however, a premium was placed on S/RID functional area assignments that were consistent with existing contractor organizational responsibilities. Therefore, when contractor Functional Area Managers and Subject Matter Experts determined that placement of a requirement within a particular S/RID functional area was in full alignment with contractor organizational responsibilities, such placements were adopted even if they were different

from the suggested STRIDE placements.

With the mandatory set of requirements as a starting place, the assigned contractor Subject Matter Experts assigned/confirmed an initial facility applicability for each requirement, assessed the total set of requirements, and made an initial judgment on whether or not the set adequately supported DOE and contractor safety policies and objectives. When the set passed this adequacy assessment, no additional requirements were added. When it was determined that additional requirements would afford an incremental increase in the level of protection to the environment, and safety and health of the public and the workers (either for all facilities or for any applicable facility), additional requirements were added to the functional area until the set was judged to be adequate. With preference given to utilization of existing standards, Subject Matter Experts were given the ability to adopt additional requirements from a wide variety of source documents when necessary to achieve an adequate set of requirements. The sources included:

- (1) Industry codes and standards;
- (2) Industry guidance and practices;
- (3) DOE Orders, Notices, and Manuals (beyond those of interest to the DNFSB); and
- (4) Contractor-derived requirements.

Criteria utilized to assist in the selection of additional requirements to add to the mandatory set as described above included the following:

- (1) The requirement(s) is applicable to contractor responsibilities for the site, facility, or activity.
- (2) The requirement is judged to have a meaningful impact on the level of ES&H protection provided.
- (3) The requirement(s) is judged to be detailed, specific, quantitative, clear, and readily implementable so there can be correlation between the requirement and the implementing documents(s).
- (4) The requirements(s) is judged to be sufficiently specific such that experts could agree on the criteria (if necessary) to demonstrate compliance with the requirement.

When the assigned Subject Matter Expert determined that the functional area contained an adequate and sufficient set of requirements in consideration of the initial assignments of facility applicability, the draft S/RID functional area was provided to the assigned Facility Technical Experts for preliminary review. (Often the processes of Subject Matter Expert assignment of applicability and adequacy determinations and Facility Technical Expert preliminary review were completed in coordination between the Subject Matter Experts and the Facility Technical Experts through numerous review meetings, as opposed to two distinct steps.) Upon resolution of any comments from the preliminary review by the Facility Technical Experts, the S/RID functional area was modified as necessary and internally approved.

#### **00.01.04 S/RID Requirement Specification/Layout and Applicability**

S/RID requirements are specified in a tabular format where each requirement is assigned an S/RID number and is followed by identification of the source of the requirement and the text of the requirement (or a statement to comply with the source document). When requirement text is included, every attempt is made to state the requirement text exactly as it appears in the source document cited, regardless of whether or not the source document used ""shall"", ""should"", ""must"", ""may"", or similar language. Although quoting the source document language accurately provides a very clean trace for the requirement text (an aspect that

becomes important with possible future abilities to electronically interface with other databases), it can cause some confusion in terms of the level of commitment associated with the requirement.

For situations where the requirement is extracted from a Federal or state regulation, rule, or similar statute; the contractor has no authority to interpret the requirement in any manner other than that stated. For situations where the requirement is extracted from source documents other than regulations or rules, the following interpretations apply unless otherwise specified in the text of an S/RID requirement:

- (1) "Shall" and "will" (or similar) terms denote requirements;
- (2) "Should" (or similar) terms are treated as requirements, as if they were "shall" (or similar) terms.
- (3) "May" (or similar) terms, if followed by "not", are treated as requirements, as if they were "shall not" (or similar) terms.
- (4) "May" (or similar) terms, without inclusion of "not", are treated as optional statements, neither requirements nor recommendations/guidelines, but for which a phase 1 compliance conclusion is necessary due to their inclusion in the S/RID.

Applicability of each S/RID requirement is predominately specified at the facility level. Some small subsets of requirements are specified as being applicable to non-facility identifiers when necessary due to general real estate or activity focus. The applicability specification is provided in terms of:

"Nuclear HC-1,2,3" - Representing nuclear facilities (as defined by DOE Standard 1027-92) and are indicated by a "1", "2", or "3" entry. [3] denotes a facility required to support a nuclear facility - but does not contain any inventory;

"Radiological" - Representing facilities below Hazard Category 3 but still contain quantities of radioactive material at or above the Reportable Quantity value as specified in 40 CFR 302.4, Appendix B, and are indicated by a "R" entry.;

"High Hazard Chemical" - Representing facilities with radiological hazards below 40 CFR 302.4 thresholds for radiological materials, but with any chemical hazard at or above threshold quantities listed in 29 CFR 1910.119, Appendix A, or in 40 CFR 68. These facilities may also contain nuclear materials exempt from the nuclear facility definition, e.g., check and calibration sources, radioactive sources in research and experimental and analytical laboratory activities, electron microscopes, and x-ray machines, as defined by 10 CFR 830.3. These facilities are indicated by a "High" entry.;

