No: Y74-800PD
Title: Facility Safety Program
Date: 09/05/2002
This program description specifies requirements, roles, and responsibilities for implementing the Facility Safety Program within BWXT Y-12.

BWXT Y-12, L.L.C.
Management Requirements

BWXT Y-12
Management Control

Subject: Facility Safety Program

W. Reid Williams /s/ — 9/6/2002
Program Description Written by — Date

Approvals: [Approval Signatures on File]

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09/20/2002
Effective Date

Reaffirm Date

This document has been reviewed by a Y-12 ADC/ UCNI RO and has been determined to be UNCLASSIFIED and contains no UCNI. This review does not constitute clearance for Public Release.

Name W. H. Moon Jr. /s/ Date 9-6-02

Subject: Facility Safety Program

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REVISION LOG

Revision Date	Description of Change	Pages Affected
09/05/2002	DM/R: FSD-2001-13: Complete revision. Intent revisions to: — Reflect revision of the Facility (Nuclear) Safety S/RID re: 10 CFR 830 and revised non-nuclear safety basis requirements as well as submitted cancellation of the ED&C WSS — Require participation of Facility Safety Engineering in the preparation of safety basis documents (Steps I.F.1) — Implement DM/R FSD-2000-18 (Steps I.C.4 and I.D.1) Non-intent revisions to: — Reflect organizational changes and consequent realignment of Facility Safety Program responsibilities — Incorporate Blue Sheet changes Editorial changes: — authorization basis to safety basis (definition change reflecting 10 CFR 830 usage) — hazard identification to hazardous material identification (in context of Y74-801INS) — Emergency Management Organization to Emergency Management Program Organization — other miscellaneous changes	All
11/01/2000 (effective date)	Blue Sheet: Non-intent contract-change related revisions re: company name and position titles.	Blue Sheet
—	DM/R: FSD-2000-18: Intent revision to address, in part, Judgement of Need G.2 from the NaK Type A investigation report. [*DM/R FSD-2000-18 is implemented in 09/05/2002 revision.*]	—

Earlier Revisions on Record

Subject: Facility Safety Program

SCOPE

This program description specifies requirements, roles, and responsibilities for implementing the Facility Safety Program within BWXT Y-12. The Facility Safety Program applies primarily to operations involving significant nuclear and/or chemical hazards and is focused on the prevention and mitigation of accidents which have potentially significant consequences. To meet the primary focus of the program, all BWXT Y-12 activities are subject to hazardous material identification and facility classification processes. Facilities exceeding specified thresholds are required to develop, maintain, and operate within controls established through defined safety analysis processes. Remaining facilities must constrain operations within material limits established during the hazardous material identification process or repeat the identification and facility classification processes before exceeding the established limits.

Section I, Program Implementation, identifies actions for implementing the Facility Safety Program.

Section II, Facility Classification, provides the basis for determining the extent of applicability of the Facility Safety Program to specific facilities.

REQUIREMENTS

The Facility Safety Program implements Requirements identified in Chapter 18, "Facility (Nuclear) Safety," of the BWXT Y-12 Standards/Requirements Identification Document (S/RID). The requirements implemented by the Facility Safety Program were selected from the following federal regulations:

10 CFR 830, *Nuclear Safety Management*, Subpart B, "Safety Basis Requirements"
29 CFR 1910.119, *Process Safety Management of Highly Hazardous Chemicals* [1]
40 CFR 68, *Chemical Accident Prevention Provisions* [2]

The requirements derived from the Code of Federal Regulations are augmented by additional non-nuclear safety basis requirements negotiated between BWXT Y-12 and the Department of Energy (DOE).

BWXT Y-12 operations are also subject to the contractual requirements of Integrated Safety Management. This Program Description is consistent with BWXT Y-12 Integrated Safety Management Program.

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[1] 29 CFR 1910.119 is commonly known as the Process Safety Management (PSM) Rule.
[2] 40 CFR 68 is commonly known as the Risk Management Plan (RMP) Rule.

Subject: Facility Safety Program

I. PROGRAM IMPLEMENTATION / ROLES AND RESPONSIBILITIES

The Facility Safety Engineering Manager has primary responsibility as Functional Area Manager to establish and oversee the Facility Safety Program.

The Facility Safety Engineering organization has been delegated responsibility to establish and maintain appropriate methodologies for performing safety analyses and preparing safety basis documents to meet the requirements of the Facility Safety Program. Facility Safety Engineering has primary responsibility for implementing these methods on behalf of Line Management.

Directors and Line Management are responsible for ensuring the preparation, implementation, and maintenance of safety basis and appropriate precursor documents. All operations shall be conducted within the controls established in the safety basis documents or recognized in precursor documents.

Specific roles and responsibilities are outlined below.

A. Directors

[1] Inform DOE of risks identified in safety basis documents and commit BWXT Y-12 to operate in compliance with procedures, limitations, and other commitments specified therein.

[2] Ensure programmatic responsibilities of Line Management identified in this section are implemented in their respective organizations.

