DOE/EH-23-USQ-2005-4

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USQ

Unreviewed Safety Question Activity Report 2005-4

Office of Facility Safety (EH-2)

Office of Environment, Safety and Health

October – December 2005

Helping the Field Succeed
with
Safe and Reliable Operations

U.S. Department of Energy

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Contents

Tables and Figures

Introduction

The Unreviewed Safety Question (USQ) process alerts the Department of Energy (DOE) to events, conditions, or actions that are not within the DOE-approved safety basis of a facility or operation and ensures appropriate DOE line management action. Figure 1 shows the steps in the USQ process.

Part of the mission and function of the Office of Facility Authorization Bases (EH-23), which is a part of the Office of Facility Safety (EH-2), is to maintain operational awareness of the Department's USQ activities. EH-23 staff members prepare a quarterly *USQ Activity Report* showing the status of USQs across the DOE complex. To prepare the activity report and develop complex-wide statistics and insights, staff members:

- review and analyze Occurrence Reporting and Processing System (ORPS) reports on USQs identified at DOE sites,
- determine the causes of USQs related to safety basis documents, and
- maintain a USQ database for monitoring and tracking purposes.

Since 2001, EH-23 has produced more than two dozen periodic reports and catalogued 310 USQs in a database. USQs identified from October 2005 through December 2005 are summarized in the current report.

USQ

Unreviewed Safety Question (USQ) means a situation where

(1) The probability of the occurrence or the consequences of an accident or the malfunction of equipment important to safety previously evaluated in the documented safety analysis could be increased;

(2) The possibility of an accident or malfunction of a different type than any evaluated previously in the documented safety analysis could be created;

(3) A margin of safety could be reduced; or

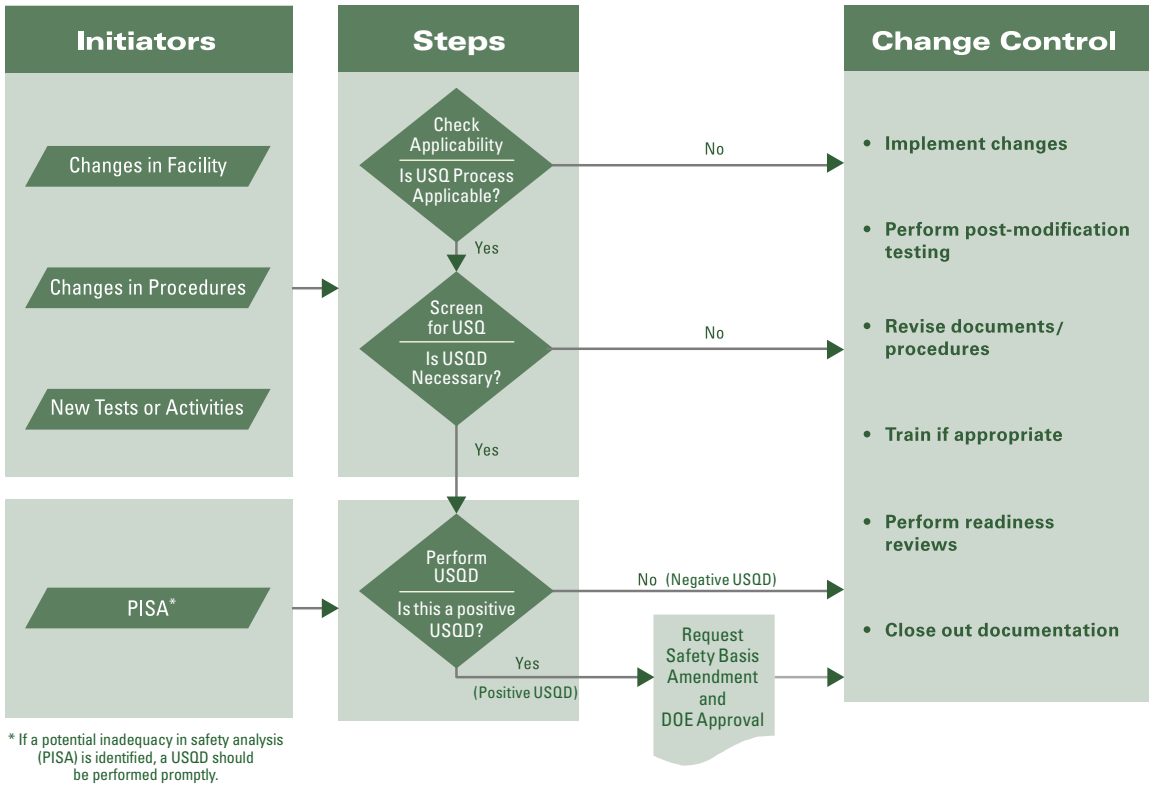
(4) The documented safety analysis may not be bounding or may be otherwise inadequate.

10 CFR 830.3

The existence of a USQ does not mean that the facility or operation is unsafe. The USQ process alerts DOE to events, conditions, or actions that affect the approved facility safety basis and ensures that DOE line management takes appropriate action.

Figure 1

Unreviewed Safety Question Process



Purpose of the USQ Process

The Unreviewed Safety Question process means the mechanism for keeping a safety basis current by reviewing potential unreviewed safety questions, reporting them to DOE, and obtaining approval from DOE prior to taking any action addressing them.

10 CFR 830.3

The USQ process is primarily applicable to the Documented Safety Analysis (DSA). The DSA must include conditions of approval in safety evaluation reports and facility specific commitments made in compliance with DOE Rules, Orders or Policies.

DOE G 424.1-1

Background

Requirements for USQs are detailed in Title 10, *Code of Federal Regulations* (CFR) Part 830.203, "Unreviewed Safety Question Process." They are as follows.

1. The contractor responsible for a hazard category 1, 2, or 3 DOE nuclear facility (hereafter referred to as contractor) must establish, implement, and take actions consistent with a USQ process that meets DOE requirements.
2. The contractor must implement the DOE approved USQ procedure when there is (a) temporary or permanent change in the facility, procedures, (b) test or experiment not described in the Documented Safety Analysis (DSA), or (c) a potential inadequacy of the DSA.
3. The contractor must obtain DOE approval prior to taking any action addressing any of the conditions in requirement 2 above.

DOE G 424.1-1, *Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements*, provides information to assist in implementation and interpretation of the Rule.

The existence of a USQ does not mean that the facility or the operation is unsafe. However, when a change is proposed or a condition is discovered that could increase the risk of operating a facility beyond what was established in the current safety basis, a potential USQ exists. The contractor then must prepare a USQD report. If the existence of USQ is confirmed, the contractor must submit the USQD report to the local DOE office, which reviews it for acceptability prior to issuing the approval, following which the safety basis document must be revised by the contractor.

USQD Document

An **Unreviewed Safety Question Determination** (USQD) document contains the review of a change or a situation where there is reason to believe that the facility's existing safety analysis may be in error or is otherwise inadequate. It records the scope of the determination and an explanation of the technical basis for the conclusions reached.

DOE G 424.1-1

Background (continued)

If more USQs are identified at one facility than at another, it does not indicate that the risk from operating that facility or site is greater. In fact, identifying a USQ that originates from a PISA provides an opportunity to correct past errors and indicates thoroughness in assessing the planned changes.

DOE M 231.1-2, *Occurrence Reporting and Processing of Operations Information*, requires that any USQ originating from a PISA must be reported to the Department's Occurrence Reporting and Processing System (ORPS). The EH-23 USQ Activity Report is based on a review of USQ information available in the ORPS database. Any USQ that is not reportable to ORPS (as defined in DOE M 231.1-2) is outside the scope of this report. This is not a limitation because the purpose of this report is to document required improvements to existing safety basis documents.

PISA

A **Potentially Inadequate Safety Analysis** (PISA) exists if the original analysis that supported the DOE-approved safety basis is not bounding or may be otherwise inadequate or inappropriate. The intent is to ensure that operations are conducted in a safe manner consistent with the safety basis. A PISA may result from (1) a discrepant as-found condition, (2) an operational event or incident, or (3) new information, including discovery of an error. The main consideration is that the analysis does not match the current physical configuration of the facility, or the analysis is inappropriate or contains errors.

DOE G 424.1-1

If a contractor responsible for a hazard category 1, 2, or 3 DOE nuclear facility discovers or is made aware of a potential inadequacy of the documented safety analysis, it must:

(1) Take action, as appropriate, to place or maintain the facility in a safe condition until an evaluation of the safety of the situation is completed;

(2) Notify DOE of the situation;

(3) Perform a USQ determination and notify DOE promptly of the results; and

(4) Submit the evaluation of the safety of the situation to DOE prior to removing any operational restrictions initiated.

10 CFR 830.203

Report Preparation

The EH-23 USQ Review Team searches the ORPS database, collects USQ data, and enters all critical items from the ORPS report in a table (Appendix A) that is prepared for each USQ. The team then assesses the completeness of the ORPS report and makes related observations. A list of positive, currently open USQs and any actions taken is maintained until the final ORPS reports are issued (Appendix B). The team determines the cause of each USQ (as related to the safety basis documents) using the codes shown in Table 1 (see Appendix C for details) and presents the information in a graphical format (Figures 2, 3a, and 3b). Contact with site personnel and site visits are made, as necessary, to obtain additional information and to validate the contents of the report.

Table 1

Definitions of Cause Codes*

Cause Code Description	Cause Code ID
Nonexistent Safety Document	A1
Unanalyzed Material Inventory	A2
Unanalyzed Material Properties	A3
Unaddressed Mission Change	A4
Unassessed Equipment Change	A5
Inadequate Safety System	A6
Unanalyzed Accident	A7
Lack of Depth/Details in Accident Scenario	B1
Inadequate or Flawed DSA Analysis	B2
Safety Program Deficiencies	B3
Equipment Malfunction/Failure	B4
Misapplication of DOE Standards	B5
Incorrect Accident Analysis	B6
Inadequacy of Controls	B7

* For more details, see Appendix C.

Summary of Results

Highlights of the positive USQDs reported from October 1, 2005, to December 31, 2005, are described below.

Albuquerque Operations – 5 Positive USQDs

Insufficient tie up between Basis of Interim Operations and the TSRs (NA--LASO-LANL-TA18-2005-0007), inadequate or flawed DSA analyses (NA-LASO-LANL-WASTEMGT-2005-0026, NA-PX-BWXP-PANTEX-2005-0142, and NA-PS-BWXP-PANTEX-131), and material properties not analyzed (NA-PS-BWXP-PANTEX-2005-0210).

Idaho Operations – 2 Positive USQDs

Inadequate safety analysis of hydrogen generation in CPP-666 FDP drums (EM-ID-CWI-FUELRCSTR-2005-0008) and an unanalyzed accident during hoisting and rigging (NE-ID--BEA-INLLABS-2005-0003) were discovered.

Oak Ridge Operations – 8 Positive USQDs

Unanalyzed accidents related to: Ohio and Kentucky UF6 Cylinders (EM--PPPO-UDS-PORTDUCON-2005-0003), relocation to tenant operations (EM-ORO--BJC-K25ENVRES-2005-0031), ETTP UF6 Cylinders (EM-ORO--BJC-K25GENLAN-2005-0012), and container deflagration in TRU storage (EM-ORO--BJC-X10WSTERMA-2005-0010).

Unanalyzed material inventory related to: C-749 Uranium Scrap (EM-PPPO-BJC-PGDPENVRES-2005-0008) and neutron conversion factor (EM-ORO--BJC-K25ENVRES-2005-0032).

Unanalyzed material properties related to: HSGS analysis of waste drums (EM-ORO-FWEC-TRUWPFAC-2005-002) and Phase Separator Function (NA--YSO-BWXT-Y12NUCLEAR-2005-0037).

Richland Hanford Site – 9 Positive USQDs

Unanalyzed accidents were found as follows: Estimate of consequences due to inadequate air flow (EM-RL--PHMC-PFP-2005-0030), unfiltered release of radioactivity not considered (EM-RL--PHMC-PFP-0031), formation of metallic plutonium eutectic not considered (EM-RL-PHMC-PFP-2005-0032), and plugging of HEPA filter not considered (EM-RP--CHG-TANKFARM-2005-0049).

Safety Analysis Report had inadequate safety analyses for the following: Vehicles containing gasoline were not analyzed (EM-RL-PHMC-FFTF-2005-0007), consequences for seismic incidents under estimated (EM-RL--PHMC-GENERAL-2005-0007), flammable gas build-up underestimated (EM-RL--PHMC-2005-0020), and seismic event consequences under estimated (SC--PNSO-PNNL-PNNLNUCL-2005-0012).

Potential for new accidents (EM-RP--CHG-TANKFARM-2005-0060).

