MAY 3 1 2007

M&O-MDO-2007-00228
RSM Track #: 10095

Mr. Carl A. Everatt, Director
Office of Safety and Quality Assurance
U. S. Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, SC 29808

Dear Mr. Everatt:

DNFSB 2004-2 Ventilation Implementation Final Report for Outside Facilities-H (OF-H)

References:

1. WSRC-SA-2001-00008, Revision 10, H-Canyon Safety Analysis Report, January 2007.
2. WSRC Memorandum M&O-MDO-2007-00139, from W.E. Harris to C.A. Everatt, "DNFSB 2004-2 Ventilation Implementation (Table 4.3) Outside Facilities H-Canyon".

This letter supersedes the previous Table 4.3 transmittal (Ref. 2) stating that a Table 5.1 (Ventilation System Performance Criteria) gap analysis would be performed, and transmits the final report of DNFSB Recommendation 2004-2, "Active Confinement Systems for the OF-H located at the Savannah River Site (SRS)" for Site Evaluation Team review and concurrence. This is in accordance with Department of Energy (DOE) guidance provided in "Ventilation System Evaluation Guidance for Safety-Related and Non-Safety Related Systems," Revision 0, January 2006 (hereafter called the DOE guidance document). The Facility Evaluation Team (FET) has concurred with the information contained herein.

The H-Outside Facilities (OF-H) described herein are identified as Hazard Category 2. There are no credited Safety Class (SC) or Safety Significant (SS) Confinement Ventilation Systems (CVSs) associated with these facilities. There is a non-credited Recycle Vessel Vent (RVV) active CVS that draws a slight vacuum on each vessel and discharges to the sand filter. Although the facilities are located out of doors, the source term contained in the vessels is low. For all of the accident consequences identified for the OF-H in the H-Canyon SAR (Ref. 1), all of the unmitigated radiological consequences are below the Evaluation Guidelines (EGs) for the Maximally Exposed Offsite Individual (MOI) (25 rem) (bounding event: Transfer Error, 0.91 rem)and the Evaluation Criteria for the Co-Located Worker (CW) (100 rem) (bounding event: Criticality, 52 rem) . Additionally, the unmitigated radiological consequences do not exceed the minimum EGs required to establish SS defense-in-depth controls to protect the collocated worker and offsite public as defined in WSRC E7 Manual, Procedure 2.25. The accident analysis does not require a CVS as a mitigator for any of the Design Basis Accidents (DBAs) since the unmitigated doses do not challenge the current control selection guidelines. Note that H-Canyon SAR accident

MAY 3 1 2007

consequences have not been calculated using current DOE Environmental Management (DOE-EM) Interim Guidance, but work is underway to revise the SARs to current guidance. For example, 50% meteorology was used for the CW instead of 95%, but Material at Risk (MAR) estimates may be overly conservative.

The DOE guidance document requires a functional review of the facility CVS using a system evaluation approach. Functional design and performance attributes are defined to provide a structured approach to the evaluation and to address a generic set of attributes potentially applicable to a CVS. The DOE guidance document requires a review of the Hazard Category 2 facilities Documented Safety Analysis (Ref. 1), and the generic performance criteria provided in the DOE guidance document to identify gaps in the ventilation system and/or safety basis documents.

With guidance from the Site Evaluation Team and the DOE-HQ Independent Review Panel, a Table 5.1 is not warranted for these facilities since there are no confinement structures and no CVSs at these facilities. The FET recommends no facility modifications at this time but that the Safety Basis upgrade, that is currently underway, identify if additional Safety Basis controls are warranted. This recommendation is based on the following:

- Radiological doses to the MOI and CW below minimum EGs required to establish SS controls per WSRC E7 Manual, Procedure 2.25.
- Significant cost of constructing a confinement structure and CVS for multiple OF-H facilities (A-Line Facility, General Purpose Evaporator Facility, and Segregated Solvent Facility).
- The SAR is currently being revised to comply with DOE-EM Interim Guidance, which may change many of the accident scenarios and consequences.

