MAY 31 1996

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT № 615409

2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
Characterization Project Operations (75100)	Characterization Equipment Design (75230)	N/A
5. Proj./Prog./Dept./Div.:	**6. Cog. Engr.:**	**7. Purchase Order No.:**
Core Sampling / FGWL Tanks	R. H. Stubbs	N/A

8. Originator Remarks:

ETN-96-003
This report documents the completion of the formal 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

10. System/Bldg./Facility: 200 General

11. Receiver Remarks:

12. Major Assm. Dwg. No.: N/A

13. Permit/Permit Application No.: N/A

14. Required Response Date: 5/29/96

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-WM-DRR-052 Rev 0 -053 Rev 0	ALL	0	DESIGN REVIEW REPORT for RMCST MODIFICATIONS FOR FLAMMABLE GAS TANKS, FINAL DESIGN	SQ	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) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.
1	1	Cog.Eng: RH STUBBS	RH Stubbs	5/29/96	S7-12	JD CRIDDLE		5/29/96	S7-12	1	1
1	1	Cog. Mgr: DW HAMILTON		5/29/96	S7-12	WF WHITE		5/29/96	S4-43	1	1
1	1	QA: ML MCELROY	M L McElroy	5-29-96	S7-07	GN BOECHLER		5/30/96	H5-09	1	1
1	1	JA HARVEY SAFETY		5/29/96	R3-08	JA HARVEY/ME NUDA SAFETY/CM JAKA		5/29/96	S7-07	1	1
1	1	Env: KS TOLLEFSON	KS Tollefson	5/29/96	S7-01	AP MOUSEL		5/29/96	S7-12	1	1
1	1	Design Auth: GW WILSON		5/29/96	S7-12	GJ BOGEN		5/29/96	S7-12	1	1
1	1	Chair: RJ BLANCHARD		5/29/96	S7-12	NJ MILLIKEN		5/29/96	A3-37	1	1

18. JE CORBETT — Signature of EDT Originator — Date 5/24/96

19. JG BURTON — Authorized Representative for Receiving Organization — Date 5/30/96

20. DW HAMILTON — Cognizant Manager — Date 5/30/96

21. DOE APPROVAL (if required) Ctrl. No.
- [ ] Approved
- [ ] Approved w/comments
- [ ] Disapproved w/comments

FINAL DESIGN REVIEW REPORT for RMCST MODIFICATIONS FOR FLAMMABLE GAS TANKS

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

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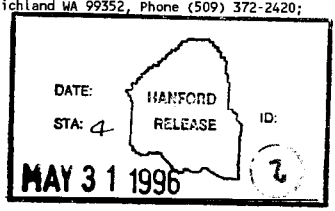
Key Words: RMCST modifications, Core Sampling, Flammable Gas Watch List, Rotary Mode Core Sampling, RMCS, Core Sample Truck, Final Design Review, Formal Design Review, Design Review Report

Abstract: This report documents the completion of the formal 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 approve Engineering Change Orders and new drawings, at the 100% design completion state. The conclusion reached by the review committee was that the design was acceptable and efforts should continue toward fabrication and delivery.



Release Approval 5/31/96
Release Stamp Date

Approved for Public Release

FINAL DESIGN REVIEW REPORT

for

RMCST Modifications for Flammable Gas Tanks

Issued by:

J. E. Corbett, Senior Engineer

Tank Waste Remediation System
Characterization Project

May 1996

TABLE OF CONTENTS

ACRONYMS

ATP	acceptance test procedure
CED	Characterization Equipment Engineering
CFR	Code of Federal Regulations
CPO	Characterization Project Operations
CST	core sample truck
DRR	design review report
ECN	engineering change order
EP	Engineering Practices
FDC	functional design criteria
FGWL	flammable gas watch list
HEPA	high efficiency particulate air (filter)
NEC	National Electrical Code
NFPA	National Fire Protection Association, Inc.
OTP	operability test procedure
RCR	review comment record
RLU	remote latch unit
RMCS	rotary mode core sampling
RMCST	rotary mode core sampling truck
WHC	Westinghouse Hanford Company

RMCST Modifications for Flammable Gas Tanks, Final Design Review

1.0 SCOPE

This report documents the completion of the formal 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 preliminary and final review of new drawings, and engineering change orders (ECN's) for existing drawings, considered to be at the 100% design completion state. These documents are listed in section 6.0.

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 provide a formal design verification consisting of a systematic overall review and evaluation of the RMCST flammable gas modifications. Design verification is performed to insure equipment function, personnel safety, and compliance with WHC-CM-6-1, *Standard Engineering Practices*, section 2.2.4, and the quality assurance requirements of 10 CFR 830.120. Acceptance of the design is required prior to operational use on any waste tanks requiring flammable gas controls. RMCS exhauster modifications and the hydrogen interlock design are evaluated in separate design reviews and are not part of this report.

2.0 BACKGROUND

The Rotary Mode Core Sampling (RMCS) systems were designed for initial deployment to FeCN tanks, with later modifications intended to allow for deployment to Flammable Gas Watch List (FGWL) tanks. These modifications include electronic components designed for intrinsic safety, additional nitrogen purge components and controls, and part replacement where required for material compatibility with hazardous environments. The modifications include replacing or adding equipment to ensure that electrical components which are not classified for use in flammable atmospheres are isolated from potentially flammable atmospheres. This was accomplished by replacing these components with components approved for use in flammable atmospheres, and controlling the potential for flammable atmospheres where possible to isolate non classified electrical components from the hazard. The modifications also include part replacement where required for material compatibility associated with hazardous environments. A functional design criteria (WHC-SD-WM-FDC-048) was used to establish the basis criteria for the modifications.

3.0 SUMMARY

The design review committee was selected in accordance with EP 4.1 and is documented in Section 11.0 of this report. A preliminary design review was performed at the 30% and 50% levels. This portion of the formal design review was completed on February 5th, 1996, and is documented in WHC-SD-WM-DRR-052.