"Low Hazard Chemical" - Representing facilities with radiological hazards below 40 CFR 302.4 thresholds, but with chemical hazards both below 29 CFR 1910.119 or 40 CFR 68 thresholds and at or above reportable quantities in 40 CFR 302.4. These facilities may also contain nuclear materials exempt from the nuclear facility definition, e.g., check and calibration sources, radioactive sources in research and experimental and analytical laboratory activities, electron microscopes, and x-ray machines, as defined by 10 CFR 830.3. These facilities are indicated by a "Low" entry.;

"Other Industrial" - Representing facilities with all radiological and chemical hazards below 40 CFR 302.4 thresholds. These facilities may also contain nuclear materials exempt from the nuclear facility definition, e.g., check and calibration sources, radioactive sources in research and experimental and analytical laboratory activities, electron microscopes, and x-ray machines, as defined by 10 CFR 830.3. These facilities are indicated by an "OI" entry.

The S/RID does not attempt to list all Other Industrial facilities managed by the contractor. In general, the Other Industrial facilities listed are identified for situations where requirements are being shown to be applicable on a facility-specific basis. However, it is important to understand that S/RID requirements shown as applicable to Other Industrial facilities are applicable to all contractor managed Other Industrial facilities, whether or not they are listed in the S/RID.

The exact definition of the SRS facilities/buildings that comprise each of these categories (with the exception of Other Industrial facilities as discussed above) is documented in the SRR Facilities List (appended to this functional area). In addition to the nuclear/radiological category assignment for each facility/building, cross assignments to other groupings (e.g. nuclear criticality, radioactive waste type, and facility groupings) are also provided and utilized in the S/RID as described in the notes to the list. Facility groupings specify facility/building identifiers for selected applicability groupings. Such groupings are provided and utilized in the S/RID when requirement applicability is to a specific list of facilities/buildings, rather than all or most facilities or buildings. A change to the facility list constitutes a change to the S/RID and requires prior DOE approval (\*\*see note at end of section).

The method of identifying requirement applicability within the S/RID is through a combination of "X" indicators and facility-specific indicators.

Placement of an "X" under the S/RID table columns that correspond to each of the five Facility categories depicts that the S/RID requirement is applicable to ALL facilities in that category, with the exception of any facilities identified with a minus "-" indicator in the "Facility Specific" column. If an "X" appears in more than one category (which is often the case), the requirement applies to all facilities in each of the indicated categories (again, with the exception of any facilities identified with a minus "-" indicator in the "Facility Specific" column). Similarly, if an "X" does not appear under a specific category column, then the requirement is not applicable to the facilities in the designated category, with the exception of any facilities identified with a plus "+" indicator in the "Facility Specific" column. Identification of applicability in the "Facility Specific" column is by facility name or through reference to a specific list included in the S/RID.

All of the above information is presented in Table 1 of each S/RID functional area. A simplified explanation of the Table 1 format and content is also included in each functional area, along with summary level textual information describing the type of requirements included in each subpart of the individual functional area.

The final piece of information presented in each functional area Table 1 is a linkage to the SRR approach for documenting Phase 1 (administrative/programmatic) compliance materials for the specified requirement. Where the expectation is that procedural controls (that provide for programmatic compliance) are or will be determined to be common to all or most applicable facilities, an "X" is placed under the "Common" column. Where such procedural controls are or are expected to be unique to individual facilities (or possibly individual groupings of facilities), an "X" is placed under the "Facility Specific" column. Where both situations apply, an "X" is placed under both columns. (The "X" indications under these columns also translate to additional tables that are associated with (but not part of) the S/RID in relation to Phase 1 compliance, as described in more detail in Section 00.03, below. However, in simple terms, an "X" under the "Common" column means that there will be a Table 2 associated with the S/RID functional area, an "X" under "Facility Specific" means that there will be one or more Table 3 associated with the S/RID functional area, and an "X" under both columns means that there will be a Table 2 and one or more Table 3 associated with the S/RID functional area.)

It must be recognized that the placement of "Xs" for the Phase 1 Compliance Approach are not firm in that they are always subject to change based on the actual information relied upon to demonstrate programmatic compliance. Therefore, these "Xs" are changed as necessary to reflect actual Phase 1 information as it becomes available or as it may change over time.

(\*\*) For purposes of Design and Authorization Basis work, a DOE approved change in facility hazard category must be utilized, even if the S/RID Facility List has not yet been updated to reflect the change.

Similarly, a DOE approved downgrade in facility hazard category, elimination of criticality potential, elimination of waste streams, or change in operating category must be utilized, even if the S/RID Facility List has not been updated to reflect the change.

### 00.01.05 New Facilities

From time-to-time new facilities are added to the site. Typically, new facilities are designed, constructed, go through startup testing, and are finally put into operations. Depending on the facility, the actual building number may be assigned during any of these phases.

