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Accession #: D196023631

Document #: SD-WM-DRR-052

Title/Desc:

DESIGN REVIEW REPORT FOR ROTARY MODE CORE SAMPLE
TRUCK MODS FOR FLAMMABLE GAS TANKS PRELIMINARY
DESIGN

Pages: 42

FEB 12 1996

ENGINEERING DATA TRANSMITTAL

2. To: (Receiver Organization) Characterization Project Operations (75100)	3. From: (Originating Organization) Characterization Equipment Design (75230)	4. Related EDT No.: N/A
5. Proj./Prog./Dept./Div.: Core Sampling / FGWL Tanks	6. Cog. Engr.: T. R. Farris	7. Purchase Order No.: N/A
8. Originator Remarks: ETN-96-003 This report documents the completion of a preliminary design review for the Rotary Mode Core Sample Truck (RMCST) modifications for flammable gas tanks. The RMCST modifications are intended to support core sampling operations in waste tanks requiring flammable gas controls.		9. Equip./Component No.: N/A
11. Receiver Remarks:		10. System/Bldg./Facility: 200 General
		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: 2/29/96

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	WHC-SD-WM-DRR-052	ALL	0	DESIGN REVIEW REPORT for RMCST MODIFICATIONS FOR FLAMMABLE GAS TANKS, PRELIMINARY DESIGN	SQ	1	1	1

16. KEY					
Approval Designator (F)		Reason for Transmittal (G)		Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 2. Release 3. Information	4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	1. Approved 2. Approved w/comment 3. Disapproved w/comment	4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged	

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)											
(G)	(H)	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	Reason	Disp.
1	1	Cog.Eng: TR FARRIS	<i>T.R. Farris</i>	2/8/96	S7-12	JD CRIDDLE	<i>J.D. Criddle</i>	2/8/96	S7-12	1	1
1	1	Cog. Mgr: DW HAMILTON	<i>D.W. Hamilton</i>	2/8/96	S7-12	WF WHITE	<i>W.F. White</i>	2/9/96	S4-43	1	1
1	1	QA: ML MCELROY	<i>M.L. McElroy</i>	2/8/96	S7-07	GN BOECHLER	<i>G.N. Boechler</i>	2/8/96	H5-09	1	1
1	1	Safety: LS KROGSRUD	<i>L.S. Krogsrud</i>	2/8/96	R3-08	JA HARVEY	<i>J.A. Harvey</i>	2/8/96	S7-07	1	1
1	1	Env: PJ MARTELL	<i>P.J. Martell</i>	2-9-96	S3-95	AP MOUSSEL	<i>A.P. Mousel</i>	2/8/96	S7-12	1	1
1	1	Design Auth: JL SMALLEY	<i>J.L. Smalley</i>	2/8/96	S7-12	GJ BOGEN	<i>G.J. Bogen</i>	2-8-96	S7-12	1	1
1	1	Chair: RJ BLANCHARD	<i>R.J. Blanchard</i>	2/9/96	S7-12	NJ MILLIKEN	<i>N.J. Milliken</i>	2/9/96	A3-37	1	1

18. Signature of EDT Originator <i>J. Corbett</i> Date: 2/9/96	19. Authorized Representative Date for Receiving Organization <i>D.W. Hamilton</i> Date: 2/9/96	20. Cognizant Manager Date <i>D.W. Hamilton</i> Date: 2/9/96	21. DOE APPROVAL (if required) Ctrl. No. <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments
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DESIGN REVIEW REPORT for RMCST MODIFICATIONS FOR FLAMMABLE GAS TANKS, PRELIMINARY DESIGN

J. E. Corbett

Westinghouse Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: 613796 UC: 2070
Org Code: W75230 Charge Code: N4H2B
B&R Code: ETW3120074 Total Pages: 40

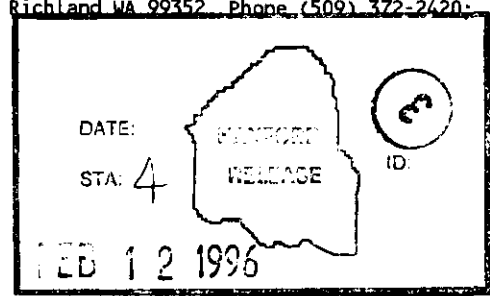
Key Words: RMCST modifications, Core Sampling, Flammable Gas Watch List, Rotary Mode Core Sampling, RMCS, Core Sample Truck, Preliminary Design Review, 50% Design Review, Design Review Report

Abstract: This report documents the completion of a preliminary design review for the Rotary Mode Core Sample Truck (RMCST) modifications for flammable gas tanks. The RMCST modifications are intended to support core sampling operations in waste tanks requiring flammable gas controls. The objective of this review was to validate basic design assumptions and concepts to support a path forward leading to a final design. The conclusion reached by the review committee was that the design was acceptable and efforts should continue toward a final design review.

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Release Approval _____ Date 3/12/96
Release Stamp



Approved for Public Release

DESIGN REVIEW REPORT
for
RMCST Modifications for Flammable Gas Tanks,
PRELIMINARY DESIGN

Issued by:

**Tank Waste Remediation System
Characterization Project**

February 1996

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RMCST Modifications for Flammable Gas Tanks, Preliminary Design

1.0 SCOPE

This report documents the completion of a preliminary design review for Rotary Mode Core Sample Truck modifications for flammable gas tanks, hereafter referred to as the "the RMCST modifications." The RMCST modifications are intended to support core sampling operations in waste tanks requiring flammable gas controls. This review included the Functional Design Criteria (FDC) and conceptual design drawings (listed in section 3.0) considered to be at the 50% design completion state.

This document and the formal design review are in support of design modifications to the core sampling systems used by Characterization Project Operations (CPO). The RMCST modifications are required to expand the scope of core sampling to include Flammable Gas Watchlist (FGWL) tanks, as well as any other tanks with flammable gas controls. The objective of this review was to validate basic design assumptions and concepts to support a path forward leading to a final design.

2.0 SUMMARY

The design review committee was selected in accordance with EP 4.1 and is documented in Section 3.0 of this report. An initial 30% design review briefing was held on November 16, 1995. Additional information and review materials were provided at a 50% design review briefing, which was held on December 13, 1995. Meeting minutes for these briefings are attachments to Section 3.0 of this report. The 50% design review close-out meeting was held on January 8, 1996. The majority of the review comment records (RCR) were closed out prior to the meeting, and the remaining open RCR's were closed out on January 8, 1996. Additionally, two "no comment" RCR's were received during the week of February 5, 1996. At this stage of the design review there are no outstanding action items. The conclusion reached by the review committee was that the design of the RMCST modifications was acceptable and efforts should continue toward a final design review.