[3] Ensure facilities are classified per Section II of this Program Description.

[4] May designate non-nuclear facilities as Chemically Hazardous and, therefore, subject to the requirements of the Facility Safety Program (see II.C.2).

[5] Ensure hazardous material identification and safety basis documents are prepared and maintained current in accordance with

- Y74-801INS, *Hazardous Material Identification*,
- Y74-802, *Safety Basis Documents for Nuclear, PSM/RMP, and Chemically Hazardous Facilities*,
- Y74-803, *Change Evaluation / Major Change Determination*, and
- Y74-809, *Unreviewed Safety Question Determinations*.

[6] Authorize the operation of hazardous facilities and activities following any DOE approvals.

Subject: Facility Safety Program

I. PROGRAM IMPLEMENTATION / ROLES AND RESPONSIBILITIES (cont.)

B. Director, Engineering and Technology

[1] Serve as Executive Manager for the Facility Safety Program in accordance with Y15-058INS, *Requirements Compliance Assurance Program*.

[2] Oversee compliance with the requirements of the Facility Safety Program.

[3] Ensure that Facility Safety issues are considered by Directors in long-range planning, budgeting, and integrated resource management plans.

[4] Advise the General Manager and other Directors of the status and adequacy of the implementation of the Facility Safety Program.

C. Facility Safety Engineering Manager (as Facility Safety Functional Area Manager)

[1] Serve as Functional Area Manager for Facility Safety in accordance with Y15-058INS.

[2] Establish safety basis policy to ensure nuclear and hazardous chemical activities are performed safely and in accordance with facility safety requirements.

[3] Maintain cognizance of new requirements and changes to existing regulations and directives affecting the Facility Safety program; evaluate applicability and impacts, and implement as appropriate.

[4] Prepare company-level management requirements and approve all lower-tier management requirements which implement the Facility Safety Program.

[5] Concur on content, accuracy, and overall quality of safety basis documents.

[6] Serve as the primary interface position with internal and external organizations and agencies on safety basis policy and programmatic issues.

Examples of coordination activities include:

- serving as the primary BWXT Y-12 point of contact for Facility Safety programmatic and policy matters and as a representative on Y-12, DOE, and other consensus committees;
- coordinating BWXT Y-12 response to Facility Safety issues and requests for information that impact multiple operating organizations.

Subject: Facility Safety Program

I. PROGRAM IMPLEMENTATION / ROLES AND RESPONSIBILITIES (cont.)

C. Facility Safety Engineering Manager (as ... Functional Area Manager) (cont.)

[7] If any facility is classified as PSM/RMP per Section II on the basis of meeting any criterion from 29 CFR 1910.119(a) and/or 40 CFR 68.130, then, as appropriate:

- Ensure development and integration of process safety management and risk management program elements of 29 CFR 1910.119 and 40 CFR 68 into appropriate management requirements.
- Prepare (or update if a plan has already been prepared) the Risk Management Plan for submittal to the Environmental Protection Agency.
- Update the Risk Management Plan every five years, or sooner if required by 40 CFR 68.190(b) for newly regulated substances.

[8] Effect improvement in safety basis processes and the quality of products.

[9] Maintain the Safety Basis List.

[10] Advise senior management on the status of safety basis processes.

D. Facility Safety Engineering Manager (as organizational manager)

[1] Develop organization-level management requirements and other processes [e.g., Key Input and Assumptions Panel], as necessary, to ensure conformity in the preparation of safety basis documents. (Organizational-level management requirements shall be approved by the Facility Safety Functional Area Manager). DOE approval is required if methodologies applied to Nuclear facilities depart from those set forth in Appendix A, Table 2, of 10 CFR 830, Subpart B.

The analysis and documentation processes outlined in the organization-level management requirements documents shall reflect, as appropriate, requirements contained in the S/RID and guidance contained in the following documents:

DOE-STD-1021-93 Change Notice No. 1 Reaffirmed with Errata	*Natural Phenomena Hazard Performance Characterization Guidelines for Structures, Systems and Components*
DOE-STD-1027 Change Notice No. 1	*Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*
DOE-STD-3009-94 Change Notice No. 1	*Preparation Guide for U.S. DOE Nonreactor Nuclear Facility Safety Analysis Reports*

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Subject: Facility Safety Program

I. PROGRAM IMPLEMENTATION / ROLES AND RESPONSIBILITIES (cont.)

D. Facility Safety Engineering Manager (as organizational manager) (cont.)

[1] (cont.) ...

DOE-STD-3011-94	*Guidance for Preparation of DOE 5480.22 (TSR) and DOE 5480.23 (SAR) Implementation Plans*
DOE G 423.1-1, Chapter 5	*Implementation Guide For Use In Developing Technical Safety Requirements*, "Acceptable Methods"
—	*Guidelines for Hazard Evaluation Procedures Second Edition with Worked Examples*, Center for Chemical Process Safety, American Institute of Chemical Engineers, New York, 1992
—	*Plant Guidelines for Technical Management of Chemical Safety*, Center for Chemical Process Safety, American Institute of Chemical Engineers, New York, 1992

[2] Prepare and revise Facility Safety documents, including facility classification, safety basis, and related supporting documents at the request of Line Management.