Even though a new facility building number may not be specified in the S/RID, the requirements of the S/RID applicable to the new building for its life cycle phase still apply. For example, the requirements from FA 07 (and selected requirements from other functional areas) would apply during the design phase. Requirements from FA 08 apply during the construction phase. Some requirements, e.g., occurrence reporting and employee concerns, would apply to all phases.

During the periodic S/RID reviews (or during routine S/RID updates), any new facility building numbers and identifiers will be added, if not already included in the facility list. Additions or changes to the facility hazard category, operating category, waste form, and criticality requirements will also be made during the periodic S/RID reviews/routine updates.

### 00.02 S/RID ADEQUACY ASSESSMENT AND APPROVAL

In accordance with the DOE S/RID Development and Approval Instruction (Reference 1) approval of an S/RID by DOE constitutes a determination of adequacy. However, the instruction also recognizes the contractor's role in making initial determinations in relation to the adequacy of the S/RID prior to submittal to DOE for approval. The contractor determination of adequacy is two-fold. As described in more detail in Section 00.01.02, above, the contractor structured its development program to produce a fairly conservative set of S/RID requirements in consideration of the broad range of hazards present at SRS facilities. This approach did not take full advantage of the possible exclusion of certain types of requirements based on lesser levels of hazards at individual facilities, as permitted by the DOE instruction. Therefore, this approach inherently directs the S/RID to include a conservatively adequate set of requirements. S/RID adequacy is also addressed through the contractor process for development of the S/RID. As described in more detail in Sections 00.01.02 and 00.01.03, above, the contractor utilized qualified Regulatory Compliance Engineers, Subject Matter Experts, and Facility Technical Experts in the development of the S/RID. The S/RID was then formally approved by appropriate levels of management signifying that the S/RID functional area was adequate.

### 00.03 S/RID COMPLIANCE

Compliance with the requirements specified in the S/RID is assessed through two phases involving programmatic compliance and field adherence. These phases are discussed as distinct activities in the Section 00.03.01 and 00.03.02 below, but they often overlap to a certain extent during implementation.

### 00.03.01 S/RID Phase 1 (Administrative/Programmatic) Assessments

Phase 1 (administrative/programmatic) compliance assessments are performed to determine whether management control documents (i.e., policies, procedures, programs) specify the actions and conditions necessary for compliance (or adherence) with the requirements specified in the S/RID. Phase 1 programmatic compliance information is generated and signed-off on a requirement source document basis in accordance with Procedure Manual 8B (Reference 6) and then electronically associated with the proper S/RID functional area. Phase 1 information is fully linked to the S/RID and any noncompliances involving Requests for DOE Approval are formally submitted to DOE.

Phase 1 information is presented in tabular form in relation to the applicability of the procedural controls that provide for programmatic compliance with the S/RID requirement. Where procedural controls are common to all or most applicable facilities, programmatic compliance information is presented in Table 2 associated with the S/RID. Where the procedural controls are unique to individual facilities or individual groupings of facilities, programmatic compliance information is presented in one (or more) Table 3(s) associated with the S/RID.

Table 2 and Table 3 compliance information is presented in a similar fashion. Each requirement is cited by number and is followed by the identification of the management controls (at a company-level and/or at a lower-level, as applicable) that provide for programmatic compliance. Although there are instances where no formal management controls are considered necessary for individual S/RID requirements, most requirements will be related to at least one management control document as evidence of programmatic compliance. The management control citations are followed by a conclusion of programmatic "compliance" or "noncompliance" for each requirement. Areas of programmatic noncompliance can involve the use of appropriate Requests for DOE Approval (i.e., Temporary Exemptions, Permanent Exemptions, or Implementation Plans) to disposition the noncompliance, as identified in the comment column.

### 00.03.02 S/RID Phase 2 (Adherence) Assessments

Phase 2 (adherence) assessments are performed to provide a continuing basis for confidence that conditions and activities adhere to the management controls that provide for programmatic compliance with the requirements. Phase 2 assessments include an initial baseline assessment, as well as on-going self-assessments. For SRS nuclear facilities, most initial baseline assessments were completed as part of the Order Compliance Program in the 1990s and on-going self-assessments are currently being conducted in accordance with Procedure Manual 12Q (Reference 8). These assessments utilize the Assessment Performance Objectives and Criteria (formerly SCD-4) application (Reference 7) as a source of performance objectives and criteria that are used to judge field adherence with management controls. Schedules for the conduct of self-assessments for individual facilities and individual organizations are maintained by each facility/organization.

SRS nuclear facilities undergoing a startup or restart complete readiness activities (e.g., ORRs, RAs, MSAs, etc.) that include compliance assessments within applicable functional areas (e.g., radiation protection, fire protection, etc.). These readiness activities constitute a baseline Phase 2 adherence assessment for such facilities. On-going self-assessments are then initiated in accordance with Procedure Manual 12Q.