The kickoff meeting for the 100% level design review was held on February 6th, 1996. This meeting served as the first of two final design review briefings. Updated design information and the majority of the modification work ECN's were provided at this briefing. The second final design review briefing was held on February 22nd, where a majority of the new drawings were provided for review. Meeting minutes for these briefings are attachments to Section 11.0 of this report.

The final design review close-out meetings were delayed in order to incorporate changes made to the SA, WHC-SD-WM-SAD-035, *A Safety Assessment of Rotary Mode Core Sampling in Flammable Gas Single Shell Tanks*. The first close-out meeting was held on April 25th. Fifteen ECN's and four new drawings were approved. Of the twenty-three review comment records (RCR's) submitted for this meeting, twenty-one were closed out, and two were withdrawn or superseded. The test results for the mechanical remote latch unit (RLU) were provided (refer to WHC-SD-WM-TR-032). The second of the two close-out meetings was held on May 7th. Two additional ECN's and the remaining two drawings were approved. Six RCR's were submitted and closed out at, or prior to, this meeting. One RCR was submitted after the close-out meetings to document a requested change to the shielded receiver hoist switch. This RCR remains an open item. For a complete listing of RCR's, see section 9.0 of this report. A listing of open items can be found in section 10.0. Meeting minutes for the close-out meetings, and the completed design review checklist, are attachments to Section 11.0 of this report.

After the completion of the close-out meetings, the conclusion reached by the review committee was that the design of the RMCST modifications was acceptable and efforts should continue toward fabrication and delivery.

4.0 GENERAL DESIGN DESCRIPTION

In response to Characterization Program sampling schedule needs, modifications to existing core sampling equipment were kept to a minimum where practical. Changes were made primarily to equipment that can be exposed to potentially flammable gases during sampling of FGWL tanks, including the drill bit, drill string, grapple box, remote latch unit, and shielded receiver enclosures. New equipment and modifications were designed to interface with existing core sampling equipment.

The existing RMCST is designed to sample liquid, sludge, and/or salt cake materials in waste tanks, using the universal sampler, while operating in the outdoor environment of the tank farms. RMCST interfaces are limited to tank riser flanges and RMCS system internal interfaces. The truck is positioned in the tank farms and sections of drill rod are assembled and lowered through the riser to the tank waste level. The assembly of drill rod sections is known as the drill string, which is connected to, and controlled by, the drill rig located on the core sample truck. Using the RLU and shielded receiver hoist, the sampler is lowered down through the drill string and seals above the drill

bit, in the core barrel. The Quadralatch portion of the sampler locks the sampler into place and rotates with the drill string while the sample section stays stationary. When the drill penetrates and the sampler descends, a piston in the sampler is held in place by the grapple assembly, allowing the core sample to be captured within the sampler. The sampler is designed to prevent tank waste from entering the drill string. Seal failure would expose the drill string and grapple box to tank waste/waste gases. For RMCS in flammable gas tanks, the drill string and grapple box volumes are classified as National Fire Protection Association (NFPA) Class 1, Division 1, Group B flammable hydrogen atmospheres.

After a 19-inch core sample segment is taken, a valve closes at the opening of the sampler, and the drill string is disconnected from the drill rig. The shielded receiver, also located on the core sample truck, is then connected to the drill string and is used to retrieve the sample and install a new sampler. Prior to reconnecting the drill string to the drill rig, the length of the drill string is increased by installing an additional 19-in. threaded segment to prepare for the next sampling cycle. During sampler change-out, waste is prevented from entering the drill string by establishing a hydrostatic head balance. Failure of the hydrostatic head balance would expose the drill string and the shielded receiver to tank waste/waste gases. For RMCS in flammable gas tanks, the shielded receiver tube and shielded receiver box (sampler hoist housing) volumes are classified as NFPA Class 1, Division 1, Group B flammable hydrogen atmosphere. A seal failure on the shielded receiver box would expose equipment under the weather cover to gasses from the shielded receiver. For RMCS in flammable gas tanks, the volume within the shielded receiver weather cover, external to the shielded receiver box, is classified as a NFPA Class 1, Division 2, Group B flammable hydrogen atmosphere.

In addition to the core sample truck, the RMCS systems include the nitrogen supply trailer, used to provide the nitrogen gas for establishing hydrostatic head balance during sampler changeout, and to supply nitrogen purge gas to cool the drill bit and clear away the cuttings during drilling. For tanks which do not have an operating exhauster, the RMCS exhauster is set up to filter and remove this additional gas volume to comply with tank emissions regulations and safety requirements. The RMCS trucks have an exhauster interlock system to shut down the drill rig whenever the RMCS exhauster is shut down. The RMCS systems also includes ancillary equipment to supply electrical power, power distribution, equipment wash water, lighting, breathing air, communication, and equipment storage, transportation and handling.

5.0 MODIFICATION DESIGN DESCRIPTION

The stainless steel riser sleeve provided for RMCS in flammable gas tanks is required to reduce the risk of spark initiation from contact between the carbon steel riser and the rotating carbon steel drill string. The riser sleeve assembly includes a spray wash system which routes pressurized wash water from a coupling at the sleeve flange to spray nozzles located at the bottom of the sleeve. This feature will be used during drill string removal to wash the OD of the lower drill string sections before they are raised through the sleeve. The existing wash water hose from the RMCS support truck (previously designed to connect to the drill rod washer) will interface with the connection on the riser sleeve flange.

A riser sleeve spray washer is installed between the riser flange (or offset riser adapter) and the riser sleeve flange. The spray washer will be used during riser sleeve removal to reduce contamination on the sleeve exterior. A smaller riser adapter is provided to compensate for the added height of the sleeve and spray washer. New offset riser adapters are provided to accommodate clearance needed between the riser sleeve and the tank riser.