3.0 DOCUMENTATION

The following items are provided as attachments to this report:

1. Listing of design review committee members
2. Copies of RCR's
3. Meeting Minutes and hand-outs

The following items were provided for review or support of the design and are available in the design review file:

1. WHC-SD-WM-FDC-048, "Function Design Criteria for Core Sampling in Flammable Gas Watch List Tanks".
2. NFPA 496, "Purged and Pressurized Enclosures for Electrical Equipment," 1989 Edition.
3. Design Drawings: H-2-690009, Sheet 1
H-2-690012, Sheets 1-6
H-2-690026, Sheets 1 & 2
H-2-690027, Sheets 1 & 2
H-2-690028, Sheets 1 & 2
H-2-690071, Sheets 1, 5-7, 11, 12, 14, 16 & 17

ATTACHMENT 1

Listing of design review committee members

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**Westinghouse
Hanford Company**

**Internal
Memo**

From: Characterization Equipment Design 75230-95-037
 Phone: 373-1248 S7-12
 Date: November 14, 1995
 Subject: CHARACTERIZATION PROGRAM - FORMAL DESIGN REVIEW BRIEFING FOR THE
 DESIGN MODIFICATIONS TO THE CORE SAMPLING TRUCK SYSTEMS FOR
 SAMPLING IN FLAMMABLE GAS WASTE TANKS

To: Distribution

cc: G. N. Boechler	H5-09	M. L. McElroy	S7-07
R. J. Blanchard	S7-12	R. E. Merriman	E6-27
L. E. Borneman	R1-52	N. J. Milliken	H4-65
J. E. Corbett	S7-12	A. P. Mousel	S7-12
D. W. Hamilton	S7-12	R. E. Raymond	S7-12
J. A. Harvey	S7-07	J. D. Robinson	S7-12
M. E. Huda	S7-07	J. S. Schofield	S7-12
L. S. Krogsrud	R3-08	E. K. Straalsund	L6-37
J. S. Lee	S7-08	G. F. Vargo Jr	H5-09

RJB: File LB

A design review briefing meeting for the Core Sampling Truck (CST) Systems for Sampling in Flammable Gas Waste Tanks will be held on November 16, 1995 (Thursday), starting at 11:00am in the 2407HV Building, room G227. This meeting will initiate the formal design review for the 30% CST System for Sampling in Flammable Gas Waste Tanks. The Design Review Committee will receive a design review package, Review Comment Record (RCR) forms, and the review checklist to record their comments prior to the subsequent design review meeting. The RCR forms either hard copy or electronic mail forms are to be returned, with comment, to John Corbett or Jeff Smalley by November 30, 1995, for compilation and resolution prior to the design review meeting.

The design review meeting is to be held December 7, 1995, at 8:00am in the 2704HV Building, room G230. At this meeting each reviewers comments will be discussed to determine if they have been resolved to the reviewer's satisfaction and/or if additional action is required.

The purpose of this review is to determine the technical adequacy of the design based on the Functional Design Requirements document "DRAFT", WHC-SD-WM-FDC-048.

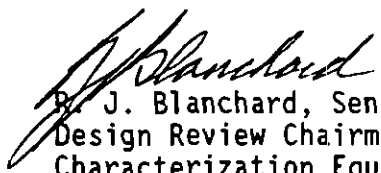
The Design Review Committee members and their primary areas of responsibility are listed below. The chairman was selected by the Characterization Equipment Design Manager, D. W. Hamilton. The committee members were selected by the manager Characterization Equipment Design and approved by the chairman.


Distribution
 Page 2
 November 14, 1995

75230-95-037

DESIGN REVIEW COMMITTEE

R. J. (Roy) Blanchard	Design Review Chairman
J. E. (John) Corbett	Design Review Secretary
G. N. (Nick) Boechler	Mechanical Engineering
J. A. (Jerry) Harvey	Industrial Safety
M. E. (Huda) Huda (ALTERNATE)	Industrial Safety
L. S. (Steve) Krogsrud	Nuclear Engineering
M. L. (Mike) McElroy	Quality Assurance
W. F. (Bill) White	Electrical Engineering
N. J. (Nancy) Milliken	Safety Analysis
J. L. (Jeff) Smalley	Cognizant Design Engineer
J. D. (Jim) Criddle	Cognizant Electrical Design Engineer
A. P. (Andy) Mousel	Interfacing System/Customer Rep. Design
G. J. (Greg) Bogen	Cognizant Design Engineer
P. J. (John) Martell	Environmental Engineering


 R. J. Blanchard, Senior Principal Engineer
 Design Review Chairman
 Characterization Equipment Design


 Concurrence: D. W. Hamilton, Manager
 Characterization Equipment Design

tla

ATTACHMENT 2
Copies of RCR's

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REVIEW COMMENT RECORD (RCR)	1. Date 12/14/95	2. Review No.
	3. Project No.	4. Page 1 of 71

5. Document Number(s)/Title(s) RMCS LANL H2 DEVELOPMENT	6. Program/Project/ Building Number Characterization	7. Reviewer AP Mouse1	8. Organization/Group 75210	9. Location/Phone 2704HV D100A 373-2278
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17. Comment Submittal Approval: _____ Organization Manager (Optional)	10. Agreement with indicated comment disposition(s) Date <u>1/5/96</u> <u>Adrian B. Mouse1</u> Reviewer/Point of Contact	11. CLOSED Date <u>1/5/96</u> <u>Adrian B. Mouse1</u> Reviewer/Point of Contact
	<u>[Signature]</u> Author/Oriinator	<u>[Signature]</u> Author/Oriinator

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
9 1	The ability to repeatably latch onto the sampler when it is latched into the core barrel has been a problem in the past. Since the mechanical RLU relies on weight to make the connection and the previous electronic RLU relied upon impact, rigorous testing of the mechanical RLU must be done to ensure samplers can be grabbed.		The new RLU design and the electronic RLU design both rely on the same mode of operation to latch on the sampler (ie. impact with weight). However, an ATP test of the new RLU is required before it will be used in the field.	

MHC-SD-MM-DRR-052, Rev. 0

REVIEW COMMENT RECORD (RCR)	1. Date 12/14/95	2. Review No. WFW001
	3. Project No.	4. Page 1 of 1

5. Document Number(s)/Title(s) 50% Design Review (RMCST)	6. Program/Project/ Building Number Waste Management	7. Reviewer W. F. White	8. Organization/Group Inst. Sys. Int.	9. Location/Phone S2-02/6-8925
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17. Comment Submittal Approval: Organization Manager (Optional)	10. Agreement with indicated comment disposition(s) Date: <u>1/8/96</u> Reviewer/Point of Contact: <u>WFW</u> Author/Originator: <u>[Signature]</u>	11. CLOSED Date: <u>1/8/96</u> Reviewer/Point of Contact: <u>WFW</u> Author/Originator: <u>JJ Smalley 1/5/96</u>
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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	Dwg H-2-690026, Sht 1 Assembly 1 - the upper most bubble is 33 "REF" and should be 32		AGREE	
2	Dwg H-2-690026, Sht 1 Assembly 1 - in the next set of 3 bubbles; given as 20, 35, 38; they should be 20, 36, 39		AGREE	
3	Dwg H-2-690026, Sht 1 Assembly 1 - near the bottom is a 2 bubble set which is currently 34, 38 - it should be 37, 39		AGREE	
4	Dwg H-2-690026, Sht 1 Assembly 1 - for parts 32, 36, 37, and 39 a note to have the wire and connectors colored blue or otherwise marked as intrinsically safe wiring needing a 2 inch clearance from other wiring.		AGREE	
5	Dwg H-2-690026, Sht 2 View G-G - the wire marked as 32 "REF" is not item 32 but a 10AWG green coated wire (not currently in the parts list). The face view to the right of the View G-G has 2 wires exiting on the left and one on the right. The one on the right is item 32.		AGREE	
6	Dwg H-2-690026, Sht 2 Section E-E - the bubble labeled 17 with note 9 as a call-out, should be 32 without the referenced note.		AGREE	