[3] Coordinate and oversee the independent review of technical basis documents supporting safety basis documents for hazardous facility operations.

[4] Advise senior management on the status of Facility Safety documents.

E. Facility Safety Engineering Manager and Line Management

[1] Develop cost estimates and schedules for the preparation of safety basis documents and obtain funding. Table 1 identifies regulatory and other requirements impacting schedule.

[2] Identify key participants from the line organization and from Facility Safety Engineering to coordinate preparation of safety basis documents and supporting analyses. Further requirements for participants on hazard analysis teams, etc., are provided in Y74-802, *Safety Basis Documents for Nuclear, PSM/RMP, and Chemically Hazardous Facilities*, and Facility Safety Engineering management requirements.

F. Line Management

[1] Implement the Facility Safety documentation program in accordance with

- Y74-800PD, Section II, "Facility Classification,"
- Y74-801INS, *Hazardous Material Identification*,

... (continued on next page)

Subject: Facility Safety Program

I. PROGRAM IMPLEMENTATION / ROLES AND RESPONSIBILITIES (cont.)

Table 1. Regulatory and Other Requirements Impacting Schedules for Preparing Safety Basis Documents

Facility / Condition	Scheduling Requirements
New facilities (unless Below Facility Safety Thresholds) and Major Modifications to Nuclear Facilities	DOE approval of preliminary safety basis documents required prior to procurement/construction, with limited DOE-approved exceptions. DOE approval of safety basis documents required prior to introduction of covered materials.
Existing Nuclear Facilities	Submit safety basis documents for approval by April 10, 2003; DOE approval of an exemption is required for later submittal.
Facilities in transition to operations requiring DOE approval of safety basis or a higher level safety basis	Obtain DOE approval of safety basis documents or of revised safety basis documents prior to introducing covered materials above thresholds.
Existing facilities which become subject to 40 CFR 68 due to the listing of a substance or a change in a threshold quantity	Prepare/revise safety basis document within three years after the date on which a regulated substance is first listed under 40 CFR 68.130, or before the regulated substance is first present above a threshold quantity in a process, if later.

F. Line Management (cont.)

[1] (cont.) ...

- Y74-802, *Safety Basis Documents for Nuclear, PSM/RMP, and Chemically Hazardous Facilities,*
- Y74-803, *Change Evaluation / Major Change Determination*
- Y74-809, *Unreviewed Safety Question Determinations*.

Section II of this Program Description provides screening criteria to determine Facility Classifications. Figure 1 summarizes the screening process and the applicability of Y74-801INS, Y74-802, Y74-803, and Y74-809.

Facility Safety Engineering maintains technical expertise for the company in the areas of hazardous materials identification, facility classification, preparation of safety analyses

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Subject: Facility Safety Program