### 00.04 S/RID MAINTENANCE

The S/RID is a living document that will need to be revised and updated to reflect appropriate changes to requirement source documents, changes in SRS missions, and changes that can result from operating experience, lessons learned, and site re-engineering initiatives.

Situations will arise where it is necessary or desired to apply ES&H requirements to a facility/activity (or group of facilities/activities) that are different from those specified in the current DOE-approved S/RID. Such situations can arise from a number of external and internal drivers including, but not limited to, the following:

(1) Promulgation of a new/revised ES&H regulation applicable to SRR as a matter of law.

(In this instance, SRR's obligation to comply with such new/revised regulations is not contingent upon an approved S/RID change. Regulations applicable to SRR as a matter of law apply as stated in the regulations, regardless of any S/RID provisions.)

(2) Completion of an integrated review of safety requirements Review in relation to receipt of a new/revised ES&H Directive transmitted to SRR by DOE via Contract Administrator Notice (CAN).

(In this instance, the result of the SRR integrated review would include disposition of the new/revised Directive with respect to any need to revise the S/RID. The S/RID disposition, as well as a schedule for submittal of any proposed S/RID changes (when applicable), are transmitted to DOE upon completion of the integrated review.)

(3) Receipt of a DOE initiated communication (other than a CAN) suggesting changes to the current S/RID (e.g., a DOE comment on the S/RID).

(4) Deleted

(5) Desire (with justification) on the part of SRR to apply a different set of requirements (e.g., as a result of a re-engineering initiative or other similar initiative directed at cost-effectiveness based on specific hazards consideration) than those currently specified in the S/RID.

(6) Identification by SRR or DOE of any situation where the S/RID is not considered as containing an adequate set of requirements to protect the worker, public health and safety, and the environment.

(7) Modification of requirement language from a DOE Directive Source Document in one S/RID functional area which could affect other functional areas. Some DOE Directive Source Documents assume compliance with other DOE Directive Source Documents when determining a particular program or function has adequate interfaces. To ensure such impacts are understood and determined to be acceptable at SRS, affected Functional Area Managers will perform additional reviews of these changes prior to submittal of the change to DOE-SR. This additional review applies to:

(a) Those S/RID functional areas that contain requirements from DOE Directive Source Documents that are referred to in the ""key interface"" section of other S/RID functional areas, where

(b) SRR desires to modify the language of any requirement from that specified in the DOE Directive Source Documents.

A change to any of the following S/RID information requires SRR and DOE approval through a formal S/RID Change Package in accordance with Procedure Manual 8B (Reference 6):

(1) S/RID text,

(2) S/RID requirements (e.g., S/RID requirement numbers, source documents numbers, requirement text),

(3) Requirement applicability

Note:

For administrative changes such as:

(a) grammatical/typographical (spelling, update to contractor acronyms, document titles), and

(b) updates to source documents referenced in text (DOE O 414.1C superseded by DOE O 414.1D)

The administrative changes will be incorporated by the S/RID Lead Engineer and approved by the SRR Functional Area Subject Matter Expert, Functional Area Manager and the applicable DOE-SR Functional Area Subject Matter Expert. Following approval, the updated S/RID functional area will be forwarded to DOE-SR for information.

S/RID Change Packages contain a summary of the specific changes, justification for the changes, a completed SRR approval sheet, as well as the exact set of proposed changes. Change Packages are numbered sequentially, based on the year and sequence submitted to DOE. For example, Change Package 09-01 is the first package submitted to DOE for approval on or after January 1, 2009; Change Package 09-02 is the second; etc.

When requirements are to be removed from the S/RID (e.g. superseded by new source document), they are retained in the S/RID History database. In any instance of S/RID changes, functional area S/RID requirements may be resequenced to maintain logical ordering within each section and/or subsection.

Maintenance of Phase 1 compliance information associated with the S/RID is updated by SRR upon completion of compliance assessments for new/revised requirements and on a periodic basis for existing S/RID requirements. Such updated information is included in the SRR compliance database associated with the S/RID as it is updated. Therefore, the compliance database is maintained near real-time in terms of compliance status, procedure revisions, and other relationships.

## 00.05 DEFINITIONS/TABLES

Definitions for terms from various documents that are used as S/RID requirement source documents in Functional Areas 01 through 20 and the non-ESH directives are accessible from the SRS Intranet S/RID Homepage. Only terms from applicable DOE Orders, Manuals, Policies, NNSA directives and selected regulations have been included in that list. In the cases where the definitions to terms refer to tables, appendices, attachments, other directives, or other sections within the same source document, the reader will be required to refer to the referenced information. Tables from source documents which are referenced by requirements in these functional areas are included in Appendix A of this functional area.