Dominant Causes

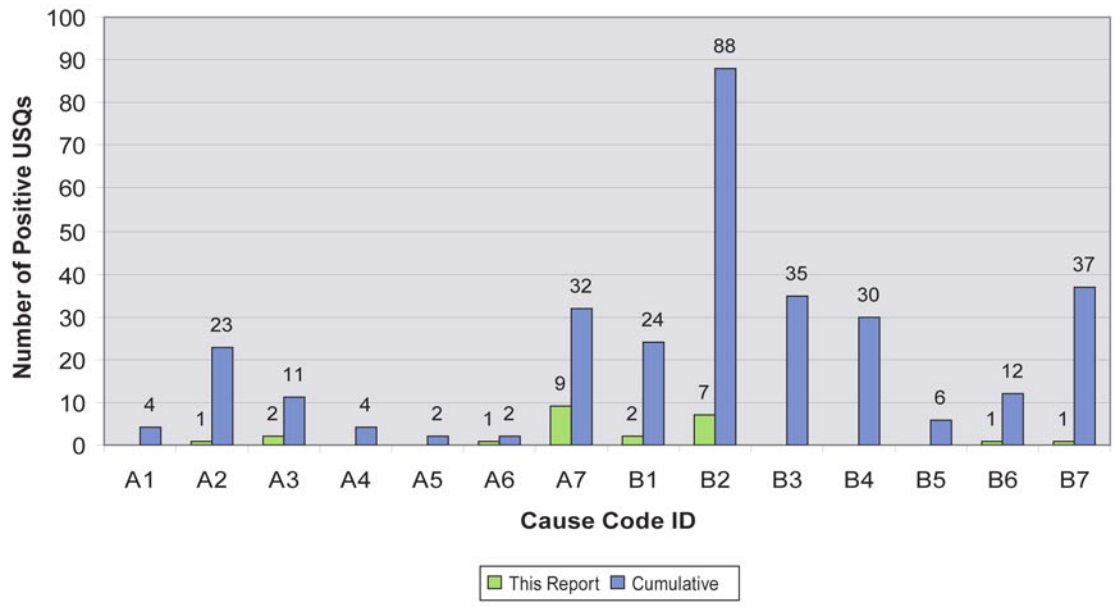
For the 24 positive USQDs identified in this reporting period, the main causes are inadequate safety analysis and unanalyzed accidents.

Results

From October through December 2005, there were 24 positive USQDs across the DOE Complex. The results of the team's review of the USQDs are discussed below. Specific details for each USQ (in tabular form) are provided in Appendix A. Figure 2 shows USQs reported for this period and the cumulative period from March 2001 through December 2005, grouped by the cause codes defined in Table 1 (page 8). Figure 3a shows the percentages of USQs by cause code for the period of October through December 2005, and Figure 3b shows the percentages of USQs by cause code for the cumulative period of March 2001 through December 2005.

Figure 2

Grouping of USQDs by Cause Code



Note: For the Cause Code definitions, see Table 1 on page 8.
* For the period from March 2001 – December 2005
The cumulative number of USQs equals 310.

Results (continued)

Figure 3a
Percentages of USQs by Cause Code
(This Period)

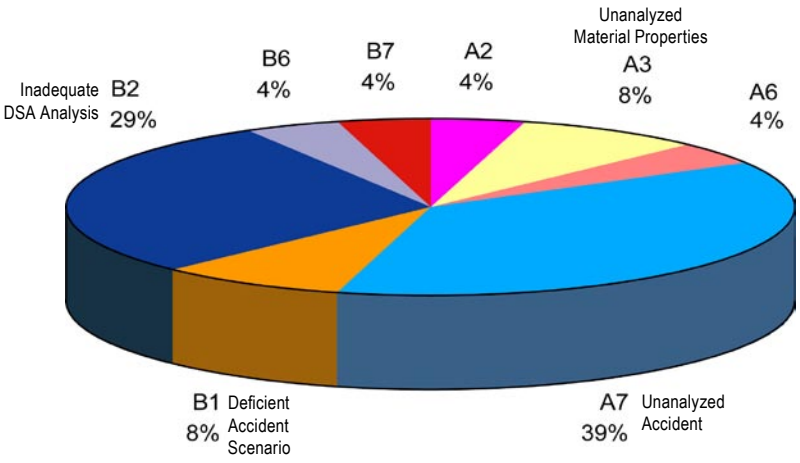
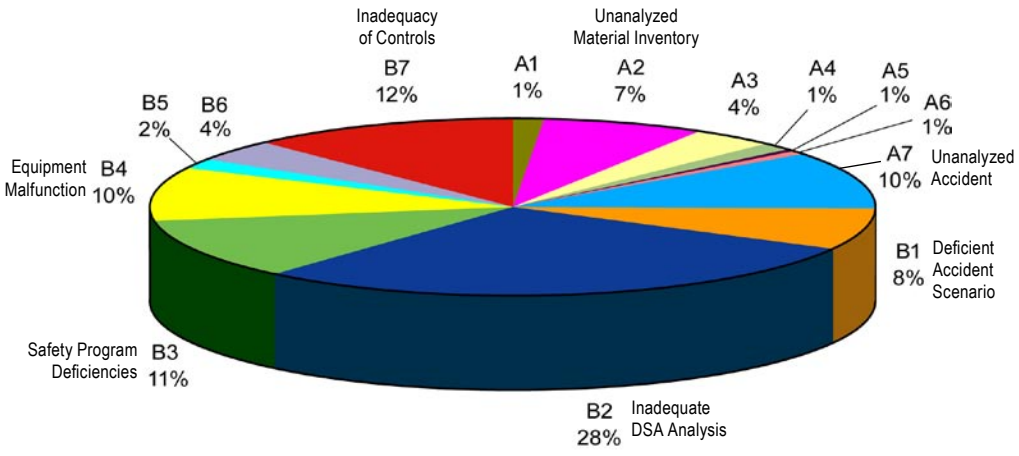


Figure 3b
Percentages of USQs by Cause Code
(Cumulative*)



Note: For the Cause Code definitions, see Table 1 on page 8.
* For the period from March 2001 – December 2005

Results for the Current Period

Albuquerque Operations — 5 Positive USQDs

Albuquerque Operations identified the following positive USQDs.

1. Audible neutron counters listed as control in the Basis for Interim Operations (BIO) but not in the Technical Safety Requirements (TSR). (NA-LASO-LANL-TA18-2005-0007) *Cause: Inadequacy of Controls*
2. Staging facility temperature rate of rise. (NA-PS-BWXP-PANTEX-2005-0210) *Cause: Unanalyzed Material Properties*
3. An inadequacy in the Documented Safety Analysis was identified involving degradation of TRU waste processing equipment at TA-50-1. (NA-LASO-LANL-WASTEMGT-2005-002) *Cause: Inadequate or Flawed Analysis*
4. Assumed weight for the Enhanced Transportation Card in the SS-21 Hazard Analysis Report (HAR). (NA-PS-BWXP-PANTEX-2005-0131) *Cause: Incorrect Accident Analysis*
5. Specific surge suppression arrangements found ineffective through testing. (NA-PX-BWXP-PAN) *Cause: Inadequate or Flawed Analysis*

Currently Open USQs

- ALO-LA-LANL-LANL-2004-0007 (April 2004), Inadequate Documented Safety Analysis Concerning Type A Designated Packaging used for Fissile Content
- ALO-LA-LANL-TA55-2004-0009 (September 2004), Modification to TA-55 Fire Detection System Results in Positive Unreviewed Safety Question
- ALO-AO-BWXP-PANTEX-2005-0044 (April 2005), PISA/Positive USQ on Separated Connector Cover
- ALO-AO-BWXP-PANTEX-2005-0057 (May 2005), Positive USQ, SS-21 Development: 150 psi Control on the Phoenix Cart
- NA-LASO-LANL-TA18-2005-0007 (November 2005), Audible Neutron Counters Listed as Control in the Basis for Interim Operations (BIO) but not in the Technical Safety Requirements (TSR)
- NA-PS-BWXP-PANTEX-2005-0120 (November 2005), Staging Facility Temperature Rate of Rise
- NA-PS-BWXP-PANTEX-2005-0131 (November 2005), Assumed Weight for the Enhanced Transportation Card in the SS-21 Hazard Analysis Report (HAR)
- NA-PS-BWXP-PANTEX-2005-0142 (December 2005), Specific Surge Suppression Arrangements Found Ineffective through Testing

Results for the Current Period (continued)

Idaho Operations — 2 Positive USQDs

Idaho Operations identified the following positive USQDs.

1 A potential inadequacy in the Safety Analysis (PISA) was received against SAR 126 regarding storage of filters in the FDP cell of building CPP-666. On 1/4/2006, at 1424 hours, the PISA determination for hydrogen generation in CPP-666 FDP drums was positive. (EM-ID--CWI-FUELRCSTR-2005-0008) *Cause: Inadequate Safety Analysis*

2 No specific accident scenario was discussed in Chapter 3 of the Analytical Laboratory SAR, although Industrial Safety is discussed in Chapter 5 and included as an administrative TSR, and Hoisting and Rigging is cited in Chapter 11. (NE-ID--BEA-INLLABS-2005-0003) *Cause: Unanalyzed Accident*

Currently Open USQs

- NE-ID-BBWI-ATR-2004-0004 (March 2004), Core Feedback During Loss of Commercial Power, Update August, 18, 2005.
- NE-ID--BEA-ZPPR-2005-0001 (July 2005), Potentially Inadequate Safety Analysis Relative to the Seismic Qualifications in the ZPPR Vault, Update July 21, 2005.
- NE-ID--BEA-ATR-2005-0008 (September 2005), Hazard Analysis for Secondary Chemical Addition System, TRA-671, Update September 19, 2005.
- EM-ID--CWI-FUELRCSTR-2005-0008 (December 2005), Potential Inadequacy in the Safety Analysis (PISA), SAR-126, Update
- NE-ID--BEA-INLLABS-2005-0003 (December 2005), PISA Insufficient Analysis of Hoisting and Rigging Accident Scenario, Update

Oakland Operations — No USQs this period

Currently Open USQs

- NA-LSO--LLNL-LLNL-2004-0053 (October 2004), Potential Inadequacy in the Building 332 Safety Analysis

Results for the Current Period (continued)

Oak Ridge Operations — 8 positive USQDs

Oak Ridge Operations identified the following positive USQDs.

1. Positive Unreviewed Safety Question (USQ) concerning the C-749 uranium scrap burial ground. (EM-PPPO-BJC-PGDPENVRES-2005-0008, Final)
2. Determination of a positive Unreviewed Safety Question (USQ) for the Portsmouth, OH, and Paducah, KY, Uranium Hexafluoride (UF6) Cylinder Yards (EM-PPPO-UDS-PORTDUCON-2005-0003, Update) *Cause: Unanalyzed Accident*
3. Potential inadequate Safety Analysis associated with the relocation of tenant operations. (EM-ORO--BJC-K25ENVRES-2005-0031, Update) *Cause: Unanalyzed Accident*
4. Determination of a positive Unreviewed Safety Question (USQ) that reveals a currently existing inadequacy in the documented Safety Analysis due to a proposed change in the neutron conversion factor. (EM-ORO--BJC-K25ENVRES-2005-0032, Update) *Cause: Unanalyzed Material Inventory*
5. Determination of a positive Unreviewed Safety Question (USQ) for the ETTP Uranium Hexafluoride (UF6) Cylinder Storage Yards (EM-ORO--BJC-K25GENLAN-2005-0012, Update) *Cause: Unanalyzed Accident*
6. Potential USQ concerning the analysis of a container deflagration event in Bechtel Jacobs Company (BJC) Transuranic (TRU) Storage Facilities (EM-ORO--BJC-X10WSTEMRA-2005-0010, Update) *Cause: Unanalyzed Accident*
7. Pressurized gas cylinders used in HSGS analysis of waste drums not included in safety analysis. (EM-ORO--FWEC-TRUWPFAC-2005-0002, Update) *Cause: Unanalyzed Material Properties*
8. Inadequacy in the documented safety analysis: Phase-separator function (NA-YSO-BWXT-Y12NUCLEAR-2005-0037, Final) *Cause: Unanalyzed Material Properties*

Currently Open USQs

- EM-ORO--BJC-X10WSTEMRA-2005-0007, As-Found Radiological Condition in ORNL Buildings 3029 and 3026D Affecting Characterization.
- EM-PPPO-UDS-PORTDUCON-2005-0003, Determination of a Positive Unreviewed Safety Question (USQ) for the Portsmouth, OH and Paducah, KY Uranium Hexafluoride (UF6) Cylinder Yards.
- EM-ORO-BJC-K25ENVRES-2005-0031, Potential Inadequate Safety Analysis Associated with the Relocation of Tenant Operations.
- EM-ORO-BJC-K25ENVRES-2005-0032, Determination of a Positive Unreviewed Safety Question (USQ).
- EM-ORO-BJC-K25GENLAN-2005-0012, Determination of a Positive Unreviewed Safety Question (USQ) for the ETTP Uranium Hexafluoride (UF6) Cylinder Storage Yards.
- EM-ORO-BJC-X10WSTEMRA-2005-0010, Potential USQ Concerning the Analysis of a Container Deflagration Event in Bechtel Jacobs Company (BJC) Transuranic (TRU) Storage Facilities.
- EM-ORO-FWEC-TRUWPFAC-2005-0002, Pressurized Gas Cylinders used in HSGS Analysis of Waste Drums not Included in Safety Analysis.

Results for the Current Period (continued)

Richland Hanford Site — 9 Positive USQDs

Richland Hanford identified the following USQDs.