Facility Evaluation Team Concurrence:

T. M. Smith
DOE
5/31/07
Date

R. A. Frushour
FET/H-Canyon Lead
5/31/07
Date

Sincerely,

for W E. Harris, Jr.

W. E. Harris, Jr., Chief Engineer
H-Area Material Disposition Project

weh/rf

Att.

MAY 3 1 2007

c: J. C. Barnes, DOE-SR, 704-2H
T. M. Smith, DOE-SR, 704-2H
J. D. Kekacs, DOE-SR, 704-2H
M. A. Smith, DOE-SR, 730-B
C. C. Harris, DOE-SR, 703-H
N. P. Garrett, DOE-SR, 704-2H
A. M. Vincent, 730-4B
K. W. Stephens, 730-4B
S. A. MacVean, 704-2H
C. R. Goergen, 704-2H
S. J. Howell, 221-H
S. A. Yano, 704-2H
S. E. Federman, 704-2H
R. L. Huffines, 704-2H
R. A. Frushour, 704-2H
B. R. Moncrief, 249-7H
K. D. Scaggs, 704-2H
J. P. Arnold, 211-18H
D. E. Welliver, 704-185H
H. Branham, 704-2H
D. C. Massey, CCC-3
L. L. Wright, 704-2H
Records Admin., 773-52A

Savannah River Site
OF-H Facilities
DNFSB Recommendation 2004-2
Ventilation System Evaluation

Table of Contents

Definitions

Confinement	A building space, room, cell, glovebox, or other enclosed volume in which air supply and exhaust are controlled, and typically filtered.
Confinement System	The barrier and its associated systems (including ventilation) between areas containing hazardous materials and the environment or other areas in the facility that are normally expected to have levels of hazardous material lower than allowable concentration limits.
Hazard Category	Hazard Category is based on hazard effects of unmitigated release consequences to offsite, onsite and local workers.
Performance Category	A classification based on a graded approach used to establish the Natural Phenomena Hazard (NPH) design and evaluation requirements for structures, systems, and components required to supply air to, circulate air within, and remove air from a building/facility space by natural or mechanical means.
Ventilation System	The ventilation system includes the structures, systems, and components required to supply air to, circulate air within, and remove air from a building/facility space by natural or mechanical means.

Acronyms

BTT	Basin Transfer Tank
CVS	Confinement Ventilation System
CW	Co-Located Worker (100 meters)
DBA	Design Basis Accident
DF	Design Feature
DID	Defense-in-Depth
DNFSB	Defense Nuclear Facility Safety Board
DOE	Department of Energy
DSA	Documented Safety Analysis
EG	Evaluation Guideline
EUS	Enriched Uranium Storage
FET	Facility Evaluation Team
GP	General Purpose
HA	Hazard Analysis
LEU	Low Enriched Uranium
MAR	Material at Risk
MOI	Maximally Exposed Offsite Individual
NPH	Natural Phenomena Hazard
OF-H	H-Outside Facilities
rem	Roentgen Equivalent Man
RVV	Recycle Vessel Vent
SAR	Safety Analysis Report
SRS	Savannah River Site
SS	Safety Significant

Executive Summary

On December 7, 2004, the Defense Nuclear Facilities Safety Board (DNFSB) issued Recommendation 2004-2, Active Confinement Systems. Recommendation 2004-2 noted concerns with the safety system (Safety Class/Safety Significant) designation strategy utilized in several facilities to confine radioactive materials during or following accidents. The DNFSB main issue is that for the purpose of confining radioactive materials through a facility-level ventilation system, safety system designation should be based on the active safety function (forced air though a filter system) rather than reliance on a passive confinement system.

The Department of Energy (DOE) agreed to review all Hazard Category 2 and 3 defense nuclear facilities and developed a methodology to perform a system evaluation for the identified facilities. This confinement ventilation evaluation is for the H-Outside Facilities (OF-H) at the Savannah River Site (SRS). The evaluation was performed in accordance with the requirements of Ref. 3 (hereafter called the DOE guidance document).