## 00.06 REFERENCES

- (1) "Department of Energy Standards/Requirements Identification Document Development and Approval Instruction," September 1994.
- (2) "Department of Energy Standards/Requirements Implementation Assessment Instruction," September 1994.
- (3) "Environment, Safety and Health Configuration Guide," Revision 0, July 30, 1993.

- (4) DOE Letter Transmittal of: "Department of Energy Implementation Plan in Response to Recommendation 90-2 of the Defense Nuclear Facilities Safety Board, Revision 5, November 1994," H.R. O'Leary (DOE) to J.T. Conway (DNFSB), dated November 9, 1994.
- (5) DNFSB Letter Transmittal of: "Recommendation to the Secretary of Energy Pursuant to Section 312(5) of the Atomic Energy Act of 1954, as Amended," J.T. Conway (DNFSB) to J.D. Watkins (DOE), dated March 8, 1990.
- (6) Procedure Manual 8B, "Compliance Assurance Manual," (individual procedures dated).
- (7) Assessment Performance Objectives and Criteria application (formerly Source and Compliance Document (SCD) 4, "Assessment Performance Objectives and Criteria" (individual sections dated)).
- (8) Procedure Manual 12Q, "Assessment Manual," (individual procedures dated).
- (9) Deleted
- (10) Delete

## Appendix A – Source Document Tables

### Table 1 – SRS Supplemental Release Limits

DOE-HQ has approved the use of these SRS supplemental release limits in lieu of the criteria in Figure IV-1 of DOE Order 5400.5. (Refer to 10/1/03 EM-1, J. H. Roberson, Memorandum to EH-1; approved by B. A. Cook on 10/15/03.)

Radionuclide Groups <sup>(a)</sup>	Removable <sup>(b)</sup>	Total (Fixed + Removable) <sup>(c)</sup>	Volumetric <sup>(d)</sup>
	Dpm/100 cm <sup>2</sup>	dpm/100 cm <sup>2</sup>	pCi/g
<b>Group 1</b> Radium, Thorium, and Transuranics: <sup>210</sup> Po, <sup>210</sup> Pb, <sup>226</sup> Ra, <sup>228</sup> Ra, <sup>228</sup> Th, <sup>230</sup> Th, <sup>232</sup> Th, <sup>237</sup> Np, <sup>239</sup> Pu, <sup>240</sup> Pu, <sup>241</sup> Am, <sup>244</sup> Cm, and associated decay chains <sup>(e)</sup> , and others <sup>(a)</sup>	20	500	3
<b>Group 2</b> U-nat, <sup>234</sup> U, <sup>235</sup> U, <sup>238</sup> U, and associated decay products <sup>(f)</sup> : <sup>14</sup> C, <sup>22</sup> Na, <sup>24</sup> Na, <sup>32</sup> P, <sup>35</sup> S, <sup>36</sup> Cl, <sup>45</sup> Ca, <sup>51</sup> Cr, <sup>54</sup> Mn, <sup>55</sup> Fe, <sup>59</sup> Fe, <sup>58</sup> Co, <sup>60</sup> Co, <sup>63</sup> Ni, <sup>65</sup> Zn, <sup>89</sup> Sr, <sup>90</sup> Sr, <sup>94</sup> Nb, <sup>99</sup> Tc, <sup>106</sup> Ru, <sup>110m</sup> Ag, <sup>109</sup> Cd, <sup>111</sup> In, <sup>124</sup> Sb, <sup>125</sup> I, <sup>129</sup> I, <sup>131</sup> I, <sup>134</sup> Cs, <sup>137</sup> Cs, <sup>144</sup> Ce, <sup>147</sup> Pm, <sup>152</sup> Eu, <sup>154</sup> Eu, <sup>192</sup> Ir, <sup>198</sup> Au, <sup>241</sup> Pu, and others <sup>(a)</sup>	1000	5000	30
Tritium and tritiated compounds <sup>(g)</sup>	10,000/100,000 <sup>(h)</sup>	N/A	2,000