A nitrogen gas purge is provided to the riser sleeve to prevent flammable gas accumulation in the riser sleeve. Nitrogen gas is delivered by the RMCS nitrogen trailer, through the core sample truck purge gas piping system, to a new hose reel located at the back of the core sample truck. The new hose reel and pneumatic hose supply nitrogen to the riser sleeve through a coupling on a modified drill rod washer. The nitrogen flows down through riser sleeve into the tank dome space. The purge gas pneumatic diagram is shown on H-2-690009 and ECN 628717. Flow control for riser liner purge consists of a ball valve and flow control valve, located at the rear of the core sample truck, below the rotating platform.

The drill rod washer is modified to prevent inadvertent connection to the core sample truck "vent to tank" hose. The coupling size is changed to accept connection to the nitrogen hose coupling from the new hose reel, for the purpose of riser liner purge.

Nitrogen purge is added to the shielded receiver weather cover to comply with NFPA Article 496, Type Z purging requirements of enclosures for use in flammable hydrogen atmospheres. The shielded receiver weather cover is supplied with nitrogen from the RMCS nitrogen trailer, through the core sample truck purge gas piping system. The nitrogen purge under the shielded receiver weather cover is continually vented to atmosphere through the HEPA filter installed on the cover. A pressure relief valve is added to the weather cover to assure that Z-Purge pressure cannot build up and damage the weather cover if the HEPA filters become plugged. The purge gas pneumatic diagram is shown on H-2-690009 and ECN 628717. Flow control for z-purge consists of a metering valve, located on the shielded receiver lifting frame.

A pressure switch and pressure differential switch are added to monitor the nitrogen gas purge in the shielded receiver weather cover and tank riser liner (respectively). Electrical signals are sent to the instrument enclosure assembly where alarm lights are located. The purge gas flow and pressure requirements are documented in the SA. During rotary mode core sampling, a loss of riser liner purge gas, defined as less than 40 psi differential pressure, will cause an automatic shutdown of the drill rig.

Intrinsic safety barriers are added to the shielded receiver and grapple loadcells. These electrical modifications do not effect operator interface. The barriers are necessary to meet the requirements of NFPA Class 1, Division 1, Group B, flammable hydrogen atmosphere.

The original electrically operated remote latch unit (RLU) is replaced with a new mechanical RLU. Because the mechanical RLU does not require any electrical power, it can be operated in the potentially flammable gas atmosphere of the drill string. The latching control chassis is deleted from the control console, and the slip ring and cable wiring are deleted from the hoist, since the remote latch unit electronic latching controls are not needed for the mechanical RLU. Operator actions required to control the mechanical RLU are limited to hoist control.

Penetration rate alarms are added to the critical alarm system. The alarm is activated when the penetration rate of the drill head is outside of acceptable limits. Instrumentation is located on the drill head and the digital display is located in the instrument enclosure assembly.

Set points and delay times are changed for other critical alarms to comply with envelope parameters for sampling in flammable gas tanks. Alarm functions are controlled by the PLC, which is reprogrammed as part of these modifications. Set points and delay times are listed in the SA.

6.0 LISTING OF REVIEW MATERIALS

The following ECN's were reviewed and approved as part of the formal design review:

ECN #	DESCRIPTION
623775	shows changes in the control logic of Core Sample Truck #3 & 4, to implement flammable gas modifications
626740	adds PENETRATION RATE alarms to the Instrument enclosure assembly drawing, electrical connection diagram and elementary diagram of Core Sample Trucks #3 and #4
626741	pressure switches are added to monitor purge gas pressure in the shielded receiver weather cover and tank riser liner
626742	adds intrinsically safe barriers to the loadcell functions to the electrical connection diagram and elementary diagram of Core Sample Trucks #3 and #4; removes Latching Control chassis
628706	adds Z-Purge to the shielded receiver weather cover and adds an additional hose reel and associated piping to provide riser liner purge capabilities
628707	adds an intrinsic safety barrier to the load cell for the shielded receiver assembly to allow sampling flammable gas watchlist tanks
628708	changes the shielded receiver base assembly to add required penetrations for addition of filter, Z-Purge lines and MS connectors for intrinsic safety barrier
628709	deletes slip ring on the sampler hoist since it is no longer needed because the remote latch unit is being replaced with a mechanical remote latch unit to allow sampling in flammable gas watchlist tanks
628710	adds the mechanical remote latch unit, the riser liner, riser liner spray washer, riser adapter, and riser arrangement drawings to drawing index
628711	changes upper assembly views to show the addition of the intrinsic safety barriers, Z-Purge, and riser liner purge
628712	adds a mounting bracket for the intrinsic safety barrier for the grapple hoist load cell
628713	changes the weather cover to add pressure relief valve to assure that Z-Purge pressure cannot build up and damage weather cover if HEPA filters become plugged (see ECN 628706 for Z-Purge installation)
628714	deletes the latching control chassis from the control console since the remote latch unit is being replaced with a mechanical remote latch unit to allow sampling flammable gas watchlist tanks.
628715	deletes the latching control components since the remote latch unit is being replaced with a mechanical remote latch unit
628717	changes the purge gas pneumatic diagram to add the Z-Purge, riser liner purge to allow sampling in flammable gas watchlist tanks
628720	New assembly required for mechanical remote latch unit, required for sampling in flammable gas watchlist tanks
630017	changes couplings to accommodate riser liner purge

The following new drawings were reviewed and approved as part of the formal design review:

DRAWING #	TITLE
H-2-690128	RISER SLEEVE ASSEMBLY
H-2-690131	RISER SLEEVE SPRAY WASHER ASSEMBLY
H-2-690132	RISER ADAPTER ASSEMBLY
H-2-690134	DRILL STRING ARRANGEMENTS (RMCST)
H-2-690136	OFFSET RISER ADAPTER 4"X 6," 8" & 12"
H-2-690142	MECHANICAL REMOTE LATCH UNIT

7.0 SA COMPLIANCE MATRIX

The table on the following page was used as a tool for determining which safety requirements from the SA (WHC-SD-WM-SAD-035) are design criteria for the design modifications being reviewed. Each credited design safety feature listed in the SA is shown on the left side of the table. The corresponding implementing document(s), shown on the left side of the table, is generally the ECN or new drawing which incorporates the safety feature into the RMCS design for flammable gas tanks. In many cases, where the implementing document is shown as "existing," the design feature was incorporated in the existing design for the RMCS system, and no modification is required. Since the table applies to the entire RMCS system, only the core sample truck safety features are applicable to this design review. Other design reviews use the same table, as applicable to other components of the RMCS system. At the time of the final design review close-out meeting, item #8, was considered "in work," and the test report number associated with item #12 was "TBD." Both of these items are discussed in section 10.0 of this report.