Operations conducted in OF-H include general support for H-Canyon operations, principally for processing of irradiated/unirradiated fuels and targets. This process area is located in an open area east of the 221-H building. The term "Outside Facilities" is used to describe a wide variety of processes and utilities that are ancillary to the primary 200-H Area operations. The facilities described herein are identified as Hazard Category 2.

The DOE guidance document requires a functional review of the facility Confinement Ventilation System (CVS) using a system evaluation approach. Functional design and performance attributes are defined to provide a structured approach to the evaluation and to address a generic set of attributes potentially applicable to a CVS. The DOE guidance document requires a review of the Hazard Category 2 facilities Documented Safety Analysis (Ref. 1) and the generic performance criteria provided in the DOE guidance document (Ref. 3) to identify gaps in the ventilation system and/or safety basis documents.

There are no credited confinement structures and no credited CVS in OF-H, nor is any CVS required by the Safety Analysis Report (SAR) (Ref. 1) due to the low radiological doses associated with normal facility operation, as identified in Ref. 2. DSA controls (non-safety related) and the Criticality Safety Program (CSP) are adequate to prevent criticality events and addition of an active CVS would do little to mitigate the worker consequences. There is a non-credited Recycle Vessel Vent (RVV) active CVS that draws a slight vacuum on each vessel and discharges to the sand filter. With guidance from the Site Evaluation Team and the DOE-HQ Independent Review Panel, a Table 5.1 evaluation is not warranted.

None of the OF-H accidents result in unmitigated consequences that exceed the offsite evaluation guidelines or onsite evaluation criteria. Note that H-Canyon and HB-Line SAR accident consequences have not been calculated using current DOE Environmental Management (DOE-EM) Interim Guidance, but work is underway to revise the SARs to current guidance. For example, 50% meteorology was used for the Co-located Worker (CW) instead of 95%, but Material at Risk (MAR) estimates may be overly conservative.

Based upon the low radiological doses to the Maximally Exposed Offsite Individual (MOI) and CW, the high cost of constructing a confinement structure and CVS for multiple facilities (A-Line Facility, General Purpose Evaporator Facility, and the Segregated Solvent Facility [reference Figure 1]), and the current work to revise the SAR consequences per DOE-EM Interim Guidance, the FET believes there is little benefit in constructing a CVS for any of the OF-H facilities and recommends that no modifications be made at this time but that the Safety Basis upgrade, that is currently underway, identify if additional Safety Basis controls are warranted.

1. Introduction

1.1 Facility Overview

H-OUTSIDE FACILITIES

The OF-H are located in the 200-H Separations Area and are comprised of a number of processes, utilities, and services that support the separations function. The OF-H provide general support, principally to the processing of irradiated/unirradiated fuels and targets in Building 221-H. The term "Outside Facilities" is used to describe a wide variety of processes and utilities that are ancillary to the primary 200-H Area operations. The OF-H processes include A-Line, General Purpose Evaporation, Segregated Solvent facilities, and Enriched Uranium Storage (EUS) Tank. Low Level Waste containers (e.g., Sealands, B-25s, B-12s, roll pans, and pot boxes) are also temporarily stored or staged at OF-H in support of H-Canyon activities. (Reference Figure 1 for the general facility diagram.)

A-LINE

The H-Area A-Line receives a dilute aqueous uranyl nitrate product solution enriched in U-235 from H-Canyon. The uranyl nitrate solution is stored in A-Line and the EUS Tank. A-Line is comprised of stainless steel storage and loading tanks and various pipes, pumps, valves, and other equipment by which uranyl nitrate product solutions are transferred, mixed, and stored. The primary purpose of the EUS Tank is to provide additional storage for approximately 163,000 gallons of liquid uranyl nitrate solution transferred from H-Canyon and A-Line tanks. The EUS Tank is used to store uranium solution that requires further purification and off-specification Low Enriched Uranium (LEU). (Reference Figure 1 for the location of A-Line Facility.)