1. A review of operations concluded that vehicles containing gasoline and other flammable materials were present and were not analyzed in the documented safety analysis. (EM-RL--PHMC-FFTF-2005-0007) *Cause: Inadequate or Flawed DSA Analysis*
2. A review of the seismic analysis concluded that there is a potential for increase in consequences beyond what is considered in the documented safety analysis report. (EM-RL--PHMC-GENERAL-2005-0007) *Cause: Inadequate or Flawed DSA Analysis*
3. A review of inadequate airflow concluded that assumptions of the consequences of an accidental release were underestimated in the documented safety analysis. (EM-RL--PHMC-PFP-2005-0030) *Cause: Unanalyzed Accident*
4. A review of operations concluded that there was the potential for an unfiltered release of radioactivity, not analyzed in the documented safety analysis. (EM-RL--PHMC-PFP-2005-0031) *Cause: Unanalyzed Accident*
5. A review of the assumptions for handling plutonium concluded that the documented safety analysis does not address metallic plutonium and the possibility of eutectics being formed. (EM-RL--PHMC-PFP-2005-0032) *Cause: Unanalyzed Accident*
6. A review of the documented safety analysis concluded the potential for additional quantities of flammable gas buildup, increasing the accidental consequences. (EM-RL--PHMC-SNF-2005-0020) *Cause: Inadequate or Flawed DSA Analysis*
7. The safety basis documents did not consider plugging of HEPA filter in stipulating the conditions to be monitored. (EMRP--CHG-TANKFARM-2005-0049) *Cause: Unanalyzed Accident*
8. A review of the documented safety analysis concluded that there is the potential for new accident scenarios when multiple barriers are carefully scrutinized. (EM-RP--CHG-TANKFARM-2005-0060) *Cause: Inadequate Safety System*
9. A review of the seismic analysis concluded that there is a potential for increase in the consequences beyond what is considered in the documented safety analysis report. (SC--PNSO-PNNL-PNNLNUCL-2005-0012) *Cause: Inadequate or Flawed DSA Analysis*

Currently Open USQs

- EM-RL-PHMC-FFTF-2005-0007 (November 2005), Inadequate Safety Analysis for Fuel-handling Operations with a Fueled Vehicle
- EM-RL--PHMC-PFP-2005-0032 (November 2005), Potential Eutectic Failure Mechanism for Stainless Steel 3013 Cans Containing Plutonium Metal

Savannah River Site — No USQs this period

Currently Open USQ

- SR--WSRC-WVIT-2005-0019 (September 2005), Positive Unreviewed Safety Question Declared Due To Use of Non-Conservative H2 Generation Rate

Glossary

Code of Federal Regulations (CFR) The codification of the general and permanent rules published in the *Federal Register* by the executive departments and agencies of the Federal Government. The Code is divided into 50 titles that represent broad areas subject to Federal regulation. Title 10 is *Energy*, and 10 CFR 830 contains rules for nuclear safety management.

Documented Safety Analysis (DSA) Analysis that defines the extent to which a nuclear facility can be operated while ensuring the safety of workers, the public, and the environment. The document includes a description of conditions, boundaries of operations, and hazard controls.

Occurrence Reporting and Processing System (ORPS) A database used to document daily operational occurrences at all DOE sites.

Potentially Inadequate Safety Analysis (PISA) A condition that exists if the original analysis that supported the DOE-approved safety basis is not bounding or may be otherwise inadequate or inappropriate. A PISA may result from a discrepant as-found condition, an operational event or incident, or new information, including discovery or error. The main consideration is that the analysis does not match the current physical configuration of the facility, is inappropriate, or contains errors. The intent is to ensure that operations are conducted in a safe manner consistent with the approved safety basis.

Safety Basis Documented safety analysis and hazard controls that provide reasonable assurance that a DOE nuclear facility can be operated in a manner that adequately protects workers, the public, and the environment. Safety Basis is a subset of **Authorization Basis** in that the Authorization Basis may include corporate operational and environmental requirements.

Unreviewed Safety Question (USQ) means a situation where (1) the probability of the occurrence or the consequences of an accident or the malfunction of equipment important to safety previously evaluated in the documented safety analysis could be increased; (2) the possibility of an accident or malfunction of a different type than any evaluated previously in the documented safety analysis could be created; (3) a margin of safety could be reduced; or (4) the documented safety analysis may not be bounding or may be otherwise inadequate.

USQ Determination (USQD) Document A USQ Determination document contains the review of a change or situation where there is reason to believe that the facility's existing safety analysis may be in error or is otherwise inadequate. The Code of Federal Regulations requires that USQ evaluations be documented, including recording the scope of the determination and the technical basis for concluding that an unreviewed safety question does, indeed, exist.

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Appendix A

Summary Descriptions of USQs for the Reporting Period

(The USQs in this appendix are arranged by sites and their facilities.)

ORPS ID Status	NA--PS-BWXP-PANTEX-2005-0142 Update	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None	USQ Cause Code	B2xi
Title	Specific Surge Suppression Arrangements Found Ineffective Through Testing (Positive USQ)			Date and Time Discovered			12/14/2005 16:55 (CTZ)		
Site/Facility	Pantex Plant/Pantex Plant			DOE Secretarial Office			National Nuclear Security Administration		
Facility Manager Phone	Todd Harris (806) 477-3894			Local DOE Contact Phone			Not provided Not available		
Originator Phone	Glen A. Mitchell (806) 477-4953			Contractor			BWXT PANTEX		

Description:
Pantex personnel identified a positive USQ for three facilities after determining that the tested values for surge suppression arrangement for these facilities did not meet the site review Safety Analysis Report voltage surge requirements.

Contractor Action:
Operations in the affected areas were suspended, pending development of a JCO and implementation of appropriate compensatory measures.

Safety Basis Document Corrective Actions (CA):
Development of a JCO.

DOE Field Office Action:
Not provided.

All CA Status:
There are no CAs. The facility is operating under a JCO and the developments will be followed.

EH-23 Assessment: Cause: Inadequate safety analysis. A discussion with Todd Harris indicated that both the SAR and the hardware will change. The SAR requirements will be broadened to allow additional configurations though the 500 volt limit will stand.

ORPS ID Status	NA--PS-BWXP-PANTEX-2005-0120 Notification	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None	USQ Cause Code	B2.viii
Title	Staging Facility Temperature Rate of Rise - PISA			Date and Time Discovered			10/21/2005 08:25 (CTZ)		
Site/Facility	Pantex Plant/Pantex Plant			DOE Secretarial Office			National Nuclear Security Administration		
Facility Manager Phone	Wyatt Padgett (806) 477-7882			Local DOE Contact Phone			Not provided Not available		
Originator Phone	Glen A. Mitchell (806) 477-4953			Contractor			BWXT PANTEX		

Description:
Following a review of new information provided by Lawrence Livermore National Laboratory, Pantex personnel declared a positive USQ regarding a thermal temperature rate-of-rise for passively cooled magazines at Zone 4. As a compensatory measure, all problematic pit staged in these facilities were repackaged into Sealed Inert or AT400 containers. A JCO was initiated and restrictions were placed on the movement of the affected pits.

Contractor Action:
Apparently no immediate actions were required. All problematic pits staged in these facilities have been repackaged into Sealed Insert or AT400 containers, providing an adequate environment for these pits. As a compensatory measure all problematic pits are required to be staged in sealed inserts or AT400 containers only.

Safety Basis Document Corrective Actions (CA):
A JCO has been initiated.

DOE Field Office Action:
None provided.

All CA Status:
None.

EH-23 Assessment: Cause: B2.viii - Inadequate or flawed analysis.

ORPS ID Status	NA--LASO-LANL-WASTEMGT-2005-0026 Final	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None	USQ Cause Code	A3
Title	An inadequacy in the Documented Safety Analysis was identified involving degradation of TRU waste			Date and Time Discovered			10/28/2005 15:06 (MTZ)		
Site/Facility	Los Alamos National Laboratory/ Waste Management			DOE Secretarial Office			National Nuclear Security Administration		
Facility Manager Phone	Denise Liechty (505) 606-1820			Local DOE Contact Phone			Not provided Not available		
Originator Phone	Ira E. Livingston (505) 661-8817			Contractor			Los Alamos National Laboratory		

Description:
The nuclear Waste and Infrastructure Services Division declared a PISA relative to continued degradation of the TRU waste processing equipment in TA-50-1, Room 60. The discrepant condition was identified as a probable cause for increase in past leakage and increased likelihood of a spill of radioactive liquid and sludge when Room 60 operations are resumed (the facility has been shut down since mid-200.). Management directed that the facility remain in shutdown status until the PISA process is complete. USQD is positive.

Contractor Action:
Management directed that facility operations remain suspended pending further evaluation. The PISA process was initiated. The USQ report was submitted to NNSA with a request for approval of compensatory controls for resuming TRU waste processing operations.

Safety Basis Document Corrective Actions (CA):
LANL submitted the required report on 12.01.2005 as needed corrective action.

DOE Field Office Action:
Not provided

All CA Status:
The report is final.

EH-23 Assessment: Cause: A3 - Unanalyzed Material Properties. No further assessment is needed.

ORPS ID Status	NA--LASO-LANL-TA18-2005-0007 Update	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None	USQ Cause Code	B7.i
Title	Positive USQ - Audible neutron counters listed as a control in BIO but not in TSRs.			Date and Time Discovered			11/16/2005 08:30 (MTZ)		
Site/Facility	Los Alamos National Laboratory/Pajarito Laboratory			DOE Secretarial Office			National Nuclear Security Administration		
Facility Manager Phone	Tom Beckman (505) 665-3134			Local DOE Contact Phone			Not provided Not available		
Originator Phone	Joseph B. Richardson (505) 665-4844			Contractor			Los Alamos National Laboratory		

Description:
The TA-18 Operations Manager declared a PISA after TA-18 personnel determined that while the facility BIO calls for audible neutron counters as a safety control for Radiological Test Object construction, there is no associated requirements delineated in the TSR. A backward-looking USQD was initiated and found to be positive.

Contractor Action:
The USQD was followed by an Evaluation of the Safety of the Situation with its associated reports to all parties.

The Operations Manager issued an order enjoining the use of Neutron Counters to control RTO experiments except where such a control is specifically identified in that experiment's Nuclear Criticality Safety Assessment and associated Criticality Safety Memo.

Safety Basis Document Corrective Actions (CA):
None. The USQ report in ORPS is delayed till 1-27-06 to permit time to complete the investigation into the cause of the discrepancy between the BIO and the TSRs.

DOE Field Office Action:
None stated.

All CA Status:
None stated. ORPS report to be completed by 1-27-06.

EH-23 Assessment: Cause: B7.i- Inadequacy of controls. Will track the ORPS database to make sure the report is completed.

ORPS ID Status	NA--PS-BWXP-PANTEX-2005-0131	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None	USQ Cause Code	B6
Title	Positive USQ, ss-21 Hazard Analysis Report (HAR)			Date and Time Discovered			10/17/2005 14:00 (CTZ)		
Site/Facility	Pantex Plant/Pantex Plant			DOE Secretarial Office			National Nuclear Security Administration		
Facility Manager Phone	Richard Durante (806) 477-6735			Local DOE Contact Phone			Not provided Not available		
Originator Phone	Glen A. Mitchell (806) 477-4953			Contractor			BWXT PANTEX		

Description:
A positive USQ was identified regarding a discrepancy between the actual weight of the Enhanced Transportation Cart and the assumed weight in the SS-21 HAR. The change in weight and associated impact energy invalidates the current weapon response rule applied in the SS-21 HAR for certain impact events. No actions or compensatory measures were taken because no operations are being conducted under this SS-21 HAR.

Contractor Action:
No actions were necessary because no operations are being conducted under SS-21 HAR.

Safety Basis Document Corrective Actions (CA):
None.

DOE Field Office Action:
None stated.

All CA Status:
No corrective actions.

EH-23 Assessment: Cause: B6, Incorrect accident analysis

ORPS ID Status	EM-ID--CWI-FUELRCSTR-2005-0008 Update	Reporting Criteria	3B(1)	Category	2	ES&H Impact	Potential exists	USQ Cause Code	B2.xi
Title	Potential Inadequacy in the Safety Analysis (PISA), SAR-126			Date and Time Discovered			12/14/2005 11:30 (MTZ)		
Site/Facility	Idaho National Laboratory/ ICPP Fuel Receipt & Storage Act.			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	Andrea M. Beckwith (208) 526-1160			Local DOE Contact Phone			Hugo, K., DOE-ID Not available		
Originator Phone	Dennis R. Teischer (208) 526-3100			Contractor			CH2M*WG Idaho, LLC		

Description:
On 12/14/05, a Potential Inadequacy in the Safety Analysis (PISA) was received against SAR-126 regarding storage of filters in the FDP cell of building CPP-666.
On 1/4/2006, at 1424 hours, the PISA determination for hydrogen generation in CPP-666 FDP drums is positive (USQ-3075, Radiolysis in Drums Containing HEPA Filters).
According to Dennis Teischer's phone call, CPP-603 SAR did not cause the flooding of storage tank for the filters. Now the SAR would require the pump out of a flooding condition.

Contractor Action:
The annual update to SAR 126 is with DOE for approval and contains the controls necessary to prevent this event. The Long Term Order restricting drum handling will remain in place until the annual update to SAR 126 is implemented. Based on a positive USQ determination this has been upgraded to a significance category 2 event.
A Long Term Order is already in place suspending any and all drum handling within the FDP cell while the PISA determination was being completed.
Immediate Actions Taken and Results:
1. Management was notified. 2. The USQ process commenced. 3. All filter drum handling was placed on hold.

Safety Basis Document Corrective Actions (CA):
Is Further Evaluation Required?: Yes
If YES - Before Further Operation? No
By whom? NMD Operations
By when?

DOE Field Office Action:
Only HQ Summary exists but it is very brief. No assessment by the Local DOE is provided.

All CA Status:
Yet to be developed. They will be followed.

EH-23 Assessment: Cause: Inadequate safety analysis. There is insufficient description of test problem. The developments will be monitored.

ORPS ID Status	NE-ID--BEA-INLLABS-2005-0003 Update	Reporting Criteria	3B(1)	Category	2	ES&H Impact	Potential Impact	USQ Cause Code	A7
Title	PISA Insufficient Analysis of Hoisting and Rigging Accident Scenario			Date and Time Discovered			12/07/2005 08:00 (MTZ)		
Site/Facility	Idaho National Laboratory / INL LABS			DOE Secretarial Office			NE - Nuclear Energy, Science and Technology		
Facility Manager Phone	Marsha Lambregts (208) 533-7051			Local DOE Contact Phone			Mike Haben DOE - ID Not available		
Originator Phone	Arthur Ybarbo Flores (208) 533-7243			Contractor			Battelle Energy Alliance, LLC		

Description:
Routine Maintenance and inspection of the ALP-7 Cask was being planned and a procedure involved in handling the cask was developed. During execution of the USQ process for these changes it was realized that there was no specific accident scenario discussed in Chapter 3 of the Analytical Laboratory SAR, though Industrial Safety is discussed in Chapter 5 and included as an administrative TSR and Hoisting and Rigging is cited in Chapter 11. This was determined to present a potential inadequacy in the safety analysis.