SAFETY ASSESSMENT COMPLIANCE MATRIX

#	CHAPTER 6 - SAFETY FEATURES	IMPLEMENTING DOCUMENT
1	Material compatibility (On-site)	ECN 631116, 631126, H-2-690142, memo 75230-96-001, rev. 2
2	Spark-resistant tools (NA)	Administrative Control (Procedure)
3	Grounding and bonding (NA)	ECN 626742 and approved grounding procedure
4	Radiological controls (NA)	Existing - Exhauster housing <100mR on contact
5	Riser sleeve (Off-site)	ECN 628706 (H-2-690128, H-2-690131)
6	Drill string spray washer (NA)	Existing
7	Frisbee/DS interface lubricant (NA)	Existing
8	Pneumatic foot clamp (Off-site)	In work
9	Drill bit configuration & mat'l (Off-site)	Existing - certified by USBM testing
10	Drill centering spike (NA)	Existing
11	Chevron seal between drill bit & sampler (NA)	Existing
12	Core sampler and drill string components (Off-site)	# TBD
13	Sniffing ports (NA)	Existing (H-2-826513)
14	Change-out assembly (NA)	Existing
15	Cable spray washer (NA)	Existing
16	Purge flow limitation (Off-site)	Existing
17	Original speed limitation (Off-site)	Existing
18	Downforce limitation (Off-site)	Existing
19	Drill string penetration rate (Off-site)	ECN 626740
20	Hydraulic bottom detector (Off-site)	Existing
21	Walkdown function (Off-site)	Existing
22	Hydrostatic head (NA)	Existing
23	Truck position (Off-site)	Existing
24	Stabilizing jacks (NA)	Existing
25	Quill rod adapter (Off-site)	ECN 631126
26	Grapple hoist assembly (Off-site)	ECN 628712, 626742
27	Grapple (sample actuator) (Off-site)	Existing
28	Grapple insertion (NA)	Existing
29	Grapple hoist cable tension (NA)	Existing
30	Shielded receiver assembly (Off-site)	ECN 626742, 628707, 628713
31	SR tube (NA)	Existing
32	SR view port (NA)	Existing
33	SR hoist cable tension (NA)	Existing
34	Remote latch unit (Off-site)	H-2-690142, ECN 628708, 628711, 628714, 628715
35	RLU insertion (NA)	Existing
36	RLU position indicator (NA)	Existing
37	Exhauster Operation (Off-site)	ECN 632390
38	Exhauster intrinsic safety (Off-site)	ECN 628744
39	Exhauster PLC	ECN 632390
40	Exhauster duct (Off-site)	ECN 628744
41	Exhauster heater (Off-site)	H-14-100739
42	Exhauster fan and motor assembly (Off-site)	ECN 628744
43	Inlet breather stack (Off-site)	H-14-100742
44	Tank pressure detection (Off-site)	Existing, and H-14-100521
45	Flammable gas detector (Off-site)	H-14-100523
46	X-ray containment (NA)	VI File, Internal memo 75230-96-006
47	DS nitrogen purge supply (Off-site)	Existing
48	Nitrogen hydrostatic head supply (NA)	Existing
49	Riser sleeve nitrogen purge supply (NA)	H-2-690128, ECN 628706, ECN 626741
50	Unique connections (NA)	H-2-690128, ECN 630017
51	Truck PLC (Off-site)	ECN 623775
52	Audible and visual annunciation (NA)	ECN 623775
53	Shutdown interlock (Off-site)	Existing

8.0 DESIGN REVIEW CHECKLIST

Formal design reviews, as described in WHC-CM-6-1, Standard Engineering Practices, are required to use a design review checklist that has been customized for the review. The checklist developed by the design review committee for this review is listed as an attachment to section 11.0 of this report. The checklist was satisfactorily completed, and all open items from the checklist are discussed in section 10.0 of this report.

9.0 REVIEW COMMENT RECORDS

The following table is a listing of all RCR's received during the design review, including an RCR which was discussed at the final close-out meeting and submitted afterwards. All RCR's were dispositioned and signed off as closed, except for the last RCR, which is discussed as an open item in section 10.0 of this report. A copy of each dispositioned RCR, and the opened RCR, are included as attachments to Section 11.0 of this report.

RCR STATUS 5/7/96 (COB)

Final Design Review, RMCST Modifications for Flammable Gas Tanks

REVIEWER/DATE/NUMBER	RESP. ENGINEER	RCR STATUS
Mousel/0206/1	Galen Wilson	Withdrawn/Superseded
Bogen/0206/1	Galen Wilson	closed/signed
Bogen/0206/2	Galen Wilson	closed/signed
Bogen/0206/3	Galen Wilson	closed/signed
Bogen/0206/4	Galen Wilson	closed/signed
Bogen/0206/5	Galen Wilson	closed/signed
Bogen/0206/6	Galen Wilson	closed/signed
Bogen/0206/7	Galen Wilson	closed/signed
Board/0207/1	Jim Criddle	closed/signed
Board/0207/2	Jim Criddle	closed/signed
Board/0207/3	Jim Criddle	closed/signed
Bogen/0208/1	Galen Wilson	closed/signed
Bogen/0208/2	Galen Wilson	closed/signed
Bogen/0208/3	Galen Wilson	closed/signed
Bogen/0208/4	Galen Wilson	closed/signed
Bogen/0208/5	Galen Wilson	closed/signed
Bogen/0208/6	Galen Wilson	closed/signed
White/0214/1	Jim Criddle	Withdrawn/Superseded
White/0220/1	Jim Criddle	closed/signed
McElroy/0226/1	Galen Wilson	closed/signed
Martell/0312/1	Galen Wilson	closed/signed
Mousel/0312/1	Galen Wilson	closed/signed
Krogsrud/0312/1	Galen Wilson	closed/signed