I. PROGRAM IMPLEMENTATION / ROLES AND RESPONSIBILITIES (cont.)

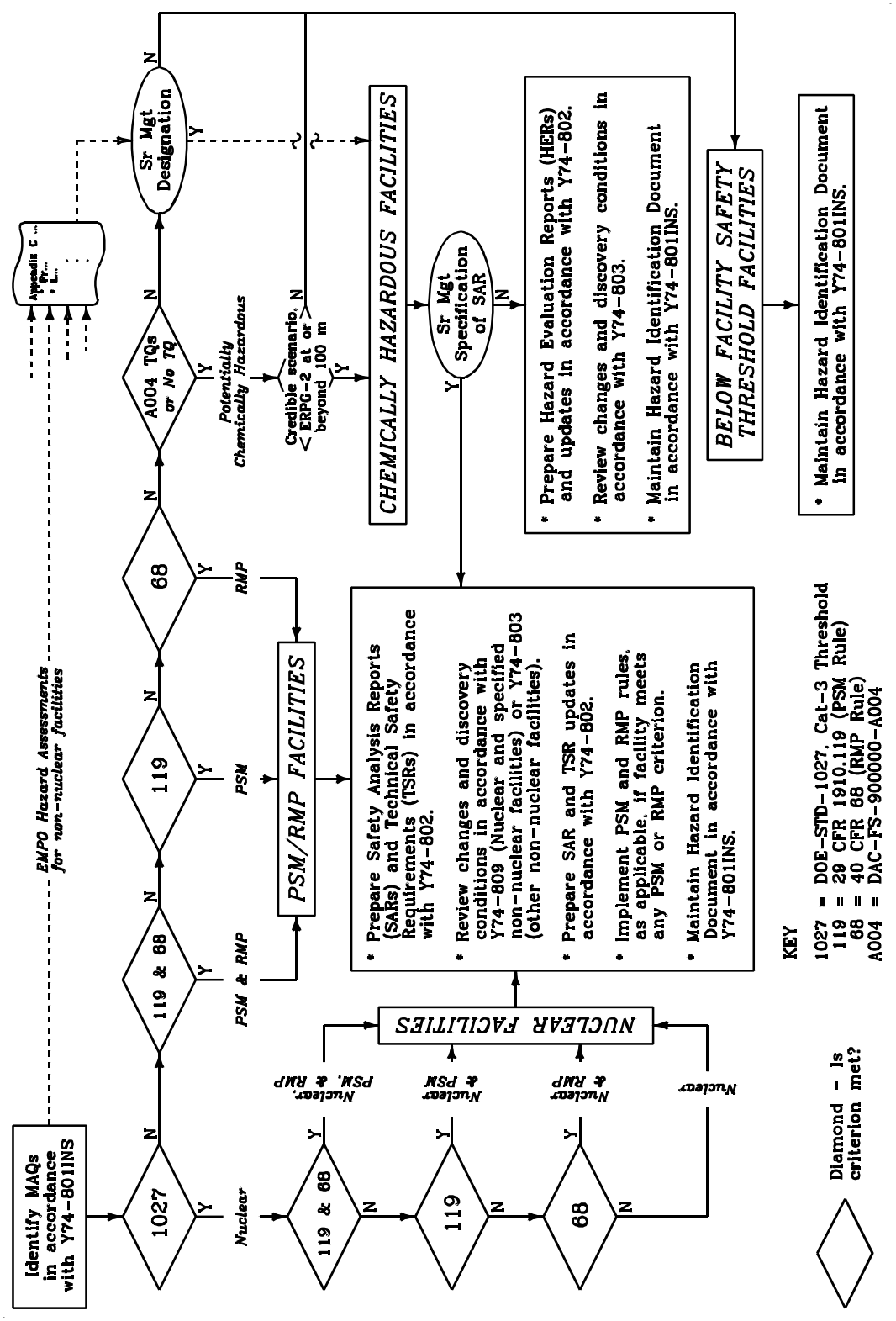

Fig. 1. Summary of Facility Classification and Safety Basis Documentation Requirements.

Subject: Facility Safety Program

I. PROGRAM IMPLEMENTATION / ROLES AND RESPONSIBILITIES (cont.)

F. Line Management (cont.)

[1] (cont.) ... and safety basis documentation, and application of the USQD process. While Line Management is responsible to ensure that applicable documents identified in the Y74-series are prepared, are accurate, and are complied with, Facility Safety Engineering is responsible for ensuring consistent development of safety basis documents in accordance with agreed-upon schedules. Therefore, preparation of safety basis documents is a joint effort of Line Management and Facility Safety Engineering.

[2] Ensure operations are conducted in accordance with DOE-approved safety basis documents, including approved changes to safety basis documents which address implemented changes to the facility or facility operations.

[3] Ensure DOE approval of a Preliminary Safety Analysis Report (PSAR) (see Y74-802) is received prior to procurement and/or construction associated with a major modification in a Nuclear facility. DOE may approve limited procurement and/or construction activities prior to approval of the PSAR. Operation of the major modification requires DOE approval of applicable safety basis document(s).

[4] Ensure procedures for operating conditions (e.g., normal, abnormal, and emergency operations), including maintenance and surveillance requirements, are established, maintained, and followed to reflect the commitments in the safety basis.

[5] Ensure operational safety and future decommissioning are considered early in the design of new facilities and operations, as well as in modifications.

[6] Maintain information on radioactive and hazardous materials inventories (see Y74-801INS).

[7] Periodically compare actual inventories to the various inventory systems, as appropriate, and against operational limits—specifically, maximum anticipated quantities (MAQs) established by the hazardous material identification process specified in Y74-801INS. If actual inventories exceed MAQs, address this situation as a discovery condition in accordance with the appropriate unreviewed safety question determination (USQD) or change evaluation process for the facility. If a facility is a Below Facility Safety Threshold Facility, evaluate what its classification should be in accordance with Section II of this Program Description, then address the discovery condition per the appropriate USQD or change evaluation process.

[8] Review facility classification in accordance with Section II whenever a proposed change in facility operations would increase the MAQs of radioactive or hazardous materials, including the introduction of new materials not previously evaluated.

Subject: Facility Safety Program

I. PROGRAM IMPLEMENTATION / ROLES AND RESPONSIBILITIES (cont.)

F. Line Management (cont.)

[9] Ensure the Configuration Management program preserves the safety basis in accordance with Y15-187, *Integrated Safety and Change Control Process*.

The change control process described in Y15-187 will ensure changes are properly identified, developed, revised, approved, implemented, and documented. The process applies to physical configuration changes as well as document-only changes and will ensure an Integrated Safety Management approach to change control as defined by the Integrated Safety Management Program.

[10] Implement requirements of Safety Management Programs (e.g., Nuclear Criticality Safety, Radiological Control, Industrial Hygiene, Fire Protection, Emergency Management, etc.), as appropriate, in facilities under their authority and as outlined, summarized, and described in the associated safety basis documents.