- (a) To determine the specific group for radionuclides not shown, a comparison of the effective dose factors, by exposure pathway, listed in Table A.1 of NCRP Report No. 1231 for the radionuclides in question and the radionuclides in the general groups above shall be performed and a determination of the proper group made, based on similarity of the factors.
- (b) The amount of removable radioactive material per 100 cm<sup>2</sup> of surface area should be determined by swiping the area with dry filter or soft absorbent paper, applying moderate pressure, and then assessing the amount of radioactive material on the swipe with an appropriate instrument of known efficiency. (Note: The use of dry material may not be appropriate for tritium). When removable contamination on objects of surface area less than 100 cm<sup>2</sup> is determined, the activity per unit area shall be based on the actual area and the entire surface shall be wiped. It is not necessary to use swiping techniques to measure removable contamination levels if direct scan surveys indicate that the total residual surface contamination levels are within the limits for removable contamination.
- (c) The levels may be averaged over one square meter provided the maximum surface activity in any area of 100 cm<sup>2</sup> is less than three times the value specified. For purpose of averaging, any square meter of surface shall be considered to be above the surface contamination value if: (1) from measurements of a representative number of sections it is determined that the average contamination exceeds the applicable value; or (2) it is determined that the sum of the activity of all isolated spots or particles in any 100 cm<sup>2</sup> area exceeds three times the applicable value.
- (d) Volume criteria will only be applied for the purpose of release of materials for disposal in a state, DOE, permitted or approved on-site landfill.
- (e) For decay chains, the screening levels represent the total activity (i.e., the activity of the parent plus the activity of all progeny) present.
- (f) Alpha component of activity.
- (g) Tritium contamination may diffuse into the volume or matrix of materials. Evaluation of surface contamination shall consider the extent to which such contamination may migrate to the surface in order to ensure the surface contamination value is not exceeded. Once this contamination migrates to the surface, it may be removable, not fixed; therefore, a "Total" value does not apply.
- (h) The criterion of 10,000 dpm/100 cm<sup>2</sup> will be used for release of material for unrestricted use (reuse or recycle). The criterion of 100,000 dpm/100 cm<sup>2</sup> will be used for the controlled on-site landfill disposal of material. (Note: DOE Suspension (July 2000) for recycle of metals will apply until rescinded). Further SRR will only implement the 100,000 dpm/100 cm<sup>2</sup> removable tritium criterion if a future exemption to the provisions of Appendix D to Title 10 Code of Federal Regulations Part 835 is granted.

**Table 2 – 10 CFR 830, Subpart B, Appendix A, Table 1**

Direct Extraction from 10 CFR 830, Subpart B, Appendix A, Table 1

A DOE nuclear facility categorized as * * *	Has the potential for * * *
Hazard category 1	Significant off-site consequences.
Hazard category 2	Significant on-site consequences beyond localized consequences.
Hazard category 3	Only local significant consequences.
Below category 3	Only consequences less than those that provide a basis for categorization as a hazard category 1, 2, or 3 nuclear facility.

Note: For SRS operations, the term "Below hazard category 3" is referred to as "Radiological" or one of the other lower facility classifications described in Section 00.01.004 of this functional area.

**Table 3 – 10 CFR 830, Subpart B, Appendix A, Table 2**

Direct Extraction from 10 CFR 830, Subpart B, Appendix A, Table 2

The contractor responsible for * * *	May prepare its documented safety analyses * * *
(1) A DOE reactor	Using the method in U.S. Nuclear Regulatory Commission Regulatory Guide 1.70, Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants or successor document.
(2) A DOE nonreactor nuclear facility	Using the method in DOE-STD-3009, Change Notice No. 1, January 2000, Preparation Guide for U. S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports, July 1994 or successor document.
(3) A DOE nuclear facility with limited operational life	Using the method in either: (1) DOE-STD-3009, Change Notice No. 1, January 2000, or successor document or (2) DOE-STD-3011-94, Guidance for Preparation of DOE 5480.22 (TSR) and DOE 5480.23 (SAR) Implementation Plans, November 1994 or successor document.
(4) The deactivation or the transition surveillance and maintenance of a DOE nuclear facility.	Using the method in either: (1) DOE-STD-3009, Change Notice No. 1, January 2000, or successor document or (2) DOE-STD-3011-94 or successor document.
(5) The decommissioning of a DOE nuclear facility	(1) Using the method in DOE-STD-1120-98, May 1998, Integration of Environment, Safety, and Health into Facility Disposition Activities or successor document; (2) Using the provisions in 29 CFR 1910.120 (or 29 CFR 1926.65 for construction activities) for developing Safety and Health Programs, Work Plans, Health and Safety Plans, and Emergency Response Plans to address public safety, as well as worker safety; and (3) Deriving hazard controls based on the Safety and Health Programs, the Work Plans, the Health and Safety Plans, and the Emergency Response Plans.
(6) A DOE environmental restoration activity that involves either work not done within a permanent structure or the decommissioning of a facility with only low-level residual fixed radioactivity.	(1) Using the method in DOE-STD-1120-98 or successor document and (2) Using the provisions in 29 CFR 1910.120 (or 29 CFR 1926.65 for construction activities) for developing a Safety and Health Program and a site-specific Health and Safety Plan (including elements for Emergency Response Plans, conduct of operations, training and qualifications, and maintenance management).
(7) A DOE nuclear explosive facility and the nuclear explosive operations conducted therein.	Developing its documented safety analysis in two pieces: (1) A Safety Analysis Report for the nuclear facility that considers the generic nuclear explosive operations and is prepared in accordance with DOE-STD-3009, Change Notice No. 1, January 2000, or successor document and (2) A Hazard Analysis Report for the specific nuclear explosive operations prepared in accordance with DOE-STD-3016-99, Hazards Analysis Reports for Nuclear Explosive Operations, February 1999 or successor document.
(8) A DOE hazard category 3 nonreactor nuclear facility	Using the methods in Chapters 2, 3, 4, and 5 of DOE-STD-3009, Change Notice No. 1, January 2000, or successor document to address in a simplified fashion: (1) The basic description of the facility/activity and its operations, including safety structures, systems, and components; (2) A qualitative hazards analysis; and (3) The hazard controls (consisting primarily of inventory limits and safety management programs) and their bases.
(9) Transportation Activities	(1) Preparing a Safety Analysis Report for Packaging in accordance with DOE-O-460.1A, Packaging and Transportation Safety, October 2, 1996, or successor document and (2) Preparing a Transportation Safety Document in accordance with DOE-G-460.1-1, Implementation Guide for Use with DOE O 460.1A, Packaging and Transportation Safety, June 5, 1997, or successor document.
(10) Transportation and onsite of nuclear explosives, nuclear components, Naval nuclear fuel elements, Category I and Category II special nuclear materials, special assemblies, and other materials of national security.	(1) Preparing a Safety Analysis Report for Packaging in accordance with DOE-O-461.1, Packaging and Transportation of Materials of National Security Interest, September 29, 2000, or successor document and (2) Preparing a Transportation Safety Document in accordance with DOE-M-461.1-1, Packaging and Transfer of Materials of National Security Interest Manual, September 29, 2000, or successor document.