REVIEWER/DATE/NUMBER	RESP. ENGINEER	RCR STATUS
White/0426/1	Jim Criddle	closed/signed
McElroy/0501/1	Galen Wilson	closed/signed
Jaka/0501/1	Galen Wilson	closed/signed
Tollefson/0504/1	Galen Wilson	closed/signed
Seda/0506/01	Galen Wilson	closed/signed
Seda/0506/02	Galen Wilson	closed/signed
Mousel/0507/01	TBD	OPEN

10.0 CONCLUSIONS AND OPEN ITEMS

With the approval of this report, the formal design review for the "RMCST Modifications for Flammable Gas Tanks" is completed. The following open items were noted during the design review. These items are scheduled to be completed as part of the normal course of business and are not action items for the design review committee. Therefore, these items are NOT considered to be "open action items" as described in WHC-CM-6-1, EP-4.1, paragraph 2.3.3.2, "Documentation of Action Item Completion."

OPEN ITEM: ATP/OTP testing to demonstrate requirements/operability
OPEN ITEM: operation and maintenance procedures revised to reflect modifications

OPEN ITEM: US Bureau of Mines ignitability test report to document sampler and drill string components meet SA requirements for sparking.

The following action items were noted during the design review. These "open action items" will be closed in accordance with the requirements described in WHC-CM-6-1, EP-4.1

ACTION ITEM: Design modification to meet SA requirements related to "safety feature #8" (pneumatic footclamp); assigned to CED.

ACTION ITEM: Disposition & closure for open RCR (Shielded Receiver switch); assigned to CED.

The conclusion reached by the design review committee is that the design of the RMCST modifications is acceptable. There are no further action items for the review committee.

11.0 DOCUMENTATION

The following items are provided as attachments to this report:

1. Design Review Checklist

2. Copies of RCR's

3. Meeting Minutes (includes assignments of design review committee members)

Review copies of all ECN's and new drawings provided to committee members for final review are available in the design review file. All released documentation referenced in the report will be available using the controlled document number located in the text where the document is cited.

ATTACHMENT 1

Design Review Checklist

FORMAL DESIGN REVIEW CHECKLIST
Rotary Mode Core Sampling Truck Modifications for Flammable Gas Tanks

Documents Reviewed: ECN# 623775, 626740 through 626742, 628706 through 628715, 628717, 628720, & 630017; H-2 drawing# 690128, 690131, 690132, 690134, 690136, & 690142; WHC-SD-WM-DRR-052, and applicable portions of WHC-SD-WM-SAD-035.

Item	Review Consideration	Yes	No	NA	Remarks
1	Have assumptions necessary to perform the design task been adequately described and are they reasonable? Where necessary, have assumptions been identified for reverification when the design task has been completed?	X			Assumptions were conservative.
2	Have the appropriate Quality Assurance requirements been specified?	X			
3	Were sources of information identified?	X			
4	Does the design meet the established requirements or design criteria?	X			
5	Does the design meet established requirements for associated system physical and functional interfaces?	X			
6	Are there any interface problems?	X			
7	Has appropriate consideration been given to use of standardized parts, materials and processes, and have engineering standards and criteria been specified properly in the design?	X			
8	Does the design represent the simplest design consistent with functional requirements and expected service conditions?			X	Not reviewed, due to schedule constraints.
9	Can the equipment be readily assembled/disassembled as designed?	X			
10	Does the design minimize overall cost to the extent practicable?			X	Not reviewed, due to schedule constraints.
11	Are the specified materials compatible with each other and the environmental conditions to which the material will be exposed?	X			
12	Are the applicable codes, standards and requirements, including revisions, properly identified and are their design requirements provided for?	X			
13	Have modifications to commercial grade items and any associated verification operations or tests been appropriately documented?	X			
14	Have qualified and certified parts been specified?	X			

FORMAL DESIGN REVIEW CHECKLIST sheet 2 of 4

Item	Review Consideration	Yes	No	NA	Remarks
15	Does the design meet functional requirements? a. Stresses are within design limits? b. Derating is used? c. Steady-state and transient conditions? d. Have actual and "worst case" condition stresses been considered rather than nominal average stresses?	X			
16	Will the design meet the following environmental conditions? a. Temperature (steady-state and transient) b. Flow (steady-state and transient) including induced vibration c. Pressure (steady-state and transient) d. Natural phenomena e. Nuclear radiation	X			
17	Is the design producible by conventional means?	X			
18	Do manufacturing, processing, and fabrication procedures minimize stress corrosion and fatigue?	X			
19	Are the specified construction materials resistant to the following as applicable: a. Moisture b. Oxygen c. Acids d. Salts e. Radiation	X			
20	Do the clearances and tolerances take into account the effects of age and wear?	X			
21	Are mechanical tolerances within the limits of normal shop practice?	X			
22	Are assembly clearances adequate?	X			
23	Have allowable leakages been specified?	X			
24	Have non-corrosive materials been used where required?	X			
25	Does the design avoid any materials unproven for use in the anticipated environment?	X			