GENERAL PURPOSE EVAPORATOR

The General Purpose (GP) Evaporator concentrates low-level radioactive alkaline aqueous wastes. The principal GP system components are an evaporator, a preheater and associated feed, hold, and storage tanks. The GP Evaporator, a flash evaporator, operates under reduced pressure with forced bottoms circulation. Concentrates are pumped to the Waste Tank Farm; condensates are pumped to holding tanks for disposal in the Effluent Treatment Project. (Reference Figure 1 for location of the GP Evaporator.)

SEGREGATED SOLVENT FACILITIES

The Solvent Recovery process removes degradation products and radioactive contaminants from spent solvent, neutralizes alkalinity from entrained carbonate wash, and returns the treated solvent to the extraction process. Principal equipment items are six tanks. Three tanks receive acid wash solution from Cold Feed Preparations, mix it with used solvent, then separate the solvent allowing it to overflow to a hold tank. Clean solvents are pumped back to the canyon for reuse, and wash solutions are pumped to the water handling facility for treatment or disposal. (Reference Figure 1 for location of the Segregated Solvent Facilities.)

1.2 Confinement Ventilation System/Strategy

There are no credited active or passive CVSs associated with these facilities. There is a non-credited RVV active CVS that draws a slight vacuum on each vessel and discharges to the sand filter. Although the facilities are located out of doors, the source term contained in the vessels is low. The consequence and frequency analysis demonstrates that depleted and blended uranium solution storage, process and shipping containers, and other OF-H operations pose no undue risk to the public, the facility or onsite workers and the environment. The offsite Evaluation Guidelines and onsite evaluation criteria are not challenged for any of the bounding accidents in Attachment 1.

1.3 Major Modifications

There are no Major Modifications currently underway or planned for these facilities.

2. Functional Classification Assessment

2.1 Existing Classification

There are no credited active CVSs in the OF-H. There is a non-credited RVV active CVS that draws a slight vacuum on each vessel and discharges to the sand filter.

2.2 Evaluation

There are no credited SS or SC CVSs associated with these facilities. There is a non-credited RVV active CVS that draws a slight vacuum on each vessel and discharges to the sand filter. Although the facilities are located out of doors, the source term is low. The consequence and frequency analysis demonstrates that depleted and blended uranium solution storage, process and shipping containers, and other OF-H operations pose no undue risk to the public, the facility or onsite workers and the environment.

2.3 Summary

Due to low radiological doses for the OF-H facilities, there are no credited SS or SC CVSs. DSA controls (non-safety related) and the Criticality Safety Program (CSP) are adequate to prevent criticality events and addition of an active CVS would do little to mitigate the worker consequences. There is a non-credited RVV active CVS that draws a slight vacuum on each vessel and discharges to the sand filter. The unmitigated radiological consequences are low and do not exceed the minimum EGs (bounding events: Criticality, 52 rem for CW, and Transfer Error, 0.91 rem for MOI) required to establish Safety Significant (SS) defense-in-depth controls to protect the offsite public as defined in WSRC E7 Manual, Procedure 2.25.

The Hazard Analysis (HA) identified various events that were further evaluated as Design Basis Accidents (DBAs) in the SAR (Ref. 1). The DBAs include: natural phenomena, loss of confinement, explosion, external impact, fire, and criticality. The accident analysis does not require a CVS as a mitigator for any of the DBAs since the low unmitigated doses do not challenge the current control selection guidelines.

3. System Evaluation

3.1 Identification of Gaps

The DOE guidance document (Ref. 3) requires a functional review of the facility CVS using a system evaluation approach. Functional design and performance attributes are defined to provide a structured approach to the evaluation and to address a generic set of attributes potentially applicable to a CVS. The DOE guidance document requires a review of the Hazard Category 2 facilities SAR (Ref. 1), and the generic performance criteria provided in the DOE guidance document to identify gaps in the ventilation system and/or safety authorization basis documents.

With guidance from the Site Evaluation Team and the DOE-HQ Independent Review Panel, a Table 5.1 evaluation is not warranted. There are no credited confinement structures and no credited active CVSs due to the low radiological doses associated with facility operation as identified in Ref. 2 (Attachment 1).