[11] Terminate or restrict hazardous operations (1) if found to be outside their safety basis, (2) if so instructed by DOE, the General Manager, or the responsible Director, or (3) if an employee exercises Stop Work Authority.

[12] Ensure long-range planning, budgeting, and integrated resource management adequately consider Facility Safety issues, preparation of safety basis documents, upgrades, and backfits.

G. Document Management Centers

NOTE ... Document Management Centers (DMCs) are established by various organizations. Filing locations for document record copies are generally associated with the organization responsible for the preparation of the documents. Typically, DMCs associated with Line organizations will file safety basis documents, while the Facility Safety Engineering and Engineering and Technology DMCs will file supporting documents.

[1] Maintain record copies of Facility Safety documents and ensure timely, appropriate distribution of approved documents in accordance with Y15-102, *Document Control*, and Facility Safety company- and organization-level management requirements

H. All Employees

[1] Exercise Stop Work Authority upon recognition of unsafe conditions.

Subject: Facility Safety Program

II. FACILITY CLASSIFICATION

A. Applicability

[1] All new facilities beginning operations after the effective date of this program description shall be classified in accordance with this section.

[2] This section shall be applied to existing facilities when there is a change in the scope of operations which necessitates an increase in MAQs, including the introduction of materials not previously evaluated.

[3] For existing facilities having safety basis documents, it is appropriate to review the bases for classification as part of the periodic update thereof.

B. Inventory Based Classification

Facility Safety Engineering Manager

NOTE ... Threshold quantities meeting the criterion of Step 1 are listed in *Y-12 Generic Threshold Analysis for Consequence Comparisons,* DAC-FS-900000-A004, Appendix B, "Hazard Screening Threshold Quantities."

[1] Establish and maintain a list of threshold quantities that would result in releases meeting ERPG-2 or equivalent values at or beyond 100 m. These quantities shall be consistent with screening thresholds used to identify chemicals requiring hazard evaluation pursuant to the preparation of safety basis documents for Nuclear and PSM/RMP facilities.

Line Management

[2] For assistance in establishing MAQs and evaluating facility classifications, contact the Facility Safety Engineering Manager.

[3] Identify MAQs of radioactive and hazardous materials in accordance with Y74-801INS.

NOTE ... For the purposes of the Facility Safety Program, identifying a facility as Nuclear implies a Category 1, 2, or 3 Nuclear facility. 10 CFR 830, Subpart B, which is a primary source of requirements for the Facility Safety Program applies to Nuclear facilities in this context. It is recognized that 10 CFR 830, Subpart A, "Quality Assurance Requirements," applies more broadly, with the term "nuclear facilities" encompassing facilities with quantities of radioactive materials below Category 3 thresholds.

[4] Evaluate MAQs for facilities having radioactive materials in accordance with DOE-STD-1027-92. Any facility identified as Category 1, 2, or 3 per DOE-STD-1027-92 is classified as Nuclear.

Subject: Facility Safety Program

II. FACILITY CLASSIFICATION (cont.)

B. Inventory Based Classification (cont.)

Line Management (cont.)

[5] Compare the MAQs of hazardous materials to the criteria in 29 CFR 1910.119(a) and 40 CFR 68.130. Any facility meeting any criterion in 29 CFR 1910.119(a) or 40 CFR 68.130 is classified as "PSM/RMP."

Because 29 CFR 1910.119 and 40 CFR 68 have many parallel requirements, facilities subject to either or both regulations are grouped together in a single classification. Safety documentation should clearly reflect the basis for the PSM/RMP classification.

[6] If a facility is not classified as Nuclear or PSM/RMP, compare the MAQs of hazardous materials to the threshold quantities determined in Step 1 (i.e., threshold quantities in DAC-FS-900000-A004, Appendix B). If any MAQ meets or exceeds these thresholds or a threshold has not been established for any of the chemicals having an MAQ, the facility is potentially a Chemically Hazardous facility. All materials meeting or exceeding the thresholds or having no threshold shall be identified for consideration in subsequent evaluations for potentially Chemically Hazardous facilities.

NOTE ... All facilities that are identified as Nuclear, PSM/RMP, or Chemically Hazardous will prepare safety basis documents in accordance with Y74-802. The next step is written in the context of the classification process which is not yet complete if the facility is potentially Chemically Hazardous.

[7] If a facility is not Nuclear and/or PSM/RMP, but is potentially a Chemically Hazardous facility, initiate the safety analysis process in Y74-802, Section I. If credible accident scenarios are identified for a potentially Chemically Hazardous facility that would result in unmitigated releases meeting or exceeding ERPG-2 or equivalent values at or beyond 100 m, then the facility is classified as Chemically Hazardous.

[8] If a facility has not been classified as Nuclear, PSM/RMP, or Chemically Hazardous, it is Below Facility Safety Thresholds.