FORMAL DESIGN REVIEW CHECKLIST sheet 3 of 4

Item	Review Consideration	Yes	No	NA	Remarks
26	Can the assembly be stored for extended periods of time without degrading effects?	X			Applied to equipment required to enter the tank.
27	Has the design appropriately considered maintenance, operation and reliability, including maintenance procedures and techniques, unique maintenance requirements and frequencies?	X			
28	Are coatings (or finishes) compatible with the expected environment? With expected usage?	X			
29	Are surface finish requirements the least stringent possible?	X			
30	Are required tolerances, fabrication techniques, processes, etc., consistent with standard practices?	X			
31	Can the design and its parts be easily inspected for conformance to engineering specifications?	X			
32	Has adequate accessibility been provided for in-service inspection?	X			
33	Does the design meet all established safety requirements?	X			
34	Has an acceptable level of radiation exposure been defined?	X			
35	Have personnel radiation protection requirements been considered and identified?	X			
36	Have nuclear criticality safety considerations been incorporated?			X	None required.
37	Have necessary features been provided to maintain personnel radiation exposure as low as reasonably achievable?	X			
38	Can the hardware be adequately disposed of after use if it is radiologically or chemically contaminated?	X			Note: The riser sleeve is in sections.
39	Have requirements for storing the equipment been defined?			X	Equipment is mobile.
40	Have adequate acceptance criteria been specified and are the verification methods stated appropriately?	X			
41	Have welding, bolting, joining methods been adequately specified?	X			
42	Have NDE methods been applied correctly?	X			
43	Will a separate Acceptance Test Spec/Procedure be required? - If yes, identify responsible organization(s) for preparation and issue (TBD if unknown)	X			Characterization Equipment Design will provide ATP's.
44	Have human factors engineering and operability been considered?	X			
45	Is an Operation and Maintenance Manual required? If so, have requirements been clearly identified?		X		Operating and maintenance procedures exist. Characterization Field Engineering will update.

FORMAL DESIGN REVIEW CHECKLIST sheet 4 of 4

Item	Review Consideration	Yes	No	NA	Remarks
46	Are current operating documents (procedures, specifications, etc.) applicable to the design or are changes necessary?		X		Characterization Field Engineering will provide documents.
47	Does the design use engineered safety and operational protections to avoid an excessive risk-taking dependence on administrative infallibility?	X			
48	Are reliability requirements specified? If so, does the reliability analysis of the design meet the specified reliability requirements?	X			Information is in the SA.
49	Have all credible non-standard conditions been properly considered?	X			
50	Has the equipment, system, or facility operability been demonstrated?		X		This will be demonstrated by OTP.
51	Is the equipment design adequate to implement the proposed maintenance philosophy?	X			
52	If any development work is needed, has it been funded or performed?	X			
53	Has drawing traceability been provided?	X			
54	Has the need for safety analysis of this design been determined by Safety?	X			
55	Is the equipment, system, or facility covered by an existing Safety Analysis Report? If not, complete the safety analysis in time to incorporate findings of the analyzed in the design.	X			WHC-SD-WM-SAD-035
56	Does the design match the intended (and possible abnormal) methods of operation of the system or facility?	X			
57	Is a single point failure analysis required?	X			Completed in the SA.
58	Are all indication lights and electrical control considered fail-safe?	X			As required by SA.
59	Do the design media, format, content, reproducibility, and quality comply with all applicable requirements (including Hanford Plant Standards and referenced codes and standards)? Are the drawings structured to meet the needs of users after project completion?	X			
60	Have availability of power requirements for the project been verified?	X			
61	Have requirements for providing as-built drawings been specified?	X			
62	Is the design in compliance with applicable regulatory requirements and/or WHC regulatory commitments?	X			
63	Are design tolerances appropriate and applied in a cost-effective manner and are standard materials and material sizes used where practicable?	X			
64	Is all computer software and data properly identified and controlled?	X			

ATTACHMENT 2

Copies of RCR's

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
02/06/96	N/A
3. Project No.	**4. Page**
N/A	1 of 21

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
GENERAL	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

2/22/96
Date

G. W. Wilder
Reviewer/Point of Contact

Author/Originator

11. CLOSED

2/22/96
Date

Galen W. Wilder
Reviewer/Point of Contact

Author/Originator

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.	Designs are to conform to Functional Design Criteria (FDC) referencing unreleased Safety Assessment (SA)? what controls have been established to ensure designs will conform to "final" (released) SA?		A Compliance Matrix will be sent to review board members when Safety Assessment is in final draft.	
2.	Review not inclusive of all required changes, i.e.: Operating Procedure, PM's, Set Points, Required Testing (envelope, sparking), Sampler Design, Training, Interlocks, Quill Rod, SDD/Interface		Out of Scope of this review these items to be addressed by Readiness Review.	

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
02/06/96	N/A
3. Project No.	**4. Page**
N/A	1 of 2

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
Mechanical Remote Latch Unit GENERAL	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

2/22/96 — Date — G. W. Wilson — Reviewer/Point of Contact

Author/Originator

11. CLOSED

2/22/96 — Date — G. W. Wilson — Reviewer/Point of Contact

Author/Originator

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.	Installation not shown		Shown on ECN's 628707 page 5 and 628711 page 13	
2.	ECN's do not indicate changes required **TO**: Operating parameters, PM's, Calibration procedures (cancellations), Training		Out of Scope for this review these items to be addressed by Readiness Review	
3.	Test Plan not included in design review documents		Out of Scope for this review these items to be addressed by Readiness Review	
4.	Test Plan should include at a minimum **A** Operability **B** Cycle life/shelf life **C** Failure tests [non-fail safe design]		Out of Scope for this review these items to be addressed by Readiness Review	
5.	As a result of design change from 50% to 100% review, has Safety Assessment been modified to reflect non-fail safe design?		To be determined in testing	

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
02/06/96	N/A
3. Project No.	**4. Page**
N/A	1 of 2

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
Riser Liner	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