3.2 Gap Evaluation

For OF-H, there are no credited building structures and no credited CVSs to evaluate. There is a non-credited RVV active CVS that draws a slight vacuum on each vessel and discharges to the H-Canyon

sand filter and exhaust stack. The H-Canyon SAR (Ref. 1) accident consequences have not been calculated using current DOE-EM Interim Guidance, but work is underway to revise the SAR to current guidance. For example, 50% meteorology was used for the CW instead of 95%, but MAR estimates may be overly conservative. The MAR in the consequence analysis provides additional conservatism to indicate that the actual consequences will be much lower than those reported in the SAR accident consequence analysis. Consistent with the previous Table 4.3 submittal for OF-H (Ref. 2), unmitigated radiological doses to the public and on-site receptors are below offsite evaluation guidelines and onsite evaluation criteria.

The OF-H are located out of doors because the source term contained in the vessels is low. Due to low unmitigated radiological doses, the OF-H facilities operate without a credited confinement structure and without a credited CVS. Dikes are provided around the vessels to prevent runoff of normally encountered leaks and spills, and to mitigate the consequences of spills that are possible during severe natural phenomena. Therefore, risks to the surrounding environment are low. Fissile material concentrations are kept well below those necessary to achieve a nuclear criticality.

Design Features (DFs) include the B Basins (located entirely below grade) and the F1-6 Basin, which contain spilled liquid and prevent a release pathway to surface water. The materials of construction (strength) of the vessels at OF-H are a DF as well as the passive vents such as the vessel overflow lines, which are SS DFs that serve as escape outlets for pressure or liquid buildup in the tanks. The double-walled stainless steel EUS Tank is qualified to PC-3 NPH conditions and is equipped with a conservation vent.

The non-credited RVV system is an active CVS that maintains a vacuum on each vessel and discharges to the credited H-Canyon 294-H and 294-1H Sand Filters and the 291-H Exhaust Stack. One of the two RVV exhaust fans is in standby and automatically starts if the online exhaust fan fails or if the vacuum in the RVV header drops below limits. The RVV system functions automatically. In the event of failure of the RVV system, the GP Evaporator is shut down according to normal procedure. Other Building 211 operations that involve handling contaminated solutions are stopped and the canyon supervisor is notified. The exhaust fans are connected to the Building 292 emergency power system.

3.3 Modifications and Upgrades

Based upon the low radiological doses to MOI and CW, the high cost of constructing a confinement structure and CVS for multiple facilities (A-Line Facility, General Purpose Evaporator Facility, and the Segregated Solvent Facility), and since the SAR is currently being revised to DOE-EM Interim Guidance, the FET recommends that no modifications be made to the OF-H at this time but that the Safety Basis upgrade, that is currently underway, identify if additional Safety Basis controls are warranted.

4. Conclusion

For all of the accident consequences identified in the SAR for the OF-H Facilities, all of the unmitigated radiological consequences are below the EGs for the MOI (25 rem) and the CW (100 rem). Additionally, the unmitigated radiological consequences do not exceed the minimum EGs required to establish SS defense-in-depth controls to protect the collocated worker and offsite public as defined in WSRC E7 Manual, Procedure 2.25. The accident analysis does not require a CVS as a mitigator for any of the DBAs since the unmitigated doses do not challenge the current control selection guidelines. The consequence and frequency analysis demonstrates that depleted and blended uranium solution storage, process and shipping containers, and other OF-H operations pose no undue risk to the public, the facility or onsite workers and the environment. Note that H-Canyon and HB-Line SAR accident consequences have not been calculated using current DOE-EM Interim Guidance, but work is underway to revise the SARs to current guidance. For example, 50% meteorology was used for the CW instead of 95%, but MAR estimates may be overly conservative.

The safety analysis of OF-H and related support facilities indicates that the operation of these facilities to support the current and planned missions does not present undue risk to the general public, site workers, facility workers, or the environment.