[9] Document the results of Steps 4 through 8:

[a] Appendix B provides guidance for documenting classification results for a facility that is Below Facility Safety Thresholds. The classification document shall be approved by the Operations Manager for the facility (or the individual so designated in accordance with Y74-801INS, Sect. A) and by the Facility Safety Engineering Manager. Documentation shall include or reference the Hazardous Material Identification Document and applicable changes prepared in accordance with Y74-801INS (see Step 3).

... (continued on next page)

II. FACILITY CLASSIFICATION (cont.)

B. Inventory Based Classification (cont.)

Line Management (cont.)

[9] (cont.) ...

[b] For Nuclear, PSM/RMP, and Chemically Hazardous facilities, incorporate results of the classification process in the appropriate safety basis document (see Y74-802, which also identifies safety basis document approval requirements).

[10] File a record copy of the documentation prepared in Step 9.a with the facility DMC and provide a copy to the Facility Safety DMC.

C. Management Discretion

Facility Safety Engineering Manager

[1] If deemed appropriate, based on factors presented in Appendix C, recommend to the appropriate Director the classification of a facility as Chemically Hazardous.

Directors

[2] May designate a facility not otherwise classified above as Chemically Hazardous. Appendix C identifies factors to consider in determining whether to designate a facility as Chemically Hazardous. If a facility is designated Chemically Hazardous, then formally notify the affected Line Management and the Facility Safety Engineering Manager of that designation and the rationale for the designation.

[3] May specify that a Safety Analysis Report (SAR) be prepared for a Chemically Hazardous Facility. If the preparation of a SAR is specified for a Chemically Hazardous Facility, then formally notify the affected Line Management and the Facility Safety Engineering Manager of that specification.

[4] May specify that Y74-809, *Unreviewed Safety Question Determination*s, be applied to non-nuclear facilities that have SARs (i.e., all PSM/RMP facilities and those Chemically Hazardous facilities specified in Step 3). In the absence of such specification, Y74-803, *Change Evaluation / Major Change Determination*, is applicable. If Y74-809 is specified for application to a non-nuclear facility, then formally notify the affected Line Management and the Facility Safety Engineering Manager of that specification.

Subject: Facility Safety Program

RECORDS

Records shall be maintained in accordance with Y15-102 and applicable Facility Safety implementing procedures.

Documentation of facility classifications prepared pursuant to Step II.B.9.a shall be maintained by the DMC associated with the Line Management organization responsible for the facility.

REFERENCED DOCUMENTS

10 CFR 830, Subpart B	*Nuclear Safety Management*, "Safety Basis Requirements"
29 CFR 1910.119	*Process Safety Management of Highly Hazardous Chemicals*
40 CFR 68	*Chemical Accident Prevention Provisions*
DAC-FS-900000-A001	*Unclassified Hazardous Material Information for Use in Authorization Basis Documents*
DAC-FS-900000-A004	*Y-12 Generic Threshold Analysis for Consequence Comparisons*
DOE-STD-1021-93 Change Notice 1 Reaffirmed with Errata	*Natural Phenomena Hazard Performance Characterization Guidelines for Structures, Systems and Components*
DOE-STD-1027 Change Notice 1	*Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*
DOE-STD-3009-94 Change Notice 1	*Preparation Guide for U.S. DOE Nonreactor Nuclear Facility Safety Analysis Reports*
DOE-STD-3011-94	*Guidance for Preparation of DOE 5480.22 (TSR) and DOE 5480.23 (SAR) Implementation Plans*
DOE G 423.1-1, Chapter 5	*Implementation Guide For Use In Developing Technical Safety Requirements*, "Acceptable Methods"
Y15-058INS	*Requirements Compliance Assurance Program*
Y15-102	*Document Control*
Y15-187	*Integrated Safety and Change Control Process*
Y74-801INS	*Hazardous Material Identification*
Y74-802	*Safety Basis Documents for Nuclear, PSM/RMP, and Chemically Hazardous Facilities*
Y74-803	*Change Evaluation / Major Change Determination*

Subject: Facility Safety Program

REFERENCED DOCUMENTS (cont.)

Y74-809	*Unreviewed Safety Question Determinations*
—	*Guidelines for Hazard Evaluation Procedures Second Edition with Worked Examples*, Center for Chemical Process Safety, American Institute of Chemical Engineers, New York, 1992
—	*Plant Guidelines for Technical Management of Chemical Safety*, Center for Chemical Process Safety, American Institute of Chemical Engineers, New York, 1992

Appendix A. ACRONYMS AND DEFINITIONS

BIO	Basis for Interim Operation document
CFR	Code of Federal Regulations
DMC	Document Management Center
DOE	Department of Energy
HER	Hazard Evaluation Report
MAQ	maximum anticipated quantity
OSR	Operational Safety Requirements
PSAR	Preliminary Safety Analysis Report
PSM	Process Safety Management
PSM/RMP	a facility classification which is a composite of the PSM and RMP acronyms; the individual acronym meanings are not spelled out when used in this manner
RMP	Risk Management Plan
SAR	Safety Analysis Report
SER	Safety Evaluation Report
S/RID	Standards/Requirements Identification Document
TSR	Technical Safety Requirements (either the document containing the requirements or the requirements themselves, depending on context)
USQ	Unreviewed Safety Question
USQD	Unreviewed Safety Question Determination

Accident ... an unplanned sequence of events that results in undesirable consequences.