A USQ evaluation, dated 12/19/2005, determined that the PISA constitutes a positive USQ, based on a lack of analysis of hoisting and rigging activities as potential hazards. Hoisting and rigging activities take place in the facility; but, the hazard analysis in the safety basis does not address these activities as a type of accident or as a potential initiator. The DOE-ID FR was notified of the positive USQ determination and the change in significance category at 0800 HRS on 12/19/2005.

Contractor Action:
Elevate the hoisting and rigging program to an element of the TSR level programs listed in 5.TSR.5.6. A USQ evaluation was initiated.

Since there was no direct impact to safety, the actions taken were to pay particular attention to every step required in the hoisting and rigging program.

In the Analytical Laboratory annual update of the DSA, the hoisting and rigging (H&R) program will be elevated to a TSR and an accident scenario involving H&R as an initiator will be added to the accident table in the DSA.

Safety Basis Document Corrective Actions (CA):
Add the hoisting and rigging program as a specific TSR and add an entry to the accident scenario table describing hoisting and rigging as an accident initiator, in the Analytical Laboratory annual update of the DSA.
Target Completion Date: 06/30/2006 Tracking ID: DR 39243 AC 37888

DOE Field Office Action:
No input from Local DOE, however, an HQ Summary exists.

All CA Status:
Ongoing

EH-23 Assessment: Cause: Unanalyzed accident. The adequacy corrective action will have to be assessed separately. The actions taken/planned seem satisfactory.

ORPS ID Status	EM-ORO--BJC-K25GENLAN-2005-0012 Update	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None	USQ Cause Code	A7
Title	Positive Unreviewed Safety Question (USQ) for the ETTP Uranium Hexafluoride (UF 60 storage yard.			Date and Time Discovered			10/05/2005 10:35 (ETZ)		
Site/Facility	ETTP/ S&M & Cylinders			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	M. L. Allen (865) 241-1245			Local DOE Contact Phone			Donna Perez DOE-OR Not available		
Originator Phone	Darrell G. Lawson (865) 574-3282			Contractor			Bechtel Jacobs Company, LLC		

Description:

As a result of a Department of Energy (DOE) review of the storage of uranium hexafluoride (UF6) cylinders, a Management Alert has been issued by the DOE Inspector General. The Management Alert advises of preliminary findings relating to possible health and safety concerns regarding chemical storage at the East Tennessee Technology Park (ETTP) Cylinder Storage Yards, which are categorized as Nuclear Category II Facilities. These findings involve the possible presence of phosgene, a chemical warfare agent, in 309 Model 30A cylinders acquired from the U.S. Army's Chemical Warfare Service during the 1940s. This preliminary finding may identify a hazard not previously analyzed in the Documented Safety Analysis for the Cylinder Storage Yards and is therefore being handled as part of the Potential Inadequate Safety Analysis (PISA) process.

BJC has completed the Unreviewed Safety Question Determination (USQD) process and has concluded the potential presence of phosgene in Model 30A cylinders at the ETTP does constitute a positive USQ determination. As a result, the significance category has been upgraded to a Significance Category 2.

Contractor Action:

Model 30A cylinders will not be moved or transported until further evaluation has been completed. Cylinder yard workers were briefed on the potential presence of phosgene. The USQD process was initiated.

Safety Basis Document Corrective Actions (CA):

Corrective actions will be generated after the USQD report.

DOE Field Office Action:

No input yet

All CA Status:

To be monitored for completion

EH-23 Assessment: Phosgene hazard missed in the accident analysis; Cause: Unanalyzed accident.

ORPS ID Status	EM-ORO—BJC-K25ENVRES-2004-0031 Update	Reporting Criteria	3B(1)	Category	2	ES&H Impact	Unanalyzed Potential Accidents	USQ Cause Code	A7
Title	Potential Inadequate Safety Analysis Associated with the Relocation of Tenant Operations			Date and Time Discovered			12/06/2005 07:51 (ETZ)		
Site/Facility	ETTP/ D&D/K-25/K-27 Project			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	Larry O. Wyatt (865) 574-3282			Local DOE Contact Phone			Jim Kopotic DOE-OR Not available		
Originator Phone	Larry O. Wyatt (865) 574-3282			Contractor			Bechtel Jacobs Company, LLC		

Description:

A Community Reuse Organization of East Tennessee (CROET) Tenant Safety Evaluation Notice was prepared and submitted to the K-25/27 D&D Project for review. The notice described a proposed relocation of CROET tenant operations from K-1037 to K-1036. Before a review of the proposed activity could be completed, CROET installed/filled a new hydrogen tank and relocated operations to the K-1036 Building.

The CROET operations were described in the now outdated K-1037 Auditable Safety Analysis (ASA). The tenant processes require large quantities of hydrogen on demand. A new 3,000 gallon capacity hydrogen storage tank was installed and filled approximately 500 ft from the K-25 Building.

The old K-1037 ASA postulates hydrogen explosions (both deflagrations and detonations) originating inside and outside the operations building with unmitigated frequencies of Extremely Unlikely. Unmitigated consequences were determined to be High based on irreversible health effects to facility and on-site workers. Only a few off-site personnel could potentially be impacted. Damage to building structures within approximately 1000 ft is also postulated. An unobstructed straight roadway exists between the location of the liquid hydrogen storage tank and the K 25 Building.

Because of the new location of CROET tenant operations (within 500 ft), the potential now exists for a hydrogen tank explosion to impact the K-25 Building or for the hydrogen delivery tanker-trailer (15,000 gallon) to impact the K-25 Building, resulting in an explosion.

Contractor Action:

Blocked access roadway with “jersey barriers” to reduce the possibility of a tanker truck hitting the K-25 Building.

Safety Basis Document Corrective Actions (CA):

UPDATE: 01/19/06 - This report is being updated to allow additional time to complete the event investigation and ensure that the causal analysis and corrective actions developed for this incident are accurate and comprehensive. The final report for this incident will be issued by 02/03/06.

DOE Field Office Action:

Further evaluation required.

All CA Status:

To be monitored for completion

EH-23 Assessment: Hydrogen tank explosion or deflagration is not analyzed; Cause: Unanalyzed accident

ORPS ID Status	EM-ORO--BJC-X10WSTEMRA-2005-0010 Update	Reporting Criteria	3B(1)	Category	2	ES&H Impact	Some admin restrictions imposed	USQ Cause Code	A7
Title	Potential USQ Concerning the Analysis of a Container Deflagration Event in TRU Storage			Date and Time Discovered			11/30/2005 15:25 (ETZ)		
Site/Facility	ETTP/ Transuranic storage facility			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	Charlie Frye (865) 574-9999			Local DOE Contact Phone			Donna Perez DOE-OR Not available		
Originator Phone	Norma J. Kwaak (865) 574-3282			Contractor			Bechtel Jacobs Company, LLC		

Description:

This assessment involves a potential unreviewed safety question (USQ) concerning the safety basis analysis of a container deflagration event in Bechtel Jacobs Company (BJC) Transuranic (TRU) Storage Facilities.

The concern for continued management of unvented containers of TRU waste stems from considerations of DOE Complex experience over the past year and the addition of venting and sampling activities to the Melton Valley Solid Waste Storage Facility (MVSWSF) Documented Safety Analysis (DSA) in support of the Foster Wheeler Waste Processing Facility (WPF) processing of TRU waste.

The current Safety Basis (SB) documentation for the TRU Waste Storage Facilities, DSA-OR-MVSWSF-0019, Revision 7, documents storage, receipt, shipment and over packing as approved activities. In the DSA, spontaneous combustion and container overpressurization are analyzed, but a deflagration event, specifically, is not addressed. Deflagration, as opposed to detonation, is a chemical reaction producing vigorous evolution of heat and sparks or flame and moving through the material at a speed less than that of sound. On November 30, 2005, the Bechtel Jacobs Company Facility Safety Organization declared a Potential Inadequate Safety Analysis (PISA) concerning the analysis of a potential deflagration event in TRU Waste Storage Facilities.

Contractor Action:

Notified DOE of the situation.

Limited movement of unvented drums in the TRU Waste Storage Facilities.

Will perform a USQ determination and notify DOE promptly of the results.

Will submit the evaluation of the safety of the situation to DOE prior to removing any operational restrictions initiated as a result of this occurrence.

Will submit a Justification for Continued Operation (JCO) or Safety Basis amendment for the TRU Waste Storage Facilities.

Safety Basis Document Corrective Actions (CA):

UPDATE - 1/23/06: Additional time is needed to complete the causal analysis for the final report and final corrective actions. The final report will be submitted on or before March 8, 2006.

DOE Field Office Action:

No input yet

All CA Status:

To be monitored for completion

EH-23 Assessment: Deflagration scenario from the vented gases was missed in the accident analysis but explosions are analyzed. Cause: Unanalyzed accident.

ORPS ID Status	EM-ORO--FWEC-TRUWPFAC-2005-0002 Update	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None	USQ Cause Code	B1.v
Title	TRU Waste Processor FAC			Date and Time Discovered			12/02/2005 10:45 (ETZ)		
Site/Facility	Nuclear Waste Operations/Disposal			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	Don F. Gagel (865) 576-1650			Local DOE Contact Phone			Rick Farr Not available		
Originator Phone	Don F. Gagel (865) 576-1650			Contractor			Foster Wheeler		

Description:
On December 2, 2005, Project nuclear safety personnel were reviewing a previously completed change to the facility and identified a PISA condition. Gas cylinders needed for head space gas sampling (HSGS) operations were installed via a Project DCN without an adequate USQ review and failed to identify that the existing DSA did not include hydrogen gas (hazard, required for GCMS operations)in the accident analysis. Project nuclear safety personnel are in the process of performing a USQD to confirm this fact.

Preliminary assessment indicates there is no increase in risk or consequence level to facility nuclear safety and the existing Activity Hazards Analysis (AHA) and operating procedures for the HSGS activities were determined to have adequate controls to ensure personnel safety for the hydrogen gas including: daily (per shift) PHD and hydrogen monitoring, bottles isolated when not in use, gas pressures routinely monitored by HSG chemist, bottles require caps to be on when being moved, bottles secured in mounting rack, use of non-sparking tools, etc.

Contractor Action:
Project nuclear safety personnel performed a preliminary safety evaluation and determined that there was no resulting increase in the level of risk or consequence for nuclear safety as a result of the deficiency.

Project operations and safety personnel reviewed operating procedures and Activity Hazard Analysis (AHA) covering head space gas sampling (HSGS) operations and determined that appropriate controls were in place to ensure personnel safety.

No immediate actions were determined as needed.

Safety Basis Document Corrective Actions (CA):
Review of existing operations procedures and Activity Hazards Analysis (AHA) by operations and safety personnel found adequate controls to address personnel safety.

No additional actions determined as needed.

DOE Field Office Action:
No input yet

All CA Status:
To be monitored for completion

EH-23 Assessment: Hydrogen bottles needed for chemical analysis have now been addressed in the hazard analysis. Cause: Unanalyzed material property.

ORPS ID Status	EM--PPPO-UDS-PORTDUCON-2005-0003 Update	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None	USQ Cause Code	A7
Title	Determination of a Positive USQ for the Uranium (UF6) burial Yds.			Date and Time Discovered			10/06/2005 14:00 (ETZ)		
Site/Facility	Portsmouth/Uranium Conversion/Processing and HandlingX-745E and C-745T UF6 Cylinder Storage Yards			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	John C. McCoy (740) 947-4901			Local DOE Contact Phone			Dee Perkins Not available		
Originator Phone	Josie Y. Blackmon (740) 947-4901			Contractor			Uranium Disposition Services		

Description:
As a result of a Department of Energy (DOE) review of the storage of uranium hexafluoride (UF6) cylinders, a Management Alert has been issued by the DOE Inspector General. The Management Alert advises of preliminary findings relating to possible health and safety concerns regarding UF6 storage at the Paducah, KY and Portsmouth, OH Cylinder Storage Yards, which are categorized as Nuclear Category II Facilities. These findings involve the possible presence of phosgene, a chemical warfare agent, in Model 30A cylinders acquired from the U.S. Army's Chemical Warfare Service during the 1940s.
UPDATE 10/7/05: UDS has received new information that may lead to the identification of a potential inadequacy of the safety analysis for the UF6 cylinder storage yards. The potentially inadequate safety analysis (PISA) is based on the Management Alert, IG-40, issued September 30, 2005, relating to possible health and safety concerns with the possible presence of phosgene and potentially other hazards associated with the modification/use of the U.S. Army's Chemical Warfare Service model 30A cylinders.
UPDATE AS OF 11/08/05 UDS has completed the Unreviewed Safety Question Determination (USQD) process and has concluded the potential presence of phosgene in Model 30A cylinders at Portsmouth, OH and Paducah, KY does constitute a positive USQ determination. As a result, the significance category has been upgraded to a significance category 2.
UPDATE 11/21/05 An extension is requested for the final report to be issued by 3/31/06. Since the positive USQ determination, a Justification For Continued Operations has been developed and is in the review process. Ongoing document searches are being conducted to eliminate as many as possible suspect cylinders from the population.

Contractor Action:
No movement of Model 30A cylinders until further evaluation has been completed. Cylinder yard workers were briefed on the potential presence of phosgene. Nuclear Safety and the Facility Operations Review Committee have been contacted to commence the USQ process.