5. References

1. WSRC-SA-2001-00008, Revision 10, H-Canyon Safety Analysis Report, January 2007.

2. WSRC Memorandum M&O-MDO-2007-00139, from W.E. Harris to C.A. Everatt, "DNFSB 2004-2, Ventilation Implementation (Table 4.3) Outside Facilities H-Canyon"
3. Ventilation System Evaluation Guidance for Safety-Related and Non-Safety Related Systems, Revision 0, January 2006 and the "2004-2 Ventilation System Evaluation Guidance Addendum", March 6, 2007.

Attachment 1

DNFSB Recommendation 2004-2 Table 4.3

OF-H Ventilation System Data Collection Table

Attachment 1 - 2004-2 Table 4.3, OF-H Ventilation System Data Collection Table

ATTACHMENT 1

Confinement Documented Safety Analysis Information										
Outside Facilities H-Area				Hazard Category 2				Performance Expectations		
Bounding Accidents [1]	Type Confinement		Doses Bounding unmitigated / mitigated [2]	Confinement Classification			Function	Functional Requirements	Performance Criteria	Compensatory Measures
	Active	Passive		SC	SS	DID				
Natural Phenomena-Earthquake.[5] (A.2.5.1)			Unmitigated [3, 4] MOI = 0.39 rem CW = 0.75 rem				No credit is taken for confinement in this scenario.	None	None	None
Natural Phenomena-Tornado.[6] (A.2.5.2)			Unmitigated [3, 4] MOI = 0.35 rem CW = 0.44 rem				No credit is taken for confinement in this scenario.	None	None	None
Loss of Confinement-Transfer Error to Outside Facilities. (8.3.2.5.1)			Unmitigated [4, 8] MOI = 0.91 rem CW = 7.8 rem		Note 7		No credit is taken for confinement in this scenario.	None	None	None
Loss of Confinement-Overflow of EUS Tank. (A.2.5.3)			Unmitigated [3, 4] MOI = 0.039 rem CW = 0.1 rem				No credit is taken for confinement in this scenario.	None	None	None

Attachment 1 - 2004-2 Table 4.3, OF-H Ventilation System Data Collection Table

Confinement Documented Safety Analysis Information										
Outside Facilities H-Area				Hazard Category 2				Performance Expectations		
Bounding Accidents [1]	Type Confinement		Doses Bounding unmitigated / mitigated [2]	Confinement Classification			Function	Functional Requirements	Performance Criteria	Compensatory Measures
	Active	Passive		SC	SS	DID				
Hydrogen Deflagration. [9] (A.2.5.4)			Unmitigated [3, 4] MOI = 0.17 rem CW = 9.4 rem				No credit is taken for confinement in this scenario.	None	None	None
External Impact- EUS Tank. [10] (A2.5.5)			Unmitigated [3, 4] MOI = 0.039 rem CW = 0.1 rem				No credit is taken for confinement in this scenario.	None	None	None
Fire- A-Line Large Fire. (A.2.5.6)			Unmitigated [3, 4] MOI = 0.2 rem CW = 21 rem				No credit is taken for confinement in this scenario.	None	None	None
Fire- Solvent Fire. (A.2.5.6)			Unmitigated [3, 4] MOI = 0.0052 rem CW = 0.52 rem				No credit is taken for confinement in this scenario.	None	None	None

Attachment 1 - 2004-2 Table 4.3, OF-H Ventilation System Data Collection Table

Confinement Documented Safety Analysis Information									
Outside Facilities H-Area				Hazard Category 2				Performance Expectations		
Bounding Accidents [1]	Type Confinement		Doses Bounding unmitigated / mitigated [2]	Confinement Classification			Function	Functional Requirements	Performance Criteria	Compensatory Measures
	Active	Passive		SC	SS	DID				
Criticality-OF-H Sump. (A.2.5.7)			Unmitigated [3, 4] MOI = 0.00039 rem CW = 52 rem				No credit is taken for confinement in this scenario.	None	None	None

Attachment 1 - 2004-2 Table 4.3, OF-H Ventilation System Data Collection Table

Notes:

1. The Bounding Accidents were identified from section A.2.5 (Accident Consequences) and Section 8.3.2, (Dominant Accident Scenario Descriptions) in the H-Canyon SAR.