Basis for Interim Operation (BIO) ... the interim safety basis document for a nuclear facility. The BIO summarizes and references existing information and, where necessary, generates new information. The BIO will serve as the safety basis for a facility until a SAR and TSR meeting the requirements of this procedure are approved by DOE and implemented by the facility or, if approved by DOE, until a facility with a short remaining life is shut down.

Change ... any temporary or permanent modification to a facility, operation, or procedure; tests or experiments; errors, omissions, and inadequacies; previously undiscovered conditions; operational incidents; results of new analysis or reanalysis that deviate from those described in the safety analyses or that could reduce existing margins of safety; modifications to documentation to make it agree with the as-built condition; and use-as-is nonconformance dispositions.

Chemically Hazardous Facility ... for safety analysis purposes, any facility classified or designated as such per Section II of this Program Description.

Hazard ... a source of danger (i.e., material, energy source, or operation) with the potential to cause illness, injury, or death to personnel or damage to the environment (without regard to the likelihood or credibility of accident scenarios or consequence mitigation).

Subject: Facility Safety Program

Hazard Evaluation Report (HER) ... the primary safety basis document for a Chemically Hazardous facility which identifies potential hazards and controls (see Y74-802).

Major Change ... any physical or administrative change that invalidates the hazard evaluations and conclusions presented in a non-nuclear safety basis document.

Major Modification ... A change involving a USQ that would result in a substantial revision to the existing safety basis for a facility. A recommendation to DOE for considering a change as a major modification is coordinated through the Facility Safety Engineering Manager.

Nuclear Facility ... for safety analysis purposes, any facility identified as Category 1, 2, or 3 per DOE-STD-1027-92.

Operational Safety Requirements (OSRs) ... existing documents serving a role analogous to and being utilized until replaced by TSRs (see Technical Safety Requirements).

PSM/RMP Facility ... for safety analysis purposes, any facility subject to 29 CFR 1910.119 and/or 40 CFR 68.

Risk ... the quantitative or qualitative expression of possible loss that considers both the probability that an event will occur and the consequence of that event.

Safety Analysis Report (SAR) ... a report which documents the adequacy of safety analysis to ensure that a facility or process can be constructed, operated, maintained, shut down, and decommissioned safely and in compliance with applicable laws and regulations.

Safety Basis ... the DOE-approved documented safety analysis and hazard controls that provide reasonable assurance that a facility can be operated safely in a manner that adequately protects workers, the public, and the environment. Within the scope of Facility Safety, the safety basis is relied upon to authorize operation of a facility or activity.

The safety basis for a Nuclear facility includes a SAR or BIO, TSR or OSR (if applicable), information submitted by the contractor to support DOE-approval of any USQ or amendment to the TSRs, DOE SERs, and facility-specific commitments.

The safety basis for a non-nuclear facility includes a SAR or HER, DOE SERs, and facility-specific commitments. Hazard controls are documented within non-nuclear SARs and HERs. If a non-nuclear facility has a SAR, then information submitted to support DOE-approval of any USQ would also be a part of the safety basis.

Stop Work Authority ... the authority and responsibility of any employee to stop work that is considered to be a serious threat to the safety or health of workers, other personnel, or to the environment.

Subject: Facility Safety Program

Technical Safety Requirements (TSRs) ... The limits, controls, and related actions that establish the specific parameters and requisite actions for the safe operation of a nuclear facility and include, as appropriate for the work and the hazards identified in the SAR (or BIO) for the facility: safety limits, operating limits, surveillance requirements, administrative and management controls, use and application provisions, and design features, as well as a bases appendix. Also, the report documenting technical safety requirements; for example, *Technical Safety Requirements for ...* .

Unreviewed Safety Question (USQ) ... a situation where

1. The probability of occurrence or the consequences of an accident or a malfunction of equipment important to safety previously evaluated in the safety basis could be increased;
2. The possibility of an accident or malfunction of a different type than any previously evaluated in the safety basis could be created;
3. A margin of safety could be reduced; or
4. The safety basis may not be bounding or may be otherwise inadequate.

Appendix B. FACILITY CLASSIFICATION DOCUMENTATION

This appendix provides guidance for stand-alone documentation supporting a "Below Facility Safety Threshold" facility classification. The documentation must address all materials for which MAQs are identified in the Hazardous Material Identification Document for the facility, and it must summarize and support the results, either by inclusion of appropriate analyses or by reference thereto. The applicable revision dates of regulations, standards, and other documentation used for Facility Classification should be referenced.

If a facility is initially identified as potentially Chemically Hazardous per Y74-800PD, Sect. II, and it is subsequently determined to be Below Facility Safety Thresholds pursuant to a safety analysis in accordance with Y74-802, Sect. I, then documentation of the results of the safety analysis supporting the conclusion that the facility is Below Facility Safety Thresholds is acceptable documentation.