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MHC-SD-AM-DRR-052, Rev. 0

REVIEW COMMENT RECORD (RCR)	1. Date December 19, 1995	2. Review No. 1513-95
	3. Project No.	4. Page I of 2

5. Document Number(s)/Title(s) Functional Design Criteria, Core Sampling in Flammable Gas Watch List Tanks	6. Program/Project/Building Number TWRS	7. Reviewer R. A. Huckfeldt	8. Organization/Group TWRS/IS&FP	9. Location/Phone 2751-E/372-3212
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17. Comment Submittal Approval: Organization Manager (Optional)	10. Agreement with indicated comment disposition(s) Date: <u>12/19/95</u> Reviewer/Point of Contact: <u>R.A. Huckfeldt</u> Author/Originator: <u>John Corbett</u>	11. CLOSED Date: <u>12/19/95</u> Reviewer/Point of Contact: <u>R.A. Huckfeldt</u> Author/Originator: <u>John Corbett</u>
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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	Page 5, 2.1, a) & b): These two definitions are difficult to understand. I think if you add to b) the words "under abnormal conditions" it would help to clarify. Secondly, I don't think we have any equipment where b) would apply. Also compliance with NFPA 496 is not an alternative to meeting Class I, Division 1, Group B; it is one method for meeting Class I, Division 1. The same goes for division 2.		Accept. Text modified for clarification. The FDC only provides criteria and does not specify the div. 1 or 2 locations. Locations are addressed in the design process, per WHC-SD-WM-ETP-177.	
2	Page 5, Potential Ignition Protection, a): 30 leak diameters is very conservative, especially considering we are outside.		Accept. Currently the requirement from LANL is 36 leak diameters. The FDC will incorporate this number, but will be revised if the SA is approved with a lower number.	
3	Page 5, Potential Ignition Protection, c): I understand that we are using nitrogen as our purge gas, but NFPA 496 treats air as an equivalent gas. It needs to be recognized that in order for inerting to be effective a hydrogen atmosphere you must maintain an oxygen concentration below 5%.		Accept. Text modified for clarification. The requirement also reflects the current flow instrumentation, which is calibrated for nitrogen.	

MHC-SD-WM-DRR-052, Rev. 0

REVIEW COMMENT RECORD (RCR)

1. Date December 19, 1995	2. Review No. 1513-95
3. Project No.	4. Page 2 of 2

12.

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
4	Page 6, 2.1, b): This statement needs to be revised to indicate shutdown off equipment not approved to operate in a Class I, Division 1 atmosphere. Equipment that is intrinsically safe is only an example of an approved piece of equipment.		Accept. Text modified for clarification.	
5	Page 7, 3.1, third bullet: The timing interlock must prevent electrical equipment from being energized until time has passed to allow sufficient air changes. This should probably ten air changes.		Accept. Text modified for clarification.	
6	Page 7, 3.1, fourth bullet: I think the "or" should be changed to "and". Type X purging requires automatic power shutdown.		Accept.	

MHC-SD-WM-DRR-052, Rev. 0

REVIEW COMMENT RECORD (RCR)	1. Date 11/20/95	2. Review No. DRAFT
	3. Project No. Core Sampling	4. Page 1 of 2

5. Document Number(s)/Title(s) WHC-SD-WM-FDC-048, FUNCTIONAL DESIGN CRITERIA CORE SAMPLING IN FLAMMABLE GAS WATCH LIST	6. Program/Project/ Building Number Core Sampling	7. Reviewer <i>NM</i> Nancy Milliken	8. Organization/Group WHC/SA&NE	9. Location/Phone 332 FED/376-7846
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17. Comment Submittal Approval: <u><i>D/A</i></u> Organization Manager (Optional)	10. Agreement with indicated comment disposition(s) <u>12/13/95</u> Date <u><i>John Corbett</i></u> Reviewer/Point of Contact <u><i>John Corbett</i></u> Author/Originator	11. CLOSED <u>12/13/95</u> Date <u><i>John Corbett</i></u> Reviewer/Point of Contact <u><i>John Corbett</i></u> Author/Originator
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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	<u>TERMINOLOGY</u> . Use of the term watch list should be minimized unless specifically dealing with watch list tanks. Use of the trucks should consider use in all tanks with flammable gas. Therefore, refer to flammable gas tanks NOT watch list tanks.	Y	Terminology clarified. The FDC contains criteria required for flammable gas watch list tank core sampling, which meets or exceeds criteria required for flammable gas tanks NOT watch list tanks.	<i>Closed</i>
2.	<u>TERMINOLOGY</u> . Delete FGTW from the document. This term means nothing. Refer to "flammable gas tanks" instead.	Y	Accepted	<i>Closed</i>
3.	<u>CLARIFICATION</u> . What is ETP #165? Reference this correctly.		Accepted	<i>Closed</i>
4.	<u>CLARIFICATION</u> . Section 1.3, Site Location. "...winds of up to 15 MPH during operations." should be modified to include, though the equipment may be physically located in the field in winds greater than 15 MPH.		Accepted	<i>Closed</i>
5.	<u>CLARIFICATION</u> . Section 1.5, System Description, Paragraph 4. Add words that the RMCS exhauster is used only on tanks that do not already have an operating exhauster.		Accepted	<i>Closed</i>

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WHC-SD-WM-DRR-052, REV. 10

REVIEW COMMENT RECORD (RCR)	1. Date 11/20/95	2. Review No. DRAFT
	3. Project No. Core Sampling	4. Page 2 of 2

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
6.	<u>Safe Shutdown</u> . Manual shutdown, if not automatic. What is LANL's position on automatic shutdown?	Y	Text clarified. Shutdown must be automatic for any equipment not intrinsically safe and located in a Class 1, Division 1 atmosphere. For all other equipment a series of manual actions to achieve shutdown is acceptable.	Closed
7.	<u>GENERAL REQUIREMENTS</u> , Section 5.0. What is WHC-SD-WM-013? It can't be WHC-SD-WM-SAD-013. Because that would also be incorrect. All technical bases for core sampling comes from the document that superseded SAD-013, WHC-SD-WM-SARR-031. I highly recommend correcting this.	Y	Accepted.	Closed
8.	<u>TECHNICAL EDITING</u> . All WHC supporting documents should be, if it isn't a requirement, technically edited. The use of acronyms and abbreviations would be only one of the inconsistencies corrected by this. I highly recommend it.		Accepted (for initial release of this document).	Closed

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WHC-SD-WM-DRR-052, Rev. 0

REVIEW COMMENT RECORD (RCR)	1. Date 12-1-95	2. Review No. 1
	3. Project No. na	4. Page 1 of 2

5. Document Number(s)/Title(s) Core Truck Flammable Gas Design Review	6. Program/Project/ Building Number	7. Reviewer Nick Boechler	8. Organization/Group 75250	9. Location/Phone 373-3041
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17. Comment Submittal Approval: _____ 10. Agreement with indicated comment disposition(s) 11. CLOSED