2. MOI – Maximally Exposed Offsite Individual; CW – Collocated Worker (100 meters).

3. Doses taken from H-Canyon SAR, Table ES-3, (Outside Facilities H-Area Risk Summary). The CW consequence analysis is based on a 50% meteorology source term. These facilities now fall under the interim guidance; therefore, 95% meteorology will be addressed in the Documented Safety Analysis (DSA) upgrade for the CW.

4. Both the mitigated and unmitigated doses are the same. No credit is taken for controls to reduce the unmitigated doses.

5. For all systems except the Basin Transfer Tanks (BTT), it is assumed that 50% of the released liquid reaches the surface water system, with the remaining 50% forming a pool and contributing to a resuspension source term. Since the B-Basins are entirely below grade, there is no release to surface water for this system.

6. Because the B- Basins are below grade, the B-Basin tanks are not included in the DBT release scenario.

7. The engineered controls that mitigate the consequences of a transfer error to Outside Facilities are the B-Basins and the F1-6 Basin, which contain the spilled liquid. The B-Basins and F1-6 Basins prevent liquid releases to the waterways.

8. Doses taken from H-Canyon SAR, Table ES-2, (H-Canyon Risk Analysis Summary). The CW consequence analysis is based on a 50% meteorology source term. These facilities now fall under the interim guidance; therefore, 95% meteorology will be addressed in the DSA upgrade for the CW.

9. The dose from a hydrogen deflagration will bound all other deflagration accidents.

10. The bounding case for an external impact accident is a tank rupture causing 100% of the EUS Tank contents to be discharged to the pad. The dose from an external impact into the EUS Tank will bound all other external impacts into any other A-Line Tank, sample return trailers, or the Hanford Containers for the offsite receptor (H-Canyon SAR, Addendum 2, Section A.2.5.5, External Impact).

Attachment 2

Facility Evaluation Team Composition and Biographical Sketches

R.A. Frushour – WSRC FET H-Canyon Lead Engineer

Dick Frushour has a Bachelor of Science Degree in Mechanical Engineering. He has 32 years experience at SRS in process engineering, project engineering, facility maintenance, and safety basis maintenance. He has been assigned to H-Canyon Engineering since 1997 and has worked closely with the H-Canyon safety basis since 2002. He provides engineering support for writing, revising, and implementing the H-Canyon Safety Basis.

K. D. Scaggs – WSRC FET H-Canyon Ventilation Systems Engineer

Kyle Scaggs has a Bachelor of Science Degree in Mechanical Engineering from Clemson University in 1986. He has 12 years experience at SRS in systems engineering and as a construction liaison engineer and facility HVAC Coordinator. He has been assigned to H-Canyon Engineering as a ventilation systems engineer since 1998 and has served on several ventilation system upgrade project teams.

B. Ronald (Ron) Moncrief - WSRC, M&O Engineering, Senior Technical Advisor

Ron Moncrief has a Bachelor of Mechanical Engineering from the Georgia Institute of Technology and has over 40 years of engineering experience at SRS. His experience includes mechanical design, project management, and all aspects of H&V engineering. He currently is an SRS subject matter expert for H&V. He serves as Vice Chairman of the SRS Ventilation and Filtration Standards Committee and contributed to SRS Standard 15889, Confinement Ventilation Systems Design Criteria. He currently is Secretary and voting member of the Nuclear Subcommittee of the Industrial Air Conditioning Technical Committee TC 9.2 in the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) and contributed to the ASHRAE publication, HVAC Design Guide for DOE Nuclear Facilities. He also serves as Secretary of the Instruments and Measurements Technical Committee TC 1.2 in ASHRAE.