Note: SRS does not currently have any DOE nuclear explosive facilities. Therefore, item 7 in this table has no application at SRS.

**Table 4 – 10 CFR 830, Subpart B, Appendix A, Table 3**

Direct Extraction from 10 CFR 830, Subpart B, Appendix A, Table 3

For purposes of Table 2, * * *	Means * * *
(1) Deactivation	The process of placing a facility in a stable and known condition including the removal of hazardous and radioactive materials.
(2) Decontamination	The removal or reduction of residual radioactive and hazardous materials by mechanical, chemical, or other techniques to achieve a stated objective or end condition.
(3) Decommissioning	Those actions taking place after deactivation of a nuclear facility to retire it from service and includes surveillance and maintenance, decontamination, and/ or dismantlement.
(4) Environmental restoration activities	The process by which contaminated sites and facilities are identified and characterized and by which existing contamination is contained or removed and disposed.
(5) Generic nuclear explosive operation	A characterization that considers the collective attributes (such as special facility system requirements, physical weapon characteristics, or quantities and chemical/physical forms of hazardous materials) for all projected nuclear explosive operations to be conducted at a facility.
(6) Nuclear explosive facility	A nuclear facility at which nuclear operations and activities involving a nuclear explosive may be conducted.
(7) Nuclear explosive operation	Any activity involving a nuclear explosive, including activities in which main-charge, high-explosive parts and pits are collocated.
(8) Nuclear facility with a limited operational life	A nuclear facility for which there is a short remaining operational period before ending the facility's mission and initiating deactivation and decommissioning and for which there are no intended additional missions other than cleanup.
(9) Specific nuclear explosive operation	A specific nuclear explosive subjected to the stipulated steps of an individual operation, such as assembly or disassembly.
(10) Transition surveillance and maintenance activities	Activities conducted when a facility is not operating or during deactivation, decontamination, and decommissioning operations when surveillance and maintenance are the predominant activities being conducted at the facility. These activities are necessary for satisfactory containment of hazardous materials and protection of workers, the public, and the environment. These activities include providing periodic inspections, maintenance of structures, systems, and components, and actions to prevent the alteration of hazardous materials to an unsafe state.

Note: SRS does not currently have any DOE nuclear explosive facilities. Therefore, items 5, 6, and 7 in this table have no application at SRS.