Organization Manager (Optional) _____ Date 12/1/95 Reviewer/Point of Contact _____ Date 1-8-96 Reviewer/Point of Contact _____

Authorinator [Signature] Author/Originator [Signature] 1/5/96

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1	I understand that the purge deign on the system has changed from a X to a Y because the electrical equipment will either be eliminated or be made safe. If this is true how does it work and is it even necessary.		This comment is no longer applicable. The electrical equipment inside the class 1 division 1 boundaries has either been eliminated or made safe using safety barriers.	
2	With a Y purge, is a cut-off switch still needed. If Yes, will the switch be activated on flow or pressure. The pressure changes with tank hydrostatic head and would have to be reset each segment.		This comment is no longer applicable. (See above).	
3	If the X purge is not needed and the flammable gases go into the box, have all the moving parts in the box been analyzed to not spark.		Sparking of stainless steel against stainless steel is going to be tested at the Bureau of Mines along wiht the bit testing.	
4	The liner that is being installed to eliminate the sparking in the riser will still be rubbing on the carbon steel riser during installation and on the carbon steel drill string during drilling. I still see the same problem existing. Can't a analysis be done on the riser, drillstring and liner that proves a spark is not credible.		The riser will be sniffed for flammable gases before the riser is installed. The riser liner will be purged with nitrogen gas during drilling operations.	

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MHC-SD-NM-DRR-052, Rev. 1.0

REVIEW COMMENT RECORD (RCR)

1. Date 12-1-95	2. Review No. 1
3. Project No. na	4. Page 2 of 2

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
5	I don't understand how the retrieval device (Bogans) will release the sampler and not pick it back up when pulled from the sampler. What happens to keep the release configuration in place for enough time to clear the sampler?		The dash pot of the mechanical RLU requires more time to move to the latching position than the speed of the hoist to clear the quadralatch.	
6	After the second review and understanding the concept of installing a SST insert to eliminate sparking and not needing it for support, I don't understand why not just use a SST drill rod or coat the drill rod with a nonsparking material (carbide, Ni, Cr). Has the dollars been compared?		The sleeve is used for both sparking and support.	
16	Insert installation will tie up the riser which will not allow Cone Penetrometer or SMMS type equipment to be installed. It seems it must be removed.		That is correct; however, it is not up to Engineering when Operations removes the sleeve.	
	No insert drawings?? Are they offset?		Drawings will be provided during 100% design review.	

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REVIEW COMMENT RECORD (RCR)	1. Date 11/20/95	2. Review No. CP96-003
	3. Project No. N/A	4. Page 1 of 1

5. Document Number(s)/Title(s) FDC CORE SAMPLING IN FLAMMABLE GAS WATCH LIST TANKS	6. Program/Project/Building Number CHARACTERIZATION PROJECT	7. Reviewer M.L. MCELROY/QA	8. Organization/Group CPQA/3E200	9. Location/Phone 2704HV/B-122 373-5588
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17. Comment Submittal Approval: Organization Manager (Optional)	10. Agreement with indicated comment disposition(s) Date: 12/14/95	11. CLOSED Date: 12/14/95
	Reviewer/Point of Contact: <i>M.L. McElroy</i> Author/Oriinator: <i>John Corbett</i>	Reviewer/Point of Contact: <i>M.L. McElroy</i> Author/Oriinator: <i>John Corbett</i>

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	1.4 PROJECT INTERFACES--There is no mention of other interfaces, such as: electrical; exhauster; nitrogen trailer; decon system interfaces.		Accepted for Exhauster (interface added to text), all other interfaces are internal.	CLOSED
2.	1.5 SYSTEM DESCRIPTION, 1st para.--"Figure 1.0" is referenced in the document. There is no figure 1.0.		Accepted (item removed).	MHC-SD-WM-DRR-052, Rev. 0
3.	1.5 SYSTEM DESCRIPTION, 4th para.--"Section 2.5" is referenced. There is no section 2.5.		Accepted (item removed).	
4.	Page 5, Potential Ignition Protection--It mentions "20 leak diameters." I have heard both 30 & 20 diameters. Which is correct?		30 is correct (text updated).	
5.	Page 5, Safe Shutdown--It talks about "manual" shutdown, but what about the automatic exhauster interlock system shutdown system?		Accepted (Text on page 5 clarified, exhauster interlock description added to section 1.5)	
6.	Step 5.1.6--"Appendix X" is mentioned. This will have to be attached and renamed.		Accepted (referenced).	
7.	Step 5.6.2 Safety Classification--"MRP 5.46" is referenced. MRP 5.46 has been cancelled and moved to WHC-CM-4-46, Safety Analysis Manual. (The title remains the same.)		Accepted (text updated).	

Author: Phillip J (John) Martell at ~WHC171

WHC-SD-WM-DRR-052, Rev. 0

Date: 02/07/96 11:31 AM

Priority: Normal

TO: Ronald J Boom

TO: John E Corbett at ~WHC128

CC: Lucinda E Borneman at ~WHC140

CC: Larry P Diediker

Subject: Re: RCR for 50% Design: RMCST in Flammable Tanks

----- Message Contents -----

John,

Please see the RCR below, I have no comments on the 50% Design Review for the RMCS Truck modifications for use in Flammable Tanks.

Thanks

John Martell

Reply Separator

Subject: RCR for 50% Design: RMCST in Flammable Tanks

Author: Ronald J Boom at ~WHC171

Date: 2/1/96 1:27 PM

John,

Since you reviewed the document, would you please send the reply?

Thx

Ron

REVIEW COMMENT RECORD (RCR)

1. Date: [see cc:mail header]
2. Review Number: N/A
3. Project Number: N/A
4. Page: 1 of 1
5. Document Number(S)/Title(s): design drawings,
provided at 50% Design Review Briefing
6. Program/Project/Building Number: TWRS/Characterization
7. Reviewer: [see cc:mail header]
8. Organization/Group: as noted on Design Review Committee list
9. Location/Phone: as noted on HLAN phone listing
10. Agreement with indicated comment/disposition(s): NO COMMENTS

REVIEW COMMENT RECORD (RCR)	1. Date	2. Review No.
	3. Project No.	4. Page <p style="text-align: right;">1 of 1</p>

5. Document Number(s)/Title(s) <i>RMCST MOD'S FOR FLAMMABLE GAS TANKS - PRELIMINARY DESIGN REVIEW</i>	6. Program/Project/ Building Number	7. Reviewer <i>FA SCHMORDE</i>	8. Organization/Group <i>CPO</i>	9. Location/Phone
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17. Comment Submittal Approval: _____ Organization Manager (Optional)	10. Agreement with indicated comment disposition(s) <i>2/8/96</i> <i>F. E. Schmale</i> Date Reviewer/Point of Contact <i>N/A - J. Corbett</i> Author/Originator	11. CLOSED <i>2/8/96</i> <i>N/A</i> Date Reviewer/Point of Contact <i>N/A</i> Author/Originator
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12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
61	<i>NO SIGNIFICANT COMMENTS</i>		<i>N/A</i>	

WMC-SD-MM-DRR-052, Rev. 0

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ATTACHMENT 3

Meeting Minutes and hand-outs

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MEETING MINUTES

Subject: 30% DESIGN REVIEW BRIEFING,
RMCST MODIFICATIONS FOR FLAMMABLE GAS TANKS.