SBD Corrective Actions (CA):
Restrictions on operational and maintenance activities including the maintenance and movement of 30A cylinders remain in effect. A safety evaluation and justification for continued operations will be prepared. Administrative controls have been put in place to restrict vehicle traffic through the cylinder storage yards. Incomplete.

DOE Field Office Action:
Incomplete. None

All CA Status:
Incomplete

EH-23 Assessment: Phosgene hazard not analyzed; Cause: Unanalyzed accident.

ORPS ID Status	NA--YSO-BWXT-Y12NUCLEAR-2005-0037 Notification	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None	USQ Cause Code	A3
Title	Y12 Inadequacy in the Documented Safety Analysis: Phase-Separator Fun ;			Date and Time Discovered			12/14/2005 10:50 (ETZ)		
Site/Facility	Y12 Uranium Conversion/Processing and Handling			DOE Secretarial Office			National Nuclear Security Administration		
Facility Manager Phone	Thomas Morgan (865) 241-0548			Local DOE Contact Phone			Ted Hinkel NNSA FR Not available		
Originator Phone	Damien R. Bowers (865) 576-1263			Contractor			BWXT-Y12		

Description:

On December 7, 2005, a system engineer was reviewing documents in preparation of the pending facility SAR implementation. Part of this review included the phase separators. During a review of laboratory results of the organic phase of the phase separators, he discovered that the solvent used in this phase could evaporate over time which could negatively impact the operation of the phase separators.

On December 14, 2005, this discovery was brought to the attention of the Chemical Processing Department Manager, Process Engineer, Operations Manager, Criticality Safety Engineer, and Facility Safety Engineer. It was agreed that there were no criticality concerns due to the conservative nature of the Criticality Safety Evaluation calculations.

Based on the discussions with involved parties, this situation was determined to be a PISA, with the expected result to be a positive USQ; therefore a 3B-1 occurrence was declared.

Contractor Action:

Censured that the equipment is in a safe and stable condition.

Applied a Lock out / Tag out (LO/TO) to isolate the material.

Initiated a confirmation of the absence of organics in other locations. Suspended work in other locations until the confirmations are complete.

Convened a critique

Safety Basis Document Corrective Actions (CA):

Corrective action being planned.

DOE Field Office Action:

No input yet

All CA Status:

To be monitored for completion

EH-23 Assessment: The phase separator when operated intermittently results in evaporation of solvent and changes the specific gravity of the TBP solution. This could cause malfunction and unintended releases. Cause: Unanalyzed material properties.

ORPS ID Status	EM-RL--PHMC-PFP-2005-0032 Update	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None reported	USQ Cause Code	A7
Title	Potential eutectic failure mechanism for stainless steel 3013 cans containing plutonium metal			Date and Time Discovered			11/22/2005 14:20 (PTZ))		
Site/Facility	Hanford Site/ Plutonium Processing and Handling			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	B. J. Gray (509) 373-7221; (509) 376-6377			Local DOE Contact Phone			JE Spets Not available		
Originator Phone	John M. Lukes (509) 373-3104			Contractor			Project Hanford Management Contractor		

Description:
An accident analysis in the 2736-Z Complex Documented Safety Analysis (Safety Basis) does not analyze or control for the potential eutectic failure of stainless steel 3013 cans containing plutonium metal. The initial Potential Inadequacy of the documented Safety Basis (PISA) was supported by the follow-up Unreviewed Safety Question (USQ), which found that the Safety Basis did not consider the accident consequences of container melt-through.

The PFP Safety Basis analyzed the consequences and controls for 3013s containing plutonium oxide but not for 3013s containing plutonium metal. The Safety Basis should have considered two types of fire accident scenarios, one scenario for plutonium oxide 3013s, and another for plutonium metal 3013s. By failing to recognize the metal-iron eutectic reaction, an accident control set was overlooked.

The fire accident analysis is an issue only when 3013s are out of the vaults (for Non-Destructive Assay), not when the 3013s are in vault storage (lack of combustibles). With discovery of the PISA, a control for metal 3013s was implemented, described in Section 19 below. No additional immediate actions were necessary for the USQ. The control was to maintain operation within the Safety Basis risk envelope, including the existing fire hazard analysis.
Same cause code as for EM-RL--PHMC-PFP-2005-0030

Contractor Action:
1) A new control limits the number of "bare" cans (outside of transport wagons) containing plutonium metal to one in each room. Field Changes to three procedures were initiated to implement the control: standard practice procedure ZSP-002 "Moving Fissile Material," administrative procedure ZAP-000-003 "Material Management (Implementation of AC 5.24)", and operating procedure ZO-200-110 "Use Non-Destructive Assay Information Worksheet."
2) People associated with the Special Nuclear Material Management & De-Inventory organization and Building 2736-ZB were advised of the impact of the PISA and briefed about the control implemented, particularly for the Non-Destructive Assay laboratory in Room 637.

Safety Basis Document Corrective Actions (CA):
Tracking ID not yet assigned. Final ORPS will be completed first quarter of 2006

Under vault storage conditions, the facility is in a safe configuration. These corrective actions were to ensure the operating configuration is within the Safety Basis risk envelope when the 3013s are removed from the vaults for periodic Non-Destructive Assay. No additional immediate actions were necessary from the determination of a USQ.

DOE Field Office Action:
Approve AB documents as appropriate.

All CA Status:
On track

EH-23 Assessment: Appears to be on track; Cause: Unanalyzed accident.

ORPS ID Status	EM--PPPO-BJC-PGDPENVRES-2005-0008 Final	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None	USQ Cause Code	A2
Title	Positive Unreviewed Safety Question (USQ) Concerning the C-749 Uranium Scrap Burial Ground			Date and Time Discovered			10/04/2005 11:00 (ETZ)		
Site/Facility	Paducah Gaseous Diffusion Plant/C-749 Uranium Scrap Burial Ground			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	Robert Giroir (270) 441-5030			Local DOE Contact Phone			Greg Bazzell Not available		
Originator Phone	Jennie P. Henson (270) 441-5192			Contractor			Bechtel Jacob LLC		

Description:
During a review of historical documentation for the purpose of preparing a Safety Basis Document (SBD) update for the C-404 Low-level Radioactive Waste Burial Ground, information was encountered that indicated a Potentially Inadequate Safety Analysis (PISA) condition for the C-749 facility. This information is present in the Record of Decision for Interim Remedial Action at Solid Waste Management Units 2 and 3 of Waste Area Group 22 at the Paducah Gaseous Diffusion Plant Paducah, Kentucky (DOE/OR/06-1351&D1.) This information indicates that 2.44 x 10^5 kg (270-ton) of uranium was buried in C-749 from 1951 to 1977. Most of this waste was reported to be pyrophoric uranium metal in the form of machine shop turnings, shavings, and sawdust. Pyrophoric uranium metal was usually placed in 20-, 30-, or 55-gallon drums and covered with petroleum-based or synthetic oils to stabilize the waste. Other forms of uranium, including oxides of uranium, uranyl fluoride solutions, uranium-zirconium alloy, slag, and uranium tetrafluoride were reported to be buried at C-749 in smaller quantities. This quantity of Uranium would make it a Hazard Category 2 facility if the Uranium was not depleted. This new info results in an unanalyzed USQ.

Contractor Action:
An assessment of the impact of this information on the safety of the facility was initiated and completed, and an Unreviewed Safety Question Determination (USQD) was performed to determine possible impacts to the DOE-approved safety basis. Since the facility is a closed, inactive burial ground, the facility was deemed to be safe and stable in its current configuration. However, the USQD was positive since the discovery has the potential to result in new accident types for the facility. In addition, the discovery results in the possibility of a reduction in the safety margin of the facility as implied by the facility hazard categorization.

No immediate compensatory actions were taken, or required, at the time of the identification. An Evaluation of the Safety of the Situation (ESS-RM-C749-001) has been completed. This information has been supplied to the U.S. Department of Energy (DOE) in compliance with 10 CFR 830.203(g).

SBD Corrective Actions (CA):
Completed an Evaluation of the Safety of the Situation (ESS) for the radiological inventory in the C-749 Uranium Scrap Burial Ground.
Develop a Hazard Assessment Document for the C-749 Burial Ground. Completion Date: 04/28/2006
Evaluate historical data for Burial Ground Facilities at PGDP to verify radiological inventories.
Target Completion Date: 04/28/2006

DOE Field Office Action:
None

All CA Status:
Action completed

EH-23 Assessment: No further action required. Total quantity of Uranium exceeds the hazard category 3 but concentration of fissile Uranium is insignificant to result in any new accident scenario. Cause: Unanalyzed material inventory.

ORPS ID Status	EM-RP--CHG-TANKFARM-2005-0049 Final	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None reported	USQ Cause Code	B5.viii
Title	Degraded Passive Ventilation Due To Filter Plugging Represents A Positive USQD			Date and Time Discovered			10/14/2005 15:00 (PTZ))		
Site/Facility	Hanford Site/Tank Farm			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	Michael R. Koch (509) 373-2699			Local DOE Contact Phone			B. J. Harp (no phone provided) Not available		
Originator Phone	Shaun F. Waters (509) 373-3457			Contractor			CH2M HILL Hanford Group, Inc.		

Description:

Limiting Condition for Operation (LCO) 3.2.2, SST (single shell tank) Passive Ventilation Systems, controls flammable gas concentration in SST that result from steady-state gas releases. The LCO provides passive ventilation to SSTs by requiring the tank breather filter vent isolation valve to be open. The tank breather vent includes a high-efficiency particulate air (HEPA) filter(s). The LCO surveillance requirement (SR 3.2.2.1) provides two options for verifying adequate passive ventilation; verifying that the breather isolation valve is open or measuring tank headspace flammable gas concentrations. The assumption is that the only way to isolate passive ventilation is to close the breather isolation valve.

Problem Evaluation Request (PER) 2005-3532 (tank 241-C-103 HEPA filter fails annual aerosol efficiency test - 10/6/2005) and PER 2005-3584 (Engineering evaluation of tank 241-C-103 HEPA filter test failure) describe a condition where passive ventilation through the tank breather may be degraded due to plugging of the HEPA filter. Plugging of the passive breather HEPA filter is not a passive ventilation failure mode considered in the safety basis (e.g., LCO surveillances). This represents a potential inadequacy in the safety analysis (PISA), in that degraded passive ventilation due to HEPA filter plugging would not be identified by checking that the breather vent isolation valve is open.

Contractor Action: 1. Conduct an engineering evaluation/project plan of alternate filter designs in coordination with operations, environmental and nuclear safety. Target Completion Date: 02/23/2006 Tracking ID: CH2M-PER-2005-3586.1 2. Evaluate the Control Decision Meeting (A1100) outcome and develop corrective action as applicable. Action: Koch, Target Completion Date: 01/05/2006;Tracking ID: CH2M-PER-2005-3586.2 3. Develop Formal Submittal for the Documented Safety Analysis revision and transmit to Office of River Protection. Action: Grigsby, J Mike Target Completion Date: 02/16/2006 Tracking ID: CH2M-PER-2005-3586.3 4. Modify all applicable aerosol tests. Action: Koch, Michael R Target Completion Date: 02/28/2006;Tracking ID: CH2M-PER-2005-3586.4 5. Evaluate engineering generated alternatives to the existing housing design and implement as appropriate. Tracking ID: CH2M-PER-2005-3586.5	**Safety Basis Document Corrective Actions (CA)**: CH2M-PER-2005-3586.5, subtasks .1 thru .5
DOE Field Office Action: Approve AB documents as appropriate	**All CA Status**: On track

EH-23 Assessment: Appears to be on track; Cause: Unanalyzed accident.

ORPS ID Status	EM-RL--PHMC-GENERAL-2005-0007 Final	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None reported	USQ Cause Code	B2.ii
Title	New Seismic Spectra Analysis For Hanford			Date and Time Discovered			11/17/2005 09:50 (PTZ)		
Site/Facility	Hanford Site/(multiple projects)			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	Alan L. Ramble (509) 373-2185			Local DOE Contact Phone			Ed MacAllister Not available		
Originator Phone	Newell L. Crary (509) 376-3030			Contractor			Project Hanford Management Contractor		

Description:

As part of designing the Waste Treatment Plant (WTP), ORP reviewed the Hanford Site seismic spectrum. New information and a desire to bound greater uncertainty resulted in increasing the Hanford site specific seismic response spectra that should be applied for new and possibly existing facilities. Subsequent analysis performed by Geomatrix identified that it was appropriate to apply this increased Hanford site specific seismic response spectra at the Hanford Tank Farms in the 200E and 200W areas. In order to comply with DOE O 420.1A for a potential new facility in the 200W area, FH had Geomatix evaluate this new information for its applicability. With minor modifications to reflect the actual site conditions, Geomatix concluded that the Hanford site specific seismic response spectra developed for the WTP should also be applied for this facility. FH evaluated this new seismic information using the process described in DOE-STD-1020 and Potential Inadequacy of the Safety Analysis (PISA) determinations were performed for those facilities potentially impacted by this new information. Many PHMC facilities were not impacted by this new seismic information, but several PISA were identified and this report documents this site-wide occurrence. The following sections identify the facilities where PISA where identified:

Cause code is inadequate seismic analysis; one of EH-23 categories.

Contractor Action:

1. Central Plateau Surveillance & Maintenance Project: Revise safety basis documents (CP-14640, CP-14641, CP-15584, CP-18179, HNF-14804, CP-14977, and HNF-13829) to acknowledge the new seismic information and submit to DOE-RL for approval
2. K Basins Closure Project: Revise safety basis document (HNF-SD-WM-SAR-062) to acknowledge the new seismic information and submit to DOE-RL for approval.
3. Plutonium Finishing Plant Closure Project: Revise safety basis documents (HNF-15500, HNF-11992, HNF-17296, and HNF-20503) to acknowledge the new seismic information and submit to DOE-RL for approval.
4. Prepare Lesson Learned to address being alert for new technology and data and submit to the FH Lessons Learned coordinator.