Whether as a stand-alone document or a safety analysis justifying that a facility is Below Facility Safety Classification, the documentation shall be approved by the Operations Manager for the facility and by the Facility Safety Engineering Manager.

Radioactive Materials Section

The purpose of the radioactive materials section is to demonstrate that the sums-of-ratios determined pursuant to the application of DOE-STD-1027 are less than 1. A suggested table formatted for this purpose is provided below. It is not necessary to sum the quantities of specific isotopes in different locations prior to calculating quantity-to-threshold ratios since the final sum-of-ratios will properly determine the final value whether individual quantities are summed or not.

Isotope	**Location (optional)**	**Quantity**	**Category 3 Threshold**	**Quantity / TQ_3**	**Category 2 Threshold**	**Quantity / TQ_2**
Isotope 1	Facility					
Isotope 2	Location 1					
Isotope 2	Location 2					
⋮						
Sum-of-Ratios						

Subject: Facility Safety Program

Hazardous Materials Section

The purpose of the hazardous materials section is to demonstrate that MAQs are below or do not exceed TQs, as applicable. A suggested format for documenting that hazardous materials are present Below Facility Safety Thresholds is provided below. For this stand-alone facility classification document, location-specific MAQs for a specific material must be summed before the values are compared to the threshold quantities. Available PSM and RMP TQs (TQ_{PSM}s and TQ_{RMP}s) shall be identified, and TQs from DAC-FS-900000-A004, Appendix B, (TQ_{A004}s) must be identified for all materials. Check-off that the facility MAQs are below (<) or do not exceed (≤) the TQs as appropriate.

RECID	Hazardous Material	Location (optional)	MAQ	A004 TQ	✔ if MAQ < TQ_{A004}	PSM TQ	✔ if MAQ < TQ_{PSM}	RMP TQ	✔ if MAQ ≤ TQ_{RMP}
	Material 1	Facility							
	Material 2	Location 1							
	⋮								
	Material x	Location 1							
		Location 2							
		Facility Total							
	⋮								

Facility Classification Summary/Cover Page/Approval Page

The preceding sections and tables provide the basis for concluding a facility is Below Facility Safety Thresholds. The following page provides a suggested format for summarizing that information and approving it. The suggested format may also serve as a cover page.

Doc. No.

FACILITY CLASSIFICATION
facility identification

date

Revision Dates of Basis Documents

___/___/_____ Hazardous Materials Identification Document

___/___/_____ DOE-STD-1027

___/___/_____ 29 CFR 1910.119

___/___/_____ 40 CFR 68

___/___/_____ DAC-FS-900000-A004

Radioactive Materials Summary

Category 2 Sum-of-Ratios = _____

Category 3 Sum-of-Ratios = _____

Hazardous Materials Summary

☐ Hazardous materials for which PSM TQs exist have MAQs that are below PSM TQs

☐ Hazardous materials for which RMP TQs exist have MAQs that do not exceed RMP TQs

☐ There is a TQ for all hazardous materials in DAC-FS-900000-A004, Appendix B, **AND** all hazardous materials have MAQs less than those TQs

Facility Classification

Radioactive material sums-of-ratios are less than 1 and all hazardous material MAQs are appropriately below or do not exceed applicable TQs. Therefore, this facility is Below Facility Safety Thresholds.

Prepared by _____ Date _____

Approvals

Operations Manager _____ Date _____

Facility Safety
Engineering Manager _____ Date _____

Appendix C. FACTORS FOR DESIGNATING FACILITIES CHEMICALLY HAZARDOUS

Facilities not otherwise classified as Nuclear, PSM/RMP, or Chemically Hazardous may be candidates for designation as Chemically Hazardous facilities if they exhibit the following characteristics:

- Presence of hazardous materials identified in *Unclassified Hazardous Material Information for Use in Authorization Basis Documents*, DAC-FS-900000-A001.
- Large quantities of hazardous materials (e.g., near threshold quantities/concentrations already utilized for classification or large quantities of hazardous chemicals not included in those regulations).
- Energy input into hazardous materials (e.g., processing at high temperature and pressure compared with storage at ambient conditions).
- History of incidents or near misses involving the chemical or process.
- Potential for adverse health effects over a large area.
- Credible potential for off-site fatalities.
- Presence of specific equipment-based protection features (e.g., isolation or redundant containment).
- Co-location with other hazards that provide the potential for interaction.
- Potential to generate other chemical hazards (e.g., reactions that provide very toxic products).
- Issues involving incompatibility with other chemicals potentially or generally present (e.g., water reactive materials).
- Proximity to employee work locations or public access areas.
- A facility specific Emergency Management Hazards Assessment (EMHA) prepared by the Emergency Management Program Organization [assess against the Hazard Evaluation Study (HES, see Y74-802, Sect. I) for the facility, if an HES exists].