TO: DISTRIBUTION BUILDING AS NOTED

FROM: JOHN CORBETT CHAIRMAN ROY BLANCHARD

Department/Operation	Area	Shift	Date of Meeting	Attendance
75230 CHARACTERIZATION/CED	200E	DAYS	NOVEMBER 16, 1995	16

THE MEETING WAS CALLED TO ORDER BY THE CHAIRMAN (ROY BLANCHARD) AND THE SUBJECT OF THE MEETING WAS EXPLAINED. COMMITTEE MEMBERS AND OTHER MEETING ADDENDERS WERE ALL INTRODUCED. JIM CRIDDLE PRESENTED AN OVERVIEW OF ELECTRICAL REQUIREMENTS AND DESCRIBED THE CONTROL LOGIC BEING DESIGNED. JEFF SMALLEY HANDED OUT COPIES OF THE RMCST PNEUMATIC DIAGRAM, REVISED FOR THE DESIGN MOD'S. THE PNEUMATIC DIAGRAM AND SEQUENCE OF CONTROL WERE DESCRIBED BY SMALLEY, FOLLOWED BY A DESCRIPTION OF RISER SLEEVE CONCEPTS. QUESTIONS WERE ANSWERED REGARDING THE REMOVAL PROCESS AND POTENTIAL FOR DROPPING THE SLEEVE. TWO COMPETING DESIGNS OF THE REMOTE LATCH UNIT (RLU) WERE PRESENTED BY GREG BOGEN AND AL KOSTELNIK. THE DRAFT FUNCTIONAL DESIGN CRITERIA (FDC) WAS HANDED OUT FOR REVIEW BY JOHN CORBETT.

ATTENDEES:

ROY BLANCHARD, CHAIRMAN
 DENNIS HAMILTON, COGNIZANT ENGINEER MANAGER
 J.D. CRIDDLE, ELECTRICAL COGNIZANT DESIGN ENGINEER
 M.L. MCELROY, QUALITY ASSURANCE
 W.F. WHITE, ELECTRICAL ENGINEER
 A.P. MOUSEL, FIELD ENGINEERING
 G.N. BOEHLER, CHARACTERIZATION ENGINEERING
 N.J. MILLIKEN, WHC SAFETY ANALYSIS
 J.E. CORBETT, DESIGN REVIEW SECRETARY
 A.J. KOSTELNIK, CHARACTERIZATION ENGINEERING
 J. L. SMALLEY, MECHANICAL COGNIZANT DESIGN ENGINEER
 G.N. BOGEN, CHARACTERIZATION ENGINEERING
 LOS ALAMOS NATIONAL LABORATORY PERSONNEL (SEE MEETING ROSTER)

A-3000-480 (10/94) GEF011

FORMAL DESIGN REVIEW
Core Sampling System Modifications for Flammable Gas Watchlist Tanks

MEETING ROSTER			
SUBJECT: 30% Design Review Briefing			
DATE: 11/16/95		CHAIRMAN: R. J. Blanchard	
LOCATION: 2704HV/G227		PROGRAM: Characterization	
NAME	COMPANY	MSIN	PHONE
JOHN E. GIBBETT	WHC	57-12	2-2001
ANDREW P. MOUSEL	LATA	57-12	3-2278
J. D. CRIDDLE JR.	WHC	52-02	6-9224
JACK N EDWARDS	LANL	K551	505 6679060
M. L. McELROY	WHC	57-07	373-5588
Al Kostelnik	WHC	57-12	373-0788
J. L. MALLEY	WHC	57-12	372-0886
GT BOGEN	WHC	57-12	373-5822
BN Boecker	WHC		2733041
Nancy Mill. Ken	WHC/Sirine	A3-37	376-7846
John Darby	LANL/Ogden	K551	505 665 0526
J. Michael Butner	LANL	K557	505 667-3855
Deborah Bennett	LANL	K-551	(505) 667-3853
Dennis Hamilton	WHC	57-12	372-1130
Cetin Unal	LANL	K575	505-665-2533
ROY BLANCHARD	WHC	57-12	373-1248

NFPA 496 (1989)

STANDARD

FOR

PURGED AND PRESSURIZED ENCLOSURES

FOR

ELECTRICAL EQUIPMENT

52

PURGING TYPES

- TYPE X - reduces the classification within and enclosure for Division 1 to non-hazardous
- TYPE Y - Reduces the classification within an enclosure from Division 1 to Division 2
- TYPE Z - Reduces the classification within an enclosure from Division 2 to non-hazardous

CHAPTER 2

Purged Instrument and Other Small Enclosures In Class I Locations

Scope - Applies to enclosures with internal gross volume of less than 0.3 cu m (10 cu ft)

General Requirements (Section 2.2)

- Over-pressure protection shall be provided for the enclosure
- Interlocks, indicators, and alarms shall be provided per specific purge type requirements
- A visual or audible alarm shall be provided to indicate failure of the purge supply

SPECIFIC REQUIREMENTS FOR TYPE X PURGE

Section 2.5

- A timing device shall be provided to prevent energizing electrical equipment until at least four (4) volumes (ten (10) volumes for motors) of purge gas has passed through the enclosure
- The enclosure shall be maintained under a positive pressure of not less than 25 Pa (0.1 in. water) when the equipment is energized.
- A cut-off switch shall be provided to remove electrical power from enclosure equipment in the event of a purge system failure. The switch shall be either flow or pressure actuated
- Addresses temperature limits
- No valves are allowed between the cut-off switch and the enclosure
- A warning name plate shall be attached