Safety Basis Document Corrective Actions (CA):

CARF#20051634

The scheduled completion for some actions is late 2007. Since the CAs has all been assigned, this is a final report.

DOE Field Office Action:

Approve AB documents as appropriate.

All CA Status:

On track

EH-23 Assessment: Appears to be on track; long schedule for completion (August 2007). Cause: Inadequate or flawed DSA analysis.

ORPS ID Status	EM-RL--PHMC-PFP-2005-0030 Final	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None reported	USQ Cause Code	A7
Title	Safety Basis accident analysis for Bldg 242-Z assumes confinement ventilation, but flow thru			Date and Time Discovered			11/07/2005 11:44 (PTZ)		
Site/Facility	Hanford Site/(Plutonium Finishing)			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	BJ Gray (509) 373-7221; (509) 376-6377			Local DOE Contact Phone			JE Spets Not available		
Originator Phone	Charles P. Ames 509-376-6377			Contractor			Project Hanford Management Contractor		

Description:

This event was surfaced when a DOE-Richland Facility Representative questioned a specific Building 242-Z Safety Basis accident scenario. Poor airflow into a room was observed during a smoke test in preparation for 242-Z Decontamination and Decommissioning. The strength of inflow is an indicator for contamination confinement. Because of the low flow, the question arose about the appropriateness of the very low (0.1) Leak Path Factor (LPF) credited the 242-Z facility.

The concern is that an accident scenario for a breached roof ("Crane or Crane Load Impacts PFP Facility Structure") requires a certain airflow to maintain the 0.1 LPF. The Safety Basis assumes the LPF is maintained by the ventilation system drawing air into the facility if the structure is breached (e.g., by a dropped Conex Box).

Cause code assigned was A7, scenario missed in the DSA. It could also be placed in category A6, but there A7 is more general, and it appears this scenario was overlooked for several reasons.

Contractor Action:

1 Transmit changes to the Documented Safety Analysis/Technical Safety Requirements for DOE-RL approval.
2. Transmit a formal Lessons Learned regarding the importance of properly identifying potential hazards and establishing appropriate controls for these hazards to the PHMC Lessons Learned Coordinator for entry into the DOE Lessons Learned website.
3. Issue the formal Lessons Learned from corrective action #2 to PFP Nuclear & Criticality Safety.
4. Implement a process to improve safety basis control selection. Closure documentation is a copy of the approved defined process or approved procedure along with the appropriate procedure pages. NSRC approval required to close this assignment. GW Ryan, Mgr PFP Criticality and Nuclear Safety.

Safety Basis Document Corrective Actions (CA):

Tracking ID: CARF20051600. Final report.

DOE Field Office Action:

Approve AB documents as appropriate.

All CA Status:

On track

EH-23 Assessment: Appears to be on track; Cause: Unanalyzed accident.

ORPS ID Status	SC--PNSO-PNNL-PNNLNUCL-2005-0012 Final	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None reported	USQ Cause Code	B2.ii
Title	Unreviewed Safety Question (USQ) for the Radiochemical Processing Laboratory (RPL)			Date and Time Discovered			2/01/2005 13:30 (PTZ)		
Site/Facility	Hanford Site/RPL (325 Bldg)			DOE Secretarial Office			Science		
Facility Manager Phone	J. L. Buelt (509) 373-6007			Local DOE Contact Phone			J. L. Carlson Phone not provided		
Originator Phone	William T. Buyers (509) 376-5612			Contractor			Pacific Northwest National Laboratory		

Description:
On 12/01/05, after reviewing the recent seismic analysis associated with the design of the Waste Treatment Plant (WTP), management of the Radiochemical Processing Laboratory (RPL) declared that a Potential Inadequacy in the Safety Analysis (PISA) exists. As a result of the WTP seismic evaluation, it has been qualitatively determined that the seismic frequency/acceleration relationship for the area could be discernibly increased from that assumed in the RPL Documented Safety Analysis (DSA).

The WTP seismic analysis is based on a different model than the seismic analysis used in the RPL DSA. The new 2005 WRP model indicates that Hanford Site seismic acceleration could be between 15-38% greater than previously analyzed for an earthquake of a given return-period. Upon declaring the PISA, the need for compensatory measures was evaluated for the RPL. Based on the current analyses in the RPL DSA, the worst case consequences had already been analyzed and would not be increased by this new information. If the new WTP seismic analysis model was applied to the RPL site, the frequency of earthquakes of a given magnitude would be marginally affected.

Cause code is inadequate seismic analysis; one of EH-23 categories.

Contractor Action:
The need for compensatory measures was reviewed for the RPL by the Safety Basis Review Committee. Based on the current analyses in the RPL DSA, the worst case consequences had already been analyzed and would not be increased by this new information; therefore, no additional compensatory actions are required. A Justification for Continued Operations (JCO) will be prepared to address this issue. Results from the JCO, when approved by DOE, will be captured into the Annual Update to the DSA. Notifications to DOE-RL and the Pacific Northwest Site Office (PNSO) have been made.

Safety Basis Document Corrective Actions (CA):
All corrective actions are being implemented. This action is closed.

DOE Field Office Action:
Approve JCO request.

All CA Status:
Completed.

EH-23 Assessment: Completed action. Cause: Inadequate DSA analysis.

ORPS ID Status	EM-RL--PHMC-SNF-2005-0020 Final Report	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None reported	USQ Cause Code	B2.iii
Title	Positive Unreviewed Safety Question / Sludge Containerization System			Date and Time Discovered			12/15/2005 10:30 (PTZ))		
Site/Facility	Hanford Site--FH/K Basins Closure (KBC) Project			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	T. J. Ruane (509) 373-3196			Local DOE Contact Phone			C. Gunion Not available		
Originator Phone	Karen R. Morris (509) 373-1565			Contractor			Project Hanford Management Contractor		

Description:
The K Basin Closure Project Plant Review Committee (PRC) declared a positive Unreviewed Safety Question (USQ) regarding the suspension of sludge retrieval activities in the 105KE Basin. Not operating the Sludge Containerization System (SCS) could possibly allow a hazardous amount of flammable gas (i. e. hydrogen) to accumulate in partially filled, undisturbed containers. The current Safety Basis only has flammable gas hazard controls for the containers after they have been filled and the settler tube assemblies have been removed. The PRC has determined that the facility is in a safe condition based on compensatory measures that are in place (i. e. regularly pumping water through the containers).

Best fit for cause code was determined to be inadequate or flawed fire analysis. No cause code is a perfect fit in this case.

Contractor Action:
PRC determined that the facility is in a safe condition and no further immediate actions are warranted. .

Safety Basis Document Corrective Actions (CA):
To be determined.

DOE Field Office Action:
Approve AB documents as appropriate.

All CA Status:
On track.

EH-23 Assessment: Appears to be on track; Cause: Inadequate or flawed safety analysis.

ORPS ID Status	EM-RP--CHG-TANKFARM-2005-0060 Final	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None reported	USQ Cause Code	A6
Title	Vacuum Retrieval System Operation Aerosol Generation Represents A Positive Unreviewed Safety			Date and Time Discovered			11/03/2005 17:45 (PTZ))		
Site/Facility	Hanford Site--Nuclear Waste Operations/Disposal			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	Ronald J. Stevens (509) 376-3495			Local DOE Contact Phone			B. I. Williamson Not available		
Originator Phone	Shaun F. Waters (509) 373-3457			Contractor			CH2M HILL Hanford Group, Inc.		

Description:
The routing of the 241-C-200 vacuum retrieval vacuum pump water separator drain to the 241-C-201 tank vent hatchway structure creates the possibility of an aerosolized waste source due to splash and splatter of the contaminated drain water in the vent hatch way structure. This condition could increase the consequences of the filtration failure leading to unfiltered release accident described in the Tank Farm safety basis. This drain line configuration is not the configuration analyzed in the safety basis and therefore this discrepant as-found condition represents a potential inadequacy in the safety basis (PISA).

Best fit for cause code is A6, inadequate or mission safety systems or barriers.

Contractor Action:
1. Submit a Justification for Continued Operation (JCO) to the Department of Energy, Office of River Protection (ORP), for approval. Objective Evidence: Formal transmittal of JCO to ORP
Action: R.J. Stevens
Target Completion Date: 12/18/2005
Tracking ID: Problem Evaluation Request (PER) 2005-3853

Safety Basis Document Corrective Actions (CA):
PER) 2005-3853
Action complete.

DOE Field Office Action:
Approve JCO request.

All CA Status:
On track

EH-23 Assessment: Completed action; Cause: Inadequate safety system.

ORPS ID Status	EM--RL-PHMC-PFP-2005-0031 Final	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None	USQ Cause Code	A7
Title	FMEA finds unanalyzed condition for Rm 641 supply air damper			Date and Time Discovered			11/15/2005 13:00 (PTZ)		
Site/Facility	Hanford Site—Safety Basis/Bldg 2736-ZB/ ventilation control damper			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	B. J. Gray (509) 373-7221 (509) 376-6377			Local DOE Contact Phone			J. E. Spets Phone not provided		
Originator Phone	Charles P. Ames (509) 376-6377			Contractor			Project Hanford Management Contractor		

Description:
An accident analysis in the 2736-Z Complex documented Safety Analysis (Safety Basis) relies on filtered room ventilation to reduce out-of-facility contamination Consequences. The credited passive confinement function of the building structure could breach if Room 641 is pressurized and if people open the emergency exit.

A newly discovered ventilation condition in the 2736-ZB facility could crate the necessary conditions for an unfiltered release of radioactive contamination. The issue is a previously unrecognized potential for pressurization of room 641 (the outer Can Wel Room), which has a door opening to the outside. If the supply air damper for the room were to fall (even though the fail-safe mode is closed), the room might pressurize.

The condition of concern arises from the control strategy for Z-Complex Ventilation Zone 2B. Pressure sensors that control Room 641 negative pressure are located outside the room and cannot sense pressure changes in Room 641 if the door opening to the corridor is closed. Because Room 641 has en emergency exit to the outside, an unfiltered release could occur if the room becomes pressurized at the same time a spill releases radioactive material and if people evacuate through the emergency exit. Same cause code and explanation as for EM-RL-PHMC-PFP-2005-0030.

Contractor Action:
Put limits, e.g., zero (0) gram TRU waste, on waste packages to be handled in areas without credited filtered ventilation or confinement features until safety basis changes approved.

Safety Basis Document Corrective Actions (CA):
Five corrective actions identified; tracking established (CARF#20051255).

The most significant corrective action is to update and submit for DOE-RL approval changes in the safety basis. The remaining items involve lessons learned and management awareness.

DOE Field Office Action:
Review status of actions; review and approve safety basis changes
.

All CA Status:
Appear to be on track for completion in December 2005.

EH-23 Assessment: This was assigned cause code A2, unanalyzed inventory. Cause: Unanalyzed accident.

ORPS ID Status	EM-RL-PHMC-FFTF-2005-0007 Update	Reporting Criteria	3B(1)	Category	2	ES&H Impact	None reported	USQ Cause Code	B2.ii
Title	Inadequate safety analysis for fuel handling operations with a fueled vehicle			Date and Time Discovered			11/03/2005 14:30 (PTZ)		
Site/Facility	Hanford/FFTF Closure Project			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	Mark E. Eby (509) 376-8991			Local DOE Contact Phone			R. G. Hastings Not available		
Originator Phone	Mark E. Eby (509) 376-8991			Contractor			Project Hanford Management Contractor		

Description:
Vehicles containing fuel (gasoline or diesel) in their tanks are intermittently utilized in the RSB and the Reactor Containment Building (RCB) to support facility operations. It has been determined that a PISA exists because of the hazards associated with vehicle fuel being present in the RSB during Cask Loading Station (CLS) operations. It has been determined that the fueled vehicle, and the potential for a fire has not been considered. The fuel in trucks presents hazards to the irradiated fuel in the RSB CLS not currently analyzed in the Fire Hazards Analysis or the Final Safety Analysis Report (FSAR). This also resulted in a positive USQD. Best cause code description is A2.

Contractor Action:
Plant Review Committee (PRC) was convened. No fuel handling operations in the RSB at CLS were in progress.

Temporary hazard controls are being implemented. In accordance with HNF-PRO-062, Unreviewed Safety Question Process, Steps 5.2.4, and 5.2.5, the following temporary hazard controls will be implemented. 1) When there is not irradiated fuel in the RSB, there are no restrictions on liquid fueled vehicles in the RSB. 2) No liquid fueled vehicles are allowed in the RSB when irradiated fuel is present. 3) No vehicles with liquid fuel will be permitted in the RCB. 4) Hand carried quantities of flammable and combustible liquids are allowed in FFTF Plant.

Safety Basis Document Corrective Actions (CA):
Implement temporary hazard controls to allow fueled vehicles in the RSB and RCB to support facility operations. (completed)

Tracking ID: 20051591-01

A final report is due January 31, 2005, which may have additional items.

DOE Field Office Action:
Review or at least be cognizant of contractor steps. Approve any changes in authorization documents.

All CA Status:
First one is Completed. Additional actions may evolve from final report.

EH-23 Assessment: Appears to be on track; Cause: Inadequate or flawed DSA analysis.