D. E. Welliver – WSMS H-Area Disposition Regulatory Programs

Dave Welliver has a Bachelor of Science Degree in Chemical Engineering. He has 15 years experience working at various DOE facilities (principally SRS) with safety basis development, implementation and maintenance. He has been assigned to H-Area Disposition (H-Canyon and HB-Line) Regulatory Programs since 2006, managing the development and maintenance of H-Canyon and HB-Line safety bases.

List of Figures

FIGURE 1

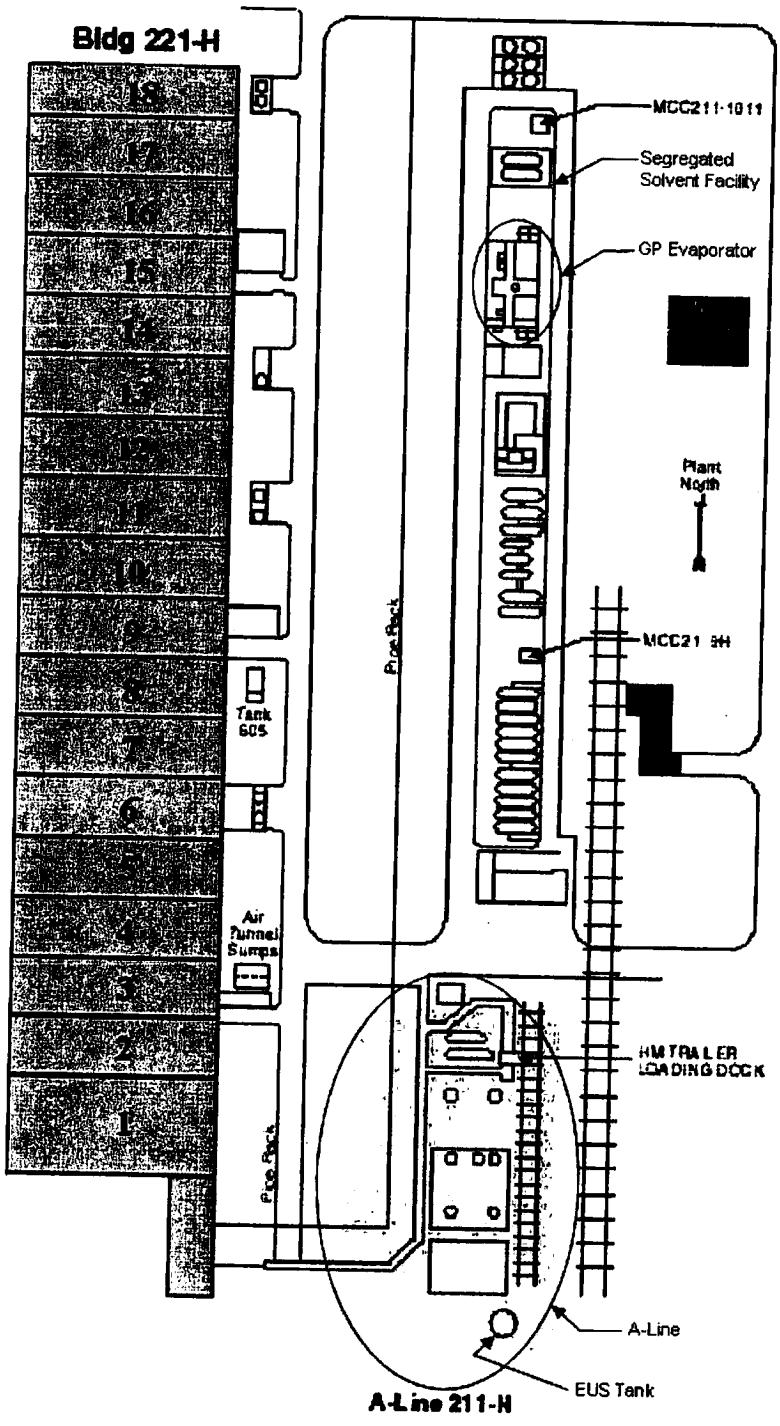

Figure 1

H-Area, A-Line, Building 211-H Facility