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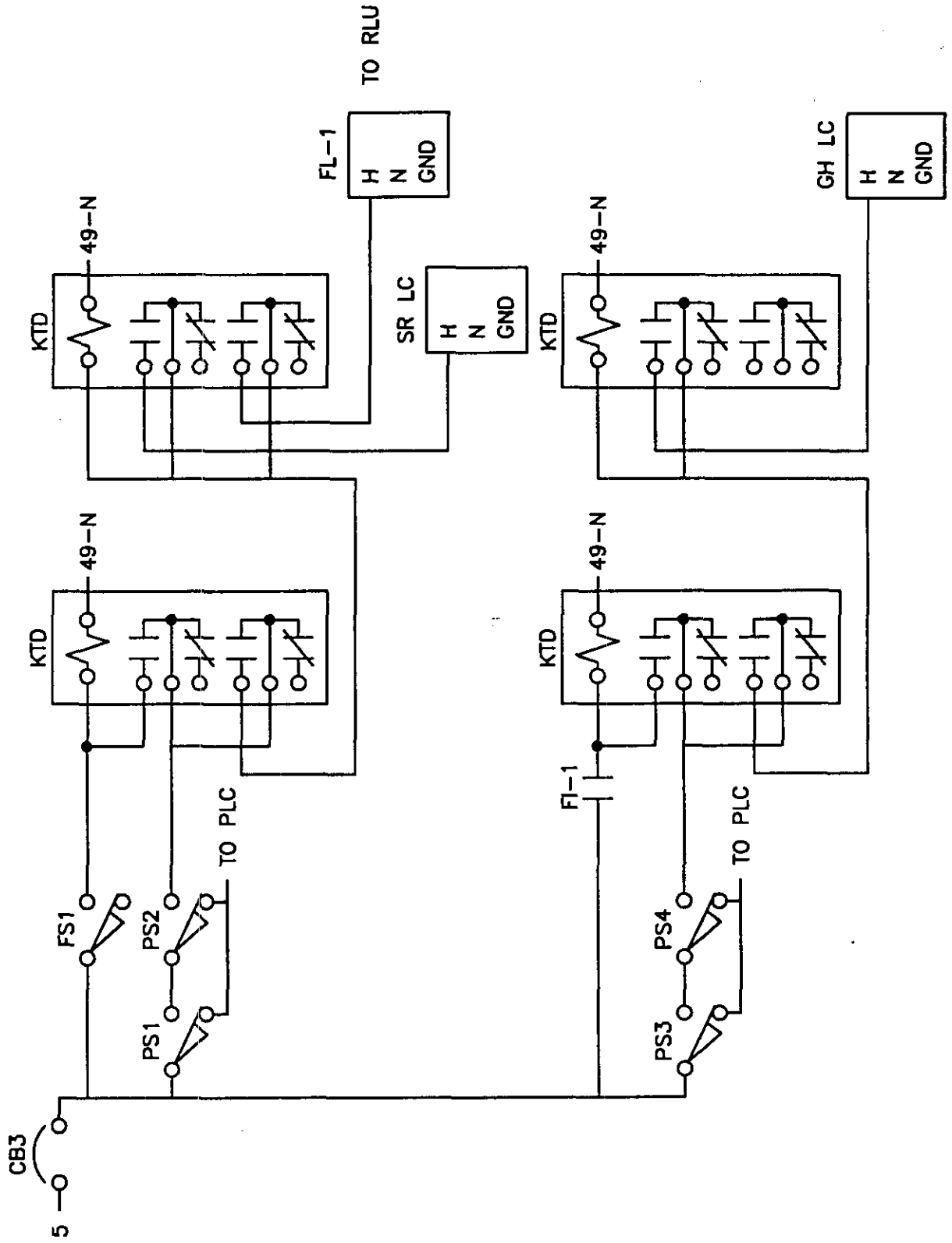
CHAPTER 8

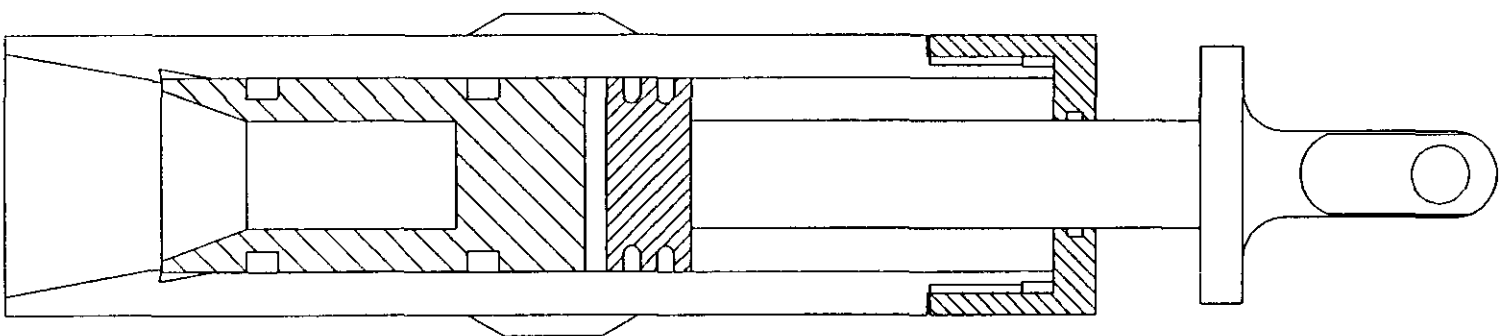
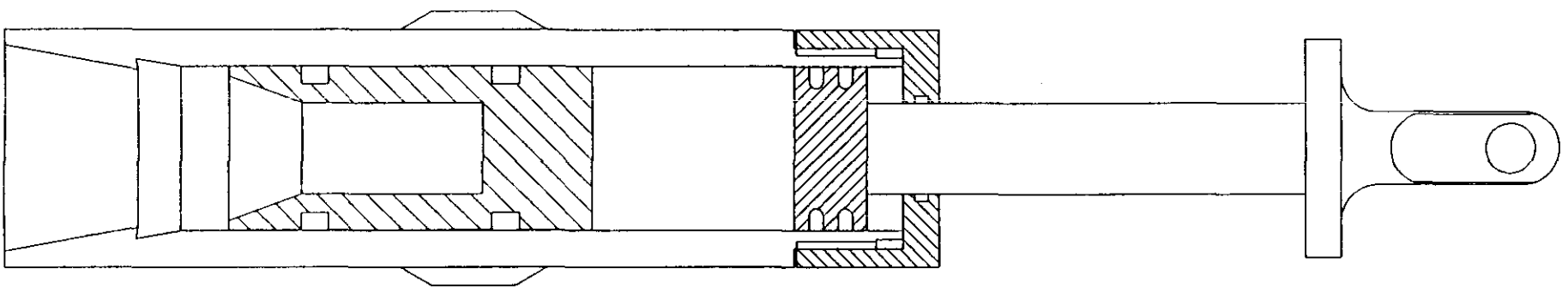
Purged Instrument and Other Enclosures Having an Internal Source of Flammable Gas or Vapor