ORPS ID Status	EM-ORO—BJC-K25ENVRES-2005-0032 Updated	Reporting Criteria	3B(1)	Category	2	ES&H Impact	none	USQ Cause Code	A2
Title	Determination of a Positive Unreviewed Safety Question (USQ)			Date and Time Discovered			12/07/2005 10:00 (ETZ)		
Site/Facility	ETTP Facility / D&D/K-25/K-27 Project			DOE Secretarial Office			Environmental Management		
Facility Manager Phone	Greg Eidam (865) 576-3393			Local DOE Contact Phone			Dan Emch DOE-FR Not available		
Originator Phone	James K. Pemberton (865) 574-3282			Contractor			Bechtel Jacobs Company, LLC		

Description:

Analysis of the 234U Alpha/Neutron Contribution in Neutron Calculations of the Mass of 235U, and the Implications on Past and Present NDA Measurement Data for the K-25 Building at the East Tennessee Technology Park, Oak Ridge, Tennessee is being developed to look at the current NDA assumptions for use in material calculations in the shutdown gaseous diffusion buildings at the East Tennessee Technology Park. The draft document proposes a change in the conversion factor used to calculate uranium mass based on neutron emissions. The analysis could only affect neutron results.

The current DOE accepted neutron conversion factor for US diffusion facilities is 253. The draft document proposes a different neutron conversion factor. This proposed new conversion factor would account for the potential of additional hydration found in shutdown gaseous diffusion facilities. The proposed change if adopted could result in a change in the estimated quantity of material determined by a neutron measurement. Additionally, efforts must be undertaken to identify items where neutron measurements were used to determine material quantity. The application of a different neutron conversion factor would change the estimated inventory for each neutron measured item, thus affecting the estimated total radiological inventory of the facility. A change in inventory estimates may change some accident analysis radiological consequence results K-25 Building is a Category 2 Nuclear Facility.

Contractor Action:

Ongoing Equipment Verification and Verification/Confirmation Programs continue to adequately protect the material.
1. Expedite completion of the analysis report.
2. Form a technical working group to identify/evaluate potential impacts.
3. Use a conservative bounding conversion factor from new methodology for future neutron based 235U mass calculations.
4. Apply a conservative bounding conversion factor to historical neutron measurements when providing mass values for ongoing radiological material handling/disposition activities.
5. Review NDA Subcontractor activities to determine extent of condition e.g. will conversion factor change any measurements outside K25/K27 D&D Project

Safety Basis Document Corrective Actions (CA):

December 21, 2005 Update - The report is being categorized as a SC 2 under reporting criteria 3B(1)2, Determination of a Positive Unreviewed Safety Question. The final report will be submitted on or before February 3, 2006.

DOE Field Office Action:

No input yet

All CA Status:

To be monitored for completion

EH-23 Assessment: Unanalyzed material inventory, This is a D&D facility,Its hazards are being removed. Cause: Unanalyzed material inventory.

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Appendix B

Status of Open USQs

Appendix B: Status of Current Positive USQ Occurrences Including ORPS Reports Closed During October-November-December 2005 And New Declarations

Reported in Month	Site/Facility	ORPS ID No. Title of Occurrence Issue Level	Status
March 2004	Idaho National Engineering Lab/ Advanced Test Reactor	NE-ID--BBWI-ATR-2004-0004 Core Feedback During Loss of Commercial Power Update: 8-18-2005	Occurrence Report No. 13, USQ No. RTC-USQ-2005-336, Discovered: June 15, 2005, 1610: The ATR SINDA-SAMPLE code models the variation in flow rate in the hot fuel plate analysis. The model development did not explicitly address some pertinent sources of uncertainty and therefore may not be conservative. Occurrence Report No. 14, USQ No.: RTC-USQ-2005-248, Discovered: May 4, 2005, 1630: The derivation of the analytical limit setpoint and response time are not consistent with the methods used in the radiological consequence analyses presented in SAR-153, Section 15.7 and 15.12. The methodology used for the derivation of the setpoint could allow higher off-site doses than predicted by the radiological consequence analyses. Since these radiological consequence analyses are the basis upon which DOE approved operation of the ATR, the discrepancy represents a potentially inadequate safety analysis.
April 2004	Los Alamos National Laboratory/ LANL	ALO-LA-LANL-LANL-2004-0007 Inadequate Documented Safety Analysis Concerning Type A Designated Packaging used for Fissile Content Update:	05-13-04: The reporting criteria was upgraded from 3B(2) to 3B(1), i.e., the positive USQD was declared. Last update 7/1/04. All corrective actions are completed by 6/15/05.
August 2004	LLNL/ BOP	NA-LSO-LLNL-LLNL-2004-0040 Potential cracking in Glove box Exhaust Ducting in Bldg. 332 RMA Final: 12-8-2005	On 11/22/04, the USQD has been completed for this OR and it is positive. This changed the categorization of the OR to Group 3, Nuclear Safety Basis, B. Documented Safety Analysis Inadequacies, (1) Determination of a Positive Unrevfiewed Safety Question (USQ), with a Significance Category 2. the USQD was done in response to the PISA that was filed. The USQ was closed on 12-08-05. The root causes include, (1) design input was not correct and it did not consider the chloride aqueous processes that were performed, (2) management follow-up or monitoring of activities did not identify problems. There are two lesions learned: (1) acid-resistant coating cannot be relied upon completely and indefinitely to protect systems from reactive chemicals, and (2) regular inspections, looking for signs of irregularities will help to ensure the integrity of safety system components. Is Further Evaluation Required? No
September 2004	Los Alamos National Laboratory/ Plutonium Proc & Handling Fac	ALO-LA-LANL-TA55-2004-0009 Modification to TA-55 Fire Detection System Results in Positive Unreviewed Safety Question Update: 2-18-2005	Add Second Fire Alarm Wiring Path. Add a second path for fire alarm transmission to the CAS through concentrator 009 in PF-3. Responsible Group/Division FM-TA-55. Target Completion Date: 7-15-05 Completion Date: 04/20/2005 Reconnect PF-10 and PF-11 Fire Alarms to FCS. Use the second wiring path to reconnect the PF-10 and PF-11 fire alarms to the FCS Responsible Group/ Division FM-TA-55. Target Completion Date: 7-15-05 Completion Date: 4-20-2005

Reported in Month	Site/Facility	ORPS ID No. Title of Occurrence Issue Level	Status
October 2004	Lawrence Livermore National Lab./ Lawrence Livermore Nat. Lab. (BOP)	NA-LSO--LLNL-LLNL-2004-0053 Potential Inadequacy in the Bldg. 332 Safety Analysis Final: 1-10-2006	Latest Update: 01-10-06 The USQD has been completed and it is positive with a Significance Category of 2. This will change the categorization of the OR to Group 3. Currently, the USQD revision due date has been extended to 02-27-06 Is Further Evaluation Required? Yes If Yes – Before Further Operation? No By Whom: Facility Management By when? 2-27-2006
April 2005	Pantex Plant/Balance of Plant	ALO-AO-BWXP-PANTEX-2005-0044 PISA/Positive USQ on Separated Connector Cover Final: 11-22-2005	Two corrective actions identified and completed on 5-13-2005. As of 7-14-2005, updated to Positive USQ, and with all actions completed. Final Report: All corrective actions were completed by 11-3-2005.
May 2005	Pantex Plant/Balance of Plant	ALO-AO-BWXP-PANTEX-2005-0057 Positive USQ, SS-21 Development: 150 psi Control on the Phoenix Cart Final: 10-25-2005	Correction actions are to be developed. Final report extension to 9-15-2005 (as of 8-19-2005) enabling additional process experts to be engaged. Final Report: All corrective actions were completed by 10-14-2005.
July 2005	Idaho National Laboratory/ Zero Power Physic Reactor	NE-ID--BEA-ZPPR-2005-0001 Potentially Inadequate Safety Analysis Relative to the Seismic Qualifications in the ZPPR Vault Update: 8-30-2005	Is Further Evaluation Required?: Yes If Yes - Before Further Operation? No By whom? Facility Engineering By when? 3-31-2006 This USQ is stil open.
August 2005	ORNL Buildings 3029 and 3026D	EM-ORO--BJC-X10WSTEMRA-2005-0007. As-Found Radiological Condition in ORNL Buildings 3029 and 3026D Affecting characterization. Update: 11-16-2005	Update: 9-28-2005: This report is being updated to provide additional time to complete the corrective action plan. The causal analysis has been completed and this occurrence is part of a programmatic issue with the adequacy of adopted safety basis documents for other Industrial and Radiological Facilities where conditions are being discovered during physical characterization activities that exceed existing safety basis thresholds. The final occurrence report will be issued by 3-31-2006.
August 2005	Hanford/ Building 327	EM-RL—WCH-DND-2005-0002, (formerly EM-RL--327FAC-2005-0002) Radium Source Material Container in 327 Facility Final:	All corrective actions assigned a tracking number (same as ORPS number). Action complete.

Reported in Month	Site/Facility	ORPS ID No. Title of Occurrence Issue Level	Status
August 2005	Hanford/ Building 327	EM-RL--327FAC-2005-0002 Radium Source Material Container in 327 Facility Update	Final—can't find in ORPS any more.
September 2005	Savannah River, S-Area, Defense Waste Processing Facility (WVIT/DWPF) 221-S	SR--WSRC-WVIT-2005-0019, Positive Unreviewed Safety Question Declared Due To Use Of Non-Conservative H2 Generation Rate. Update	Update Issue. 07-26-05: Site New Information NI-SITE-05-003 identified a potential non-conservatism in the calculation of radiolytic hydrogen generation rate due to failure to address all applicable radionuclide daughter products. An evaluation of the DWPF safety basis determined that this problem constituted a Potential Inadequacy in the Safety Analysis (PISA). Calculation S-CLC-S-00100 Rev. 0. Tracking ID: 2005-CTS-002653 CA # 1 - 5. Target Completion: 11-1-2005 (latest). 10-11-2005: The Defense Waste Processing Facility declared a positive Unreviewed Safety Question (USQ) as a result of the evaluation of the potential inadequacy of the documented safety analysis. Status: Awaiting completion of CA. 11-22-2005: Report updated to include 1) Results of a causal analysis to learn why one isotope (Ba-137m) was not included in the existing hydrogen generation analysis. 2) Identify corrective actions to correct the analysis, and to change guidance, review, and training to prevent future occurrences of this oversight, 3) Cancel the need for further evaluation prior to closing the report (based upon completion of the causal analysis and identification of corrective actions required), and, 4) document the November 22, 2005 approval of report and actions taken by the facility manager.
September 2005	Idaho National Laboratory/Advanced Test Reactor	NE-ID--BEA-ATR-2005-0008 Hazard Analysis for Secondary Chemical Addition System, TRA-671 Update: 1-11-06	Is Further Evaluation Required?: Yes If YES - Before Further Operation? No By whom? By when?

Reported in Month	Site/Facility	ORPS ID No. Title of Occurrence Issue Level	Status
October 2005	Portsmouth Gaseous Diffusion Plant. X-745E and C-745T UF6 Cylinder Storage Yards	EM--PPPO-UDS-PORTDUCON-2005-0003 Determination of a Positive Unreviewed Safety Question (USQ) for the Portsmouth, OH and Paducah, KY Uranium Hexafluoride (UF6) Cylinder Yards. Update:	The USQ concerns the possible presence of phosgene, a chemical warfare agent, in Model 30A cylinders that were acquired from the U.S. Army's Chemical Warfare Service during the 1940's. Workers at the Storage Yards were briefed on the potential presence and hazards of the phosgene. Model 30A cylinders will not be moved, pending results of the Unreviewed Safety Question process. Incomplete.
October 2005	Portsmouth Gaseous Diffusion Plant. X-745E and C-745T UF6 Cylinder Storage Yards	EM--PPPO-UDS-PORTDUCON-2005-0003 Determination of a Positive Unreviewed Safety Question (USQ) for the Portsmouth, OH and Paducah, KY Uranium Hexafluoride (UF6) Cylinder Yards. Update:	The USQ concerns the possible presence of phosgene, a chemical warfare agent, in Model 30A cylinders that were acquired from the U.S. Army's Chemical Warfare Service during the 1940's. Workers at the Storage Yards were briefed on the potential presence and hazards of the phosgene. Model 30A cylinders will not be moved, pending results of the Unreviewed Safety Question process. Incomplete.
November 2005	Hanford Site/ FFTF D&D	EM-RL-PHMC-FFTF-2005-0007 Update:	Tracking ID: 20051591-01. A final report is due 1-31-2005, which may have additional items.
November 2005	Hanford Site/ Multiple facilities	EM-RL--PHMC-GENERAL-2005-0007 Final:	CARF#20051634. All corrective actions being tracked.
November 2005	Hanford Site/ Plutonium Finishing Plant	EM-RL--PHMC-PFP-2005-0030 Final:	Tracking ID: CARF20051600. Final report.
November 2005	Hanford Site/ Plutonium Finishing Plant	EM-RL--PHMC-PFP-2005-0031 Final:	Tracking ID: CARF20051600. Final report.