**Table 5 – 10 CFR 830, Subpart B, Appendix A, Table 4**

Direct Extraction from 10 CFR 830, Subpart B, Appendix A, Table 4

As appropriate for a particular DOE nuclear facility, the section of the technical safety requirements on * * *	Will provide information on * * *
(1) Safety limits	The limits on process variables associated with those safety class physical barriers, generally passive, that are necessary for the intended facility function and that are required to guard against the uncontrolled release of radioactive materials. The safety limit section describes, as precisely as possible, the parameters being limited, states the limit in measurable units (pressure, temperature, flow, etc.), and indicates the applicability of the limit. The safety limit section also describes the actions to be taken in the event that the safety limit is exceeded. These actions should first place the facility in the safe, stable condition attainable, including total shutdown (except where such action might reduce the margin of safety) or should verify that the facility already is safe and stable and will remain so. The technical safety requirement should state that the contractor must obtain DOE authorization to restart the nuclear facility following a violation of a safety limit. The safety limit section also establishes the steps and time limits to correct the out-of- specification condition.
(2) Operating limits	Those limits which are required to ensure the safe operation of a nuclear facility. The operating limits section may include subsections on limiting control settings and limiting conditions for operation.
(3) Limiting control settings	The settings on safety systems that control process variables to prevent exceeding a safety limit. The limited control settings section normally contains the settings for automatic alarms and for the automatic or nonautomatic initiation of protective actions related to those variables associated with the function of safety class structures, systems, or components if the safety analyses show that they are relied upon to mitigate or prevent an accident. The limited control settings section also identifies the protective actions to be taken at the specific settings chosen in order to correct a situation automatically or manually such that the related safety limit is not exceeded. Protective actions may include maintaining the variables within the requirements and repairing the automatic device promptly or shutting down the affected part of the process and, if required, the entire facility.
(4) Limiting conditions for operations	The limits that represent the lowest functional capability or performance level of safety structures, systems, and components required to perform an activity safely. The limiting conditions for operation section describes, as precisely as possible, the lowest functional capability or performance level of equipment required for continued safe operation of the facility. The limiting conditions for operation section also states the action to be taken to address a condition not meeting the limiting conditions for operation. Normally this simply provides for the adverse condition being corrected in a certain time frame and for further action if this is impossible.
(5) Surveillance requirements	Requirements relating to test, calibration, or inspection to assure that the necessary operability and quality of safety structures, systems, and components is maintained, that facility operation is within safety limits, and that limiting control settings and limiting conditions for operation are met. If a required surveillance is not Successfully completed, the Contractor is expected to assume the systems or components involved are inoperable and take the actions defined by the technical safety requirement until the systems or components can be shown to be operable. If, however, a required surveillance is not performed within its required frequency, the contractor is allowed to perform the surveillance within 24 hours or the original frequency, whichever is smaller, and confirm operability.
(6) Administrative controls	Organization and management, procedures, record keeping, assessment, and reporting necessary to ensure safe operation of a facility consistent with the technical safety requirement. In general, the administrative controls section addresses (1) the requirements associated with administrative controls, (including those for reporting violations of the technical safety requirement); (2) the staffing requirements for facility positions important to safe conduct of the facility; and (3) the commitments to the safety management programs identified in the documented safety analysis as necessary components of the safety basis for the facility.
(7) Use and application provisions	The basic instructions for applying the safety restrictions contained in a technical safety requirement. The use and application section includes definitions of terms, operating modes, logical connectors, completion times, and frequency notations.
(8) Design features	Design features of the facility that, if altered or modified, would have a significant effect on safe operation.
(9) Bases appendix	The reasons for the safety limits, operating limits, and associated surveillance requirements in the technical safety requirements. The statements for each limit or requirement shows how the numeric value, the condition, or the surveillance fulfills the purpose derived from the safety documentation. The primary purpose for describing the basis of each limit or requirement is to ensure that any future changes to the limit or requirement is done with full knowledge of the original intent or purpose of the limit or requirement.

**Table 6 – ANSI N323A-1997, Standard Conditions**

Direct Extraction from ANSI N323A-1997, Table 1

<b>Influence quantities</b>	<b>Acceptable range for standard test conditions</b>
Warm-up time	>1 min or manufacturer's specification
Relative humidity	Ambient $\pm 10\%$ , not to exceed 75%
Ambient temperature	20-24 °C
Atmospheric pressure	70-106 kPa
Background ambient photon radiation (external)	2.5% of full scale of the range or decade under test, but nominally should not exceed 0.5 $\mu\text{Gy/h}$ (50 $\mu\text{rad/h}$ ), referenced to air
Non-ionizing electromagnetic field of external origin	Less than 50% of the lowest value that causes interference
Magnetic induction of external origin	Less than twice the induction due to the earth's magnetic field
Controls	Set for normal operation per site procedure or manufacturer's recommendations
Contamination by radionuclides	Contamination shall be low and should be less than limits for total activity listed in NRC Reg. Guide 1.86 [B20]
Reference point	Effective center <sup>a</sup>

<sup>a</sup> For larger area beta or alpha detectors, the detector source response factor should be based on contact with the detector "face."

**Table 7 – ANSI N323A-1997, Calibration field accuracies <sup>a</sup> and quantities**

Direct Extraction from ANSI N323A-1997, Table 3

Radiation type	Accuracy (%)	Quantity
Gamma	5	Deep dose equivalent
X-Ray	5	Deep dose equivalent
Neutron	10	Deep dose equivalent
Beta	10	Shallow dose equivalent
Alpha contamination	10	Activity/unit area
Beta contamination	10	Activity/unit area

<sup>a</sup> Accuracies are for dose rates greater than \*\*100  $\mu\text{Gy/h}$ , \*\*100  $\mu\text{Sv/h}$ , or  $10^3 \text{ Bq/cm}^2$  (10 mrad/h or  $6 \times 10^4 \text{ dpm/cm}^2$ ).

\*\* Note: Footnote above has been corrected to reflect the correct units. The original footnote in ANSI Table 3 is believed to contain incorrect units and has been modified to reflect the correct units. ANSI personnel have been notified of the incorrect units.

Table 8 - Deleted