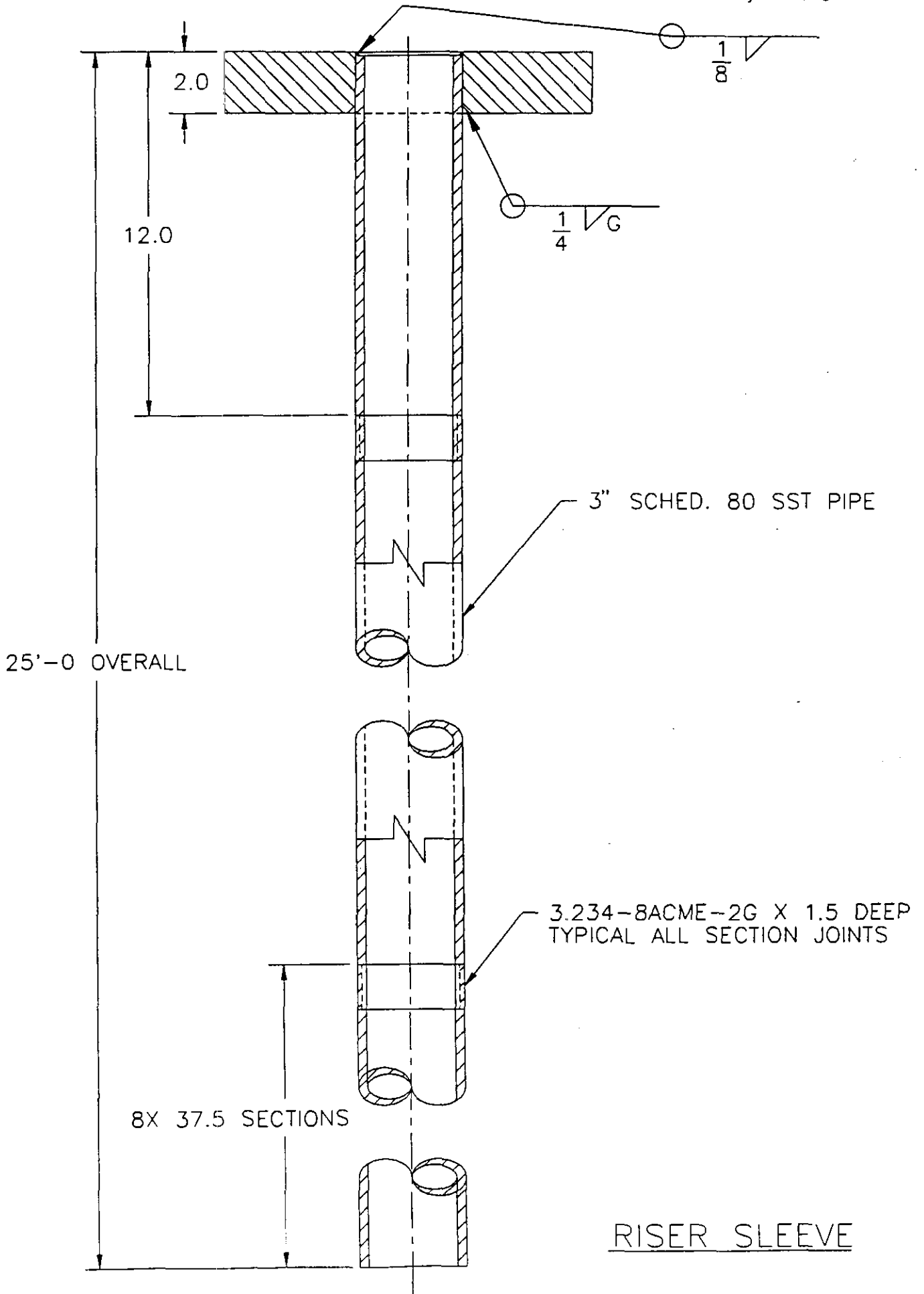
Scope - Enclosures that contain an internal source of flammable gas or vapor

Section 8 Provides:

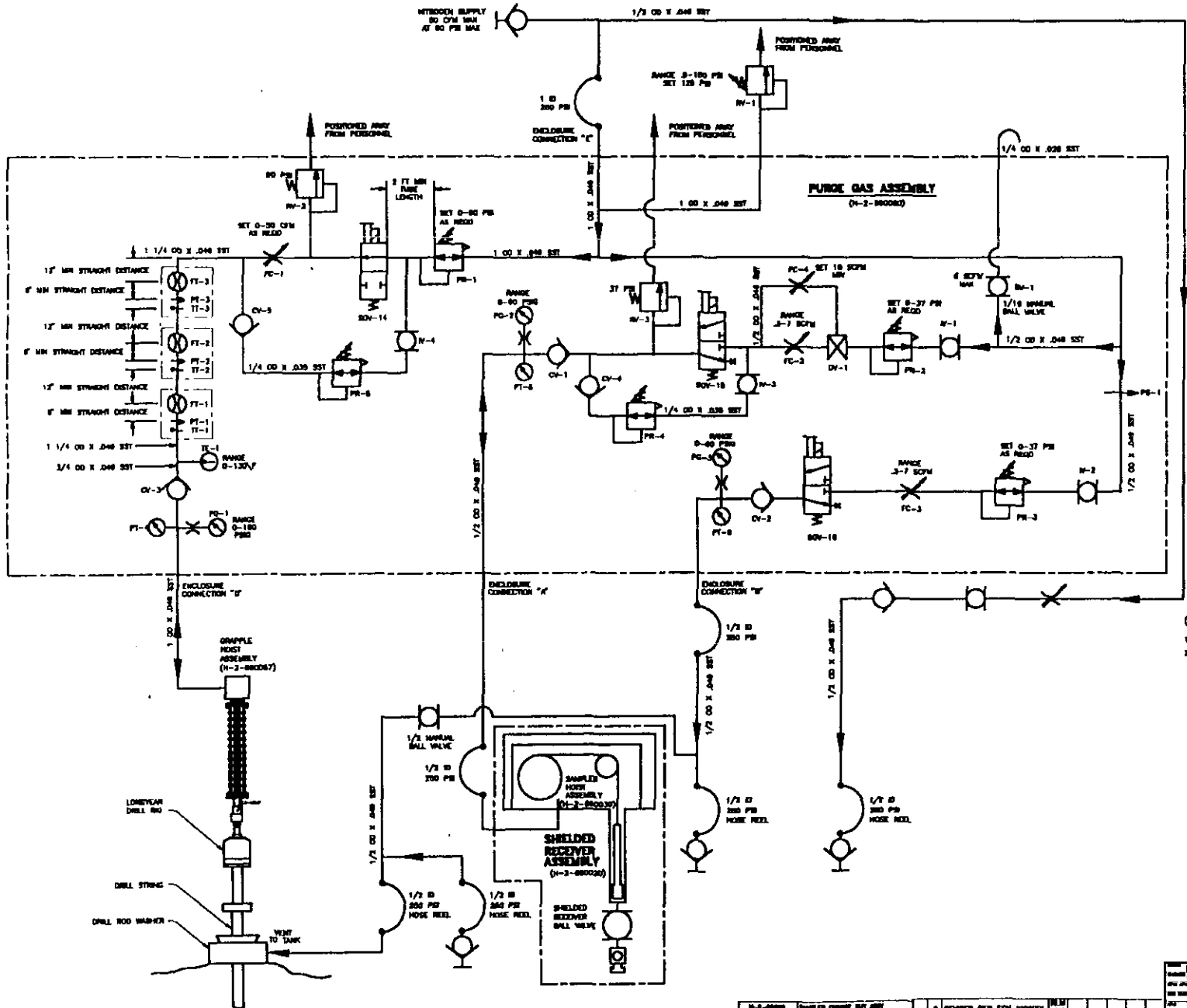
- Definitions of the types of releases - normal, abnormal, limited, and unlimited
- Method and Table for determining the type of purging required for the enclosure
- Methods for calculating that protection is adequate under normal and abnormal conditions







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COMPONENT ABBREVIATIONS

- PT PRESSURE TRANSDUCER
- PG PRESSURE GAUGE
- FT FLOW TRANSMITTER
- FC FLOW CONTROL VALVE
- B ISOLATOR VALVE
- SOV SOLENOID VALVE
- PR PRESSURE REGULATING VALVE
- RV RELIEF VALVE
- CV CHECK VALVE
- TE TEMPERATURE ELEMENT
- TT TEMPERATURE TRANSDUCER
- PS PRESSURE SWITCH
- BV BLEED VALVE
- DV DIRECTIONAL VALVE

GENERAL NOTES: (UNLESS OTHERWISE SPECIFIED)
 1. DIAGRAM IN ACCORDANCE WITH AWS Y14.17.
 2. SYMBOLS IN ACCORDANCE WITH ISA 5.1.