Reported in Month	Site/Facility	ORPS ID No. Title of Occurrence Issue Level	Status
November 2005	Hanford Site/ Plutonium Finishing Plant	EM-RL--PHMC-PFP-2005-0032 Update:	Tracking ID not yet assigned. Final ORPS will be completed first quarter of 2006. Under vault storage conditions, the facility is in a safe configuration. These corrective actions were to ensure the operating configuration is within the Safety Basis risk envelope when the 3013s are removed from the vaults for periodic Non-Destructive Assay. No additional immediate actions were necessary from the determination of a USQ.
November 2005	Hanford Site/FH/K Basins Closure (KBC) Project	EM-RL--PHMC-SNF-2005-0020 Final:	PRC determined that the facility is in a safe condition and no further immediate actions are warranted.
November 2005	Hanford Site/ Tank Farm	EM-RP--CHG-TANKFARM-2005-0049 Final:	All corrective actions assigned and tracked.
November 2005	Hanford Site/ Tank Farm	EM-RP--CHG-TANKFARM-2005-0060 Final:	All corrective actions assigned and tracked.
November 2005	Los Alamos National Laboratory/ Waste Management	NA—LASO-LANL-WASTEMGT-2005-0026 An Inadequacy in the Documented Safety Analysis was identified involving Degradation of YRU Waste Processing Equipment at TA-50-1 Final: 12-20-2005	As corrective action, LANL submitted a report to NNSA on December 1, 2005. The report included a request for NNSA approval of the compensatory controls for resuming TRU waste processing operations.
November 2005	Los Alamos National Laboratory/ Pajarito Laboratory	NA—LASO-LANL-TA18-2005-0007 Positive USQ – Audible neutron counters listed as a control in BIO but not in TSR Update: 12-21-2005	Update on 12-21-2005. The earlier review of the TSRs failed to identify the fact that BIO-described use of neutron counters as controls for experiments was not captured. The schedule has been extended to 1/27/2006 to permit time to complete investigation into the cause of the discrepancy between the BIO and the TSRs.
November 2005	Paducah GDP/C-749 Uranium scrap Burial	EM--PPPO-BJC-PGDPENVRES-2005-0008 Positive Unreviewed Safety Question (USQ) Concerning the C-749 Uranium Scrap Burial Ground. Final: 11-21-2005	While preparing a safety basis document update for the C-404 Low-level Radioactive Waste Burial Ground, information regarding the C-749 Uranium Scrap Burial Ground was discovered that indicates a Potentially Inadequate Safety Analysis (PISA) condition for C-749. The planned path forward to resolve the positive USQD (potential for HC-2 source term in HC-3 facility) involves the development, approval, and implementation of an appropriate SB document for the facility. Until this new SB is in place, the facility will remain safe and stable based on its current configuration and the existing SB requirement that environmental remediation activities be evaluated prior to the initiation of work and the Paducah Project work control process requiring all activities be evaluated prior to the initiation of work.

Reported in Month	Site/Facility	ORPS ID No. Title of Occurrence Issue Level	Status
November 2005	Pantex Plant/Pantex Plant	NA—PS-BWXP-PANTEX-2005-0120 Staging Facility Temperature Rate of Rise – PISA Notification: 11-4-2005	A JCO has been initiated.
November 2005	Pantex Plant/Pantex Plant	NA—PS-BWXP-PANTEX-2005-0131 Positive USQ, ss-21 Hazard Analysis Report (HAR) Update: 12-2-2005	No actions or compensatory measures were taken because no operations were/are being conducted under this SS-21 HAR. Final ORPS report is scheduled
November 2005	Hanford Site/ FFTF D&D	EM-RL-PHMC-FFTF-2005-0007 Update	Tracking ID: 20051591-01. A final report is due January 31, 2005, which may have additional item
November 2005	Hanford Site/ Multiple facilities	EM-RL--PHMC-GENERAL-2005-0007 Final Report	CARF#20051634. All corrective actions being tracked.
November 2005	Hanford Site/ Plutonium Finishing Plant	EM-RL--PHMC-PFP-2005-0030 FINAL	Tracking ID: CARF20051600. Final report.
November 2005	Hanford Site/ Plutonium Finishing Plant	EM-RL--PHMC-PFP-2005-0031 Final Report	Tracking ID: CARF20051600. Final report.
November 2005	Hanford Site/ Plutonium Finishing Plant	EM-RL--PHMC-PFP-2005-0032 Update	Tracking ID not yet assigned. Final ORPS will be completed first quarter of 2006. Under vault storage conditions, the facility is in a safe configuration. These corrective actions were to ensure the operating configuration is within the Safety Basis risk envelope when the 3013s are removed from the vaults for periodic Non-Destructive Assay. No additional immediate actions were necessary from the determination of a USQ.
November 2005	Hanford Site/FH/K Basins Closure (KBC) Project	EM-RL--PHMC-SNF-2005-0020 Final Report	PRC determined that the facility is in a safe condition and no further immediate actions are warranted. .
November 2005	Hanford Site/ Tank Farm	EM-RP--CHG-TANKFARM-2005-0049 Final Report	All corrective actions assigned and tracked.
November 2005	Hanford Site/ Tank Farm	EM-RP--CHG-TANKFARM-2005-0060 Final Report	All corrective actions assigned and tracked.

Reported in Month	Site/Facility	ORPS ID No. Title of Occurrence Issue Level	Status
December 2005	East Tennessee Technology Park. K-25 Building.	EM-ORO--BJC-K25ENVRES-2005-0031. Potential Inadequate Safety Analysis Associated with the Relocation of Tenant Operations. Update:	K-25 personnel identified a Potentially Inadequate Safety Analysis (PISA) condition following the relocation of a tenant's operations from the K-1037 to the K-1036 facility that potentially increases the hydrogen explosion hazard beyond what was considered within the K-25 Documented Safety Analysis. The relocation of the tenant's operation now places a 3,000-gallon hydrogen storage tank within approximately 500 feet of the K-25 Building. Compensatory actions and a PISA have been initiated. Further evaluation pending.
December 2005	Hanford Site/ PNNL	SC--PNSO-PNNL-PNNLNUCL-2005-0012 Final	All corrective actions assigned.
December 2005	Idaho National Laboratory/ ICPP Fuel Receipt & Storage Act.	EM-ID--CWI-FUELRCSTR-2005-0008 Potential Inadequacy in the Safety Analysis (PISA), SAR-126 Update: 12-14-2005	Is Further Evaluation Required?: Yes If YES – Before Further Operation? No By whom? NMD Operations By when?
December 2005	Idaho National Laboratory/ INL Labs	NE-ID--BEA-INLLABS-2005-0003 PISA Insufficient Analysis of Hoisting and Rigging Accident Scenario Update: 12-7-2005	Add the hoisting and rigging program as a specific TSR and add an entry to the accident scenario table describing hoisting and rigging as an accident initiator, in the Analytical Laboratory annual update of the DSA. Target Completion Date: 6-30-2006 Tracking: DR 39243 AC 37888
December 2005	ORNL Transuranic Storage Facilities	EM-ORO-BJC-X10WSTEMRA-2005-0010. Potential USQ Concerning the Analysis of a Container Deflagration Event in Bechtel Jacobs Company (BJC) Transuranic (TRU) Storage Facilities. Update.	A potential unreviewed safety question (USQ) was identified concerning the safety basis analysis of a container deflagration event in the Transuranic (TRU) Waste Storage Facilities. The current safety basis for these facilities documents storage, receipt, shipment and over-packing as approved activities. Spontaneous combustion and container over-pressurization events are analyzed, but a deflagration event is not specifically addressed. movement of unvented drums has been limited, notifications have been made, and an USQ determination has been initiated.
December 2005	Oak Ridge Operations TRU Waste Processing Facility	EM-ORO-FWEC-TRUWPFAC-2005-0002. Pressurized gas cylinders used in HSGS analysis of waste drums not included in safety analysis. Update.	Nuclear Safety personnel identified a Potentially Inadequate Safety Analysis condition after discovering that the hydrogen gas cylinders used for Head Space Gas Sampling operations were not considered in the DSA accident analysis. A preliminary safety evaluation was performed which determined that there was no resulting increase level of risk, therefore no immediate actions were required. An Unreviewed Safety Question Determination was initiated.

Reported in Month	Site/Facility	ORPS ID No. Title of Occurrence Issue Level	Status
December 2005	Pantex Plant/Pantex Plant	NA—PS-BWXP-PANTEX-2005-0142 Specific Surge Suppression Arrangements found Ineffective through testing (Positive USQ) Update: 12-212-2005	Appropriate operations were suspended in the three facilities until JCO is written and compensatory measures are in place.
December 2005	Y-12 complex, Uranium processing, Building 9212.	NA--YSO-BWXT-Y12NUCLEAR-2005-0037 Inadequacy in the Documented Safety Analysis: Phase-Separator Function. Final.	Y-12 personnel determined a Potential Inadequate Safety Analysis condition regarding an inadequacy in the Documented Safety Analysis for the Building 9212 phase separators that are used to separate liquid phases of a process solution. There were no criticality concerns due to the conservative nature of the Criticality Safety Evaluation calculations. Subsequently, the equipment was placed in a safe and stable condition, a lockout/tagout was applied to isolate the material, and a critique was held. Implement solutions to fix the problems recommended by the evaluation conducted as a result of above actions. Closure Criteria - correspondence from the Chemical Processing Production Manager stating that the problem has been resolved and the process is operating properly. Target date 1-31-2007.

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Appendix C

USQ Safety Basis Document Cause Codes

Unreviewed Safety Questions (USQs)
Cause Codes

Potential Unreviewed Safety Questions (USQs) for a facility arise in situations involving events, discoveries, proposed changes in operations to conduct new tests, experiments, D&D, changes in or removal of existing equipment or equipment specifications or introducing new equipment etc., each of which may have safety implications that either are not addressed or are inadequately addressed in the facility's documented safety analysis (DSA), such as: SAR (including SER), BIO, JCO, etc. Any of these situations would trigger a USQ determination process.

Naturally, for a facility without any DSA, virtually every proposed activity in the facility with the potential for an accident constitutes a USQ situation.

There are mainly two types of USQ situations as indicated below:

A. Potential new accident scenarios that are not analyzed in the DSA
B. Potential accident scenarios that are not fully analyzed in the DSA and may have
   - potentially higher likelihood of occurring or
   - potentially higher consequences from occurrence of the accident than those estimated in the DSA.

In the following tables, a compilation of causes for the potential USQ situations is developed. A code is assigned to each of these causes for simplicity of tracking.

Table 1: Type A USQs

Cause Description	Assigned Code
Nonexistent DSA	A1
Discovery of certain radioactive or other hazardous material in the facility inventory that may cause an event scenario with potential for a radiological release that is not analyzed in the DSA	A2
Recognition of chemical and physical properties of radioactive or other hazardous material in the facility inventory that may cause an event scenario with potential for a radiological release that is not analyzed in the DSA	A3
Mission or procedure change during facility operations or change to facility itself which is not addressed in the DSA	A4
Proposed change in the equipment specifications, removal of equipment, or introduction of new systems or equipment into the facility for change in mission, activity or operating procedure, such as during D&D, new experiments, tests, etc.	A5
Inadequate or missing safety systems or barriers to radioactive material release	A6
Potential accident scenarios missed in the DSA	A7

Table 2: Type B USQs

Cause Description	Assigned Code
Accident scenario lacks depth and details: An accident scenario identified in the DSA is not pursued in detail from the initiating event (including its frequency) through: the safety systems response, accident phenomenology and progression, radioactive material behavior, and potential radioactivity release into the work areas inside and to the environment outside of the facility and the consequences of such releases.	B1
Inadequate or flawed analysis (including errors in analysis softwares):	B2.i - xi
i. Seismic, and other natural phenomena and external hazards	
ii. Structural	
iii. Fire	
iv. Criticality	
v. Chemical and/or radiological safety	
vi. Packaging/storage/waste tanks/transportation	
vii. Shielding	
viii. Equipment design, sizing, and qualification specifications	
ix. Airborne exposure pathway to the work areas inside and the environment outside the facility	
x. Liquid exposure pathway to the inside and outside the facility	
xi. Hazards, including explosion, electrical and other	
Deficiencies in programs	B3.i - viii
i. Maintenance (active and passive systems), surveillance, testing, inspection	
ii. Training	
iii. Radiological	
iv. Criticality safety	
v. Fire protection	
vi. Configuration management	
vii. Quality assurance	
viii. Conduct of operation and others	
Equipment malfunction/failure – random failure, maintenance failure (includes safety structure, systems and components, valves, pumps, filters, fans, blowers, resin beds, hardwares, etc.)	B4.i - v
i. Equipment aging, rusting, broken, suspect parts	
ii. Equipment unavailable	
iii. Equipment unreliable	
iv. Equipment out of calibration or alignment (sensors, detectors, meters, CAMs, etc.), interlock non-functional	
v. Others	

Table 2: Type B USQs
(continued)

Incorrect application of Standards, such as STD-1027, STD-3011, STD-3009, DOE-HDBK-3010-94, STD-1120, etc.	B5
Incorrect assumptions in the accident analysis in the DSA	B6.i(a-f) - ii
i. Underestimated source term due to:	
a. Overestimate of credit for packaging/barrier/confinement/waste tank/ESF integrity	
b. Underestimate of Material at Risk (MAR), Damage Ratio, Airborne Release Fraction, Respirable Fraction, Leak Path Factor	
c. Introduction of additional material at risk into, or identification of additional material at risk in the facility, not included in the DSA.	
d. Overestimate of credit for: filter efficiency, clogged filter, saturated resin beds, etc.	
e. Underestimate of spill into the facility or release to the ground or groundwater	
f. Improper binning of source terms, inadequate source term for bounding analysis.	
ii. Underestimate of X/Q and other factors for dose estimates	
Inadequacy of TSR elements that result in undermining or invalidating the assumptions in the DSA	B7.i - ix
i. Safety Limit (SL), Limiting Control Setting (LCS), Limiting Condition of Operation (LCO)	
ii. Interlock configuration, setting, set point, alarm systems.	
iii. Pressure differentials across air-volume compartments for air leakage/flow control.	
iv. Redundancy (established invoking single failure criterion).	
v. Double contingency for criticality safety	
vi. Hazard control/safety systems, system specs, hardwares, operability.	
vii. Administrative controls, surveillance requirements.	
viii. Work procedure.	
ix. Others.	

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Unreviewed Safety Question Activity Report

October – December 2005