2/22/96
Date

G. W. Wilson
Reviewer/Point of Contact

G J Bogen
Author/Originator

11. CLOSED

2/22/96
Date

G. W. Wilson
Reviewer/Point of Contact

G J Bogen
Author/Originator

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.	Means of Installation?		Installed as one piece with crane	
2.	Means of Disposal?		Can be disassembled to allow all pieces to fit in drums	
3.	Operating Procedure?		Out of Scope of this review these items to be addressed by Readiness Review	
4.	Test Plan?		Out of Scope of this review these items to be addressed by Readiness Review	
5.	Water requirements (pressure, volume) vs. spray wash pump output, line loss considerations?		To be determined by testing	
6.	Where is the purge introduced?		Purge will be introduced at drill string spray washer, at old vent to tank coupling which will be changed to a 3/4" coupling and vent to tank liner will move to new riser liner spray washer	
7.	Seal for liner?		Shown in revised equipment drawing to be handed out on February 22, 1996	
8.	Riser equipment drawing?		To Be Handed Out 2/22/96	

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REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
02/06/96	N/A
3. Project No.	**4. Page**
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5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN 628708	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

2/22/96
Date

G.W. Nelson
~~Reviewer~~/Point of Contact

~~Author~~/Originator

11. CLOSED

2/22/96
Date

G.W. Nelson
~~Reviewer~~/Point of Contact

~~Author~~/Originator

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.	Changes to baseplate should be noted in Blocks 18 and 19. "Stress Analysis". Approval from Stress should also be obtained.		Concur, ECN revised	

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
02/06/96	N/A
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5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN 628709	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

2/22/96 Date — G. W. Wilson Reviewer/Point of Contact

J. Bogen Author/Originator

11. CLOSED

2/22/96 Date — G. W. Wilson Reviewer/Point of Contact

J. Bogen Author/Originator

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.	Sheet 5 and 6 should be switched		Concur, ECN revised	
2.	Item 88 is a pressure barrier. Stress calculations or approval from Stress SB included on ECN		Concur, ECN revised	
3.	Bolt torque SB specified		Concur, ECN revised	

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REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
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5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN 628713	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

2/22/96
Date

Reviewer/Point of Contact

Author/Originator

11. CLOSED

2/22/96
Date

Reviewer/Point of Contact

Author/Originator

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.	ECN Block 13b. Description is wrong.		Concur, ECN revised	
2.	Is weather cover going to be pressure/leak tested?		No, normal pressure range is 5-10" water	

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
02/06/96	N/A
3. Project No.	**4. Page**
N/A	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN 628717	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

2/22/96
Date

Reviewer/Point of Contact

Author/Originator

11. CLOSED

2/22/96
Date

Reviewer/Point of Contact

Author/Originator

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.	Pages numbered improperly		Concur, ECN revised	
2.	Block 18 does not show change to operating procedure		Concur, ECN revised	
3.	ECN poorly identifies where changes have occurred		Would create more problems by "clouding" changes	

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REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
February 7, 1996	6020703
3. Project No.	**4. Page**
CHARACTERIZATION	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
RMCST 3 & 4 MODIFICATION ECN #626742	CHARACTERIZATION J. CORBETT	D. BOARD	CHARACTERIZATION QUALITY ASSURANCE	2704HV/F200H 373-5191

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

25 Apr 96 Dan Board
Date Reviewer/Point of Contact

Author/Originator

11. CLOSED

25 Apr 96 Dan Board
Date Reviewer/Point of Contact

Author/Originator

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 4 - On H-2-690071, Sht 4, Rev 1, Recommend the drawing terminal block be labeled TB5 in the Control Console.		Accept, correct label is CC-TB5.	
2.	Page 4 - On H-2-690071, Sht 4, Rev 1, The deletions do not appear to have been made on the drawing.		Accept, ECN changes will be incorporated on drawing.	
3.	Page 5 - On H-2-690071, Sht 6, Rev 1, Drawing changes do not appear to have been made for: Line 2 - REMOVE the were connected to the left J1-d Line 3 - REMOVE the wire connected to the left J1-e Line 4 - DELETE the text to the left of the 2 wires Line 15 - For All wires connected to the left of P2		Accept, ECN changes will be incorporated on drawing.	

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
February 7, 1997	6020702
3. Project No.	**4. Page**
CHARACTERIZATION	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
RMCST 3 & 4 ECN #626741	CHARACTERIZATION J. CORBETT	D. BOARD	CHARACTERIZATION QUALITY ASSURANCE	2704HV/F200H 373-5191

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

Don Board
25 Apr 96 — Reviewer/Point of Contact
Date

Author/Originator

11. CLOSED

Don Board
25 Apr 96 — Reviewer/Point of Contact
Date

Author/Originator

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 3, H-2-690068, sht 6, rev. 1, The drawing changes for the plates "S" and "G" have been interchanged.	DB	Accepted, corrections will be made.	
2.	Page 3, H-2-690073, sht. 1, rev. 1, The drawing description and material designation of part # 41 has not been corrected.	DB	Accepted, corrections will be made.	

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
February 7, 1996	6020701C
3. Project No.	**4. Page**
CHARACTERIZATION	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
RMCST 3 & 4 MODIFICATION ECN #626740	CHARACTERIZATION J. CORBETT	D. BOARD	CHARACTERIZATION QUALITY ASSURANCE	2704HV/F200H 373-5191

17. Comment Submittal Approval:

Organization Manager (Optional)

7 Feb 96
Date

10. Agreement with indicated comment disposition(s)

D. Board
Reviewer/Point of Contact

Author/Originator

11. CLOSED

7 Feb 96
Date

D. Board
Reviewer/Point of Contact

Author/Originator

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	Minor editorial comments only.		None required	C

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REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
02/08/96	N/A\
3. Project No.	**4. Page**
N/A	1 of 2 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
Mechanical RLU - General	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

2/22/96
Date

J. W. Wilder
~~Reviewer~~/Point of Contact

~~Author~~/Originator

11. CLOSED

2/22/96
Date

G. W. Wilder
~~Reviewer~~/Point of Contact

~~Author~~/Originator

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.	The new RLU design eliminates the verifications means of assuring the sampler is seated. What method will be used in place of the encoder?		The encoder will still be used, testing will be performed to finalize operational procedure	