SAMPLE DRILLING MODE

REV	DATE	BY	CHKD	DESCRIPTION
1				REVISION PER ECH JOURNAL
2				REVISED PER ECH JOURNAL

U.S. DEPARTMENT OF ENERGY
 GEORGE W. CLARK
 PLANNING
 3/3/54
 A. SMALLEY 3/7/54

PURGE GAS PNEUMATIC DIAGRAM (RMCST)

REVISED PER ECH JOURNAL

DATE: 11/2/54

REVISED PER ECH JOURNAL

DATE: 11/2/54

REVISED PER ECH JOURNAL

DATE: 11/2/54

REVISED PER ECH JOURNAL

DATE: 11/2/54

REVISED PER ECH JOURNAL

DATE: 11/2/54

MHC-SD-WM-DRR-052, Rev. 0

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MEETING MINUTES

Subject: 50% DESIGN REVIEW BRIEFING,
RMCST MODIFICATIONS FOR FLAMMABLE GAS TANKS.

TO: DISTRIBUTION BUILDING AS NOTED

FROM: JOHN CORBETT CHAIRMAN ROY BLANCHARD

Department/Operation	Area	Shift	Date of Meeting	Attendance
75230 CHARACTERIZATION/CED	200E	DAYS	DECEMBER 13, 1995	12

THE MEETING WAS CALLED TO ORDER BY THE CHAIRMAN (ROY BLANCHARD) AND THE SUBJECT OF THE MEETING WAS EXPLAINED. THIS MEETING WAS CALLED TO PROVIDE ADDITIONAL DETAILS NOT AVAILABLE AT THE PREVIOUS (30% DESIGN) BRIEFING. DESIGN DRAWINGS WERE HANDED OUT AND ADDITIONAL DESIGN FEATURES WERE DISCUSSED ON THE TOPICS OF EXHAUSTER/RMCST SHUTDOWN ALARM, PLC FAILURE MODES, RLU DESIGN STATUS, AND RLU FAILURE MODES. NICK BOECHLER SUGGESTED TESTING THE SPARK POTENTIAL OF STAINLESS STEEL ON CARBON STEEL. DESIGN COMMITTEE MEMBERS WERE ASKED TO REVIEW DESIGN MATERIALS AND SUBMIT RCR'S TO JOHN CORBETT. DUE TO THE CHRISTMAS HOLIDAYS, THE CLOSE-OUT MEETING WAS SCHEDULED FOR JANUARY 8, 1996.

ATTENDEES:

ROY BLANCHARD, CHAIRMAN
 DENNIS HAMILTON, COGNIZANT ENGINEER MANAGER
 J.D. CRIDDLE, ELECTRICAL COGNIZANT DESIGN ENGINEER
 M.L. MCELROY, QUALITY ASSURANCE
 W.F. WHITE, ELECTRICAL ENGINEER
 G.N. BOECHLER, CHARACTERIZATION ENGINEERING
 J.E. CORBETT, DESIGN REVIEW SECRETARY
 J. L. SMALLEY, MECHANICAL COGNIZANT DESIGN ENGINEER
 G.N. BOGEN, CHARACTERIZATION ENGINEERING
 L.S. KROGSRUD, WHC SAFETY
 T.J. DAVIS, SEG
 JACK EDWARDS, LANL

A-3000-480 (10/94) GEF011

MEETING ROSTER

SUBJECT: Design Review Briefing, *SO₂ DESIGN - RALST MOD'S FOR FLAMMABLE GAS TANKS* *R. J. Blanchard*

DATE: 12/13/95	CHAIRMAN: R. J. Blanchard
LOCATION: 2704E/G133	PROGRAM: Characterization

NAME	COMPANY	MSIN	PHONE
<i>JOHN CORBETT</i>	<i>WHC</i>	<i>57-12</i>	<i>2-2001</i>
<i>M.L. McELROY</i>	<i>WHC</i>	<i>57-07</i>	<i>3-5588</i>
<i>L.S. KROGSRUD</i>	<i>WHC</i>	<i>R3-08</i>	<i>3-2302</i>
<i>W.F. White</i>	<i>WHC</i>	<i>52-02</i>	<i>6-8925</i>
<i>T S DAVIS</i>	<i>SEG</i>	<i>57-03</i>	<i>2-3123</i>
<i>DW Hamilton</i>	<i>WHC</i>	<i>57-12</i>	<i>2-1130</i>
<i>J.L. SMALLEY</i>	<i>WHC</i>	<i>57-12</i>	<i>2-0886</i>
<i>G.N. Beechler</i>	<i>WHC</i>	<i>1247</i>	<i>5 3041</i>
<i>GT Bogen</i>	<i>WHC</i>	<i>57-12</i>	<i>3-5822</i>
<i>JACIE Edwards</i>	<i>CANL SITE</i>		<i>505 667-9062</i>

MEETING MINUTES

Subject: 50% DESIGN REVIEW MEETING - RMCST MODIFICATIONS FOR FLAMABLE GAS TANKS.

TO: DISTRIBUTION BUILDING AS NOTED

FROM: ROY BLANCHARD CHAIRMAN ROY BLANCHARD

Department-Operation- Component	Area	Shift	Date of Meeting	Number Attending
75230-CHARACTERIZATION E.E	200E	DAYS	JANUARY 8, 1996	10

THE MEETING WAS CALLED TO ORDER BY THE CHAIRMAN (ROY BLANCHARD) AND THE SUBJECT OF THE MEETING WAS EXPLAINED. COPIES OF THE REVIEW COMMENT RECORD (RCR) SHEETS RECEIVED TODATE WERE PASSED OUT TO THOSE IN ATTENDANCE. IT SHOULD BE NOTED THAT ALL COMMENTS RECEIVED HAVE BEEN DISPOSITIONED AND EXCEPT FOR THOSE COMMENTS BY NICK BOECHLER THE RCR FORMS HAVE BEEN SIGNED. THE RCR FORMS WERE REVIEWED AND IT WAS REQUESTED BY THE CHAIRMAN THAT THOSE ON THE REVIEW COMMITTEE THAT DIDN'T HAVE COMMENTS TO RETURN A FILLED OUT RCR FORM THAT STATES "NO COMMENTS". FRED SCHMORDE AND RON BOOM AGREED TO RESPOND. THE NEXT MEETING IS SCHEDULED FOR JANUARY 15, 1996 @ 1:00PM IN ROOM G230 OF 2704HV (UNLESS NOTIFIED TO THE CONTRARY BY THE CHAIRMAN).

- ATTENDEES:
- ROY BLANCHARD, CHAIRMAN
 - JIM CRIDDLE, ELECTRICAL COGNIZANT DESIGN ENGINEER
 - M.L.MCELROY, QUALITY ASSURANCE
 - G.P. JANICEK, ATTENDING FOR DENNIS HAMILTON
 - JUDY BURTON, OPERATIONS MANAGER
 - R.J. BOOM, ENVIROMENTAL ENGINEERING
 - W.F. WHITE, ELECTRICAL ENGINEER
 - FRED SCHMORDE, OPERATIONS, PIC
 - A.P. MOUSEL, FIELD ENGINEERING
 - T.E. RAINEY, CHARACTERIZATION ENGINEERING

NOTE: ADDITIONAL COPIES OF THE SIGNED RCR FORMS CAN BE REQUESTED BY CALLING ROY BLANCHARD 373-1248.

A-3000-480 (10/94) GEF011