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REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
02/08/96	N/A
3. Project No.	**4. Page**
N/A	1 of 2

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN 628706	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

2/22/96
Date

G. W. Wilson
Reviewer/Point of Contact

Author/Originator

11. CLOSED

2/22/96
Date

G. W. Wilson
Reviewer/Point of Contact

Author/Originator

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.	Sheet 4. Part Number 68 "ASTM A36" is correct call-out.		Concur, ECN revised	
2.	Sheets 4 and 5. Part number 56 and note 20 do not agree in units (GPM, SCFM).		Concur, ECN revised	
3.	Sheets 8 and 9. Inadequate dimensioning of part number 68. (Sheet 8; hidden line on left side).		Concur, ECN revised	
4.	Sheet 21. Dimensions on left and right of top view are illegible		Concur, ECN revised	

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
02/08/96	N/A
3. Project No.	**4. Page**
N/A	1 of 21

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN 628706	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

2/22/96 Date — G. J. Bogen Reviewer/Point of Contact

Author/Originator

11. CLOSED

2/22/96 Date — G. J. Bogen Reviewer/Point of Contact

Author/Originator

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.	Block 18 should note "calibration procedure" to verify minimum flow is obtained.		Concur, ECN revised	
2.	Sheet 19. Below hose reels, behind tires is a poor location for mounting. Does not appear rigid enough to prevent leakage due to pipe flexure.		Don't see mounting as problem due to 15 MPH speed limit. Other locations are impractical	
3.	Sheets 17, 19 and 22. Not shown in adequate detail. Reference K-K and L-L.		Concur, ECN revised	

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
02/08/96	N/A
3. Project No.	**4. Page**
N/A	1 of 2

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN 628707	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

Date 2/22/96 Reviewer/Point of Contact

Author/Originator

11. CLOSED

Date 2/22/96 Reviewer/Point of Contact

Author/Originator

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.	Sheets 5 and 6. Changes in addition to those identified on sheet 5 have been made. [or appear to have been made]		Weather cover changes are made per other released ECN's	

A 6400-090.1 (03/92) WEF011

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
02/08/96	N/A
3. Project No.	**4. Page**
N/A	1 of 21

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN 628709	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional) — Date

10. Agreement with indicated comment disposition(s)

G. J. Bogen — Reviewer/Point of Contact — Date 2/22/96

~~Author~~/Originator

11. CLOSED

G. J. Bogen — ~~Reviewer~~/Point of Contact — Date 2/22/96

J. Boz — ~~Author~~/Originator

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.	Sheets 3, 7 and 10 (two places) part number 86 should be changed to part number 88 (total 4 places)		Concur, ECN revised	

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
02/08/96	N/A
3. Project No.	**4. Page**
N/A	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN 628712	Characterization	G. J. Bogen	Characterization Operations	2704HV/B100J/ 373-5822

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

2/22/96
Date

G. W. Wilson
~~Reviewer~~/Point of Contact

~~Author~~/Originator

11. CLOSED

2/22/96
Date

G. W. Wilson
~~Reviewer~~/Point of Contact

~~Author~~/Originator

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.	Sheet 3 "zinc" is misspelled.		Concur, ECN revised	
2.	Sheets 4 and 6. Item 17 is not installed.		Concur, reference note from sheet 6	

REVIEW COMMENT RECORD (RCR)	1. Date 2/20/96	2. Review No. RMCST-100%
	3. Project No. RMCST	4. Page 1 of 2

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN-626740, ECN-626741, ECN-626742	RMCST/N4H3B	William F. White	Instrument Systems Integration/74430	H6-11/ 376-8925

17. comment disposition(s)

Comment Submittal Approval:
11. CLOSED

10. Agreement with indicated

Organization Manager (Optional) Contact

4/25/96 Date

Reviewer/Point of Contact

Author/Originator

4/25/96 Date

Reviewer/Point of

Author/Originator

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	ECN626741, Page 7: The currently and the should be sections should look the same except for the changes. In this case, the should be dropped two bottom cable connectors and three back cable connectors. Suggest making the currently view the same as the should be without the bubbled items.		Accept	
2	ECN626741, Page 10: In the should be figure, the line between actuator 31 and the S4.1, T1 should be moved down to line up with the point of the actuator.		Accept	
3	ECN626741, Pages 22 & 24: Page 22 currently drawing has 7 conduits exiting it; the rightmost going to the HBD Box. Page 24 currently drawing has 8 conduit exiting the PG Box with a conduit further right than the HBD Box conduit. It appears that the K3 line was left off of the PG Box on Page 22.		Accept	

REVIEW COMMENT RECORD (RCR)	1. Date 2/20/96	2. Review No. RMCST-100%
	3. Project No. RMCST	4. Page 2 of 2

4	ECN626741, Page 22: The currently drawing has 7 conduits exiting the bottom of the PG Box, the should be has 8 with the left most one not connected to anything. See the comment above.		Accept	
5	ECN626741, Pages 15 & 16: You have changed an 8 input module into a 16 input module. ALL connections to the new module will have to be re-marked to the "S2.1-" designation from the "S2-" designation, not just the new additions.		Accept	
6	ECN626742, Page 3: As you did with the Shield Rcvr Load Cell, above the Grapple Hoist load Cell ADD "SEE H-2-690071 SH 7"		Accept	
7	ECN626742, Page 5: All References to J6 should be changed to J6- (for example: "J6v" would become "J6-v") - If you change these, you might as well change all "J6" references to "J6-" references.		Accept	
8	ECN626742, Page 13: For Wire Runs 60 and 62 in the VIA block ADD "SEE NOTE *" under the K16 (60) and K17 (62).		Flag notes will be deleted from VIA block and located as appropriate.	
9	ECN626742, Page 14: Next the K17 call-out, ADD note flag for note *.		Flag notes will be properly located.	
10	ECN626742, Page 17: For run K17 change the note call-out flag from "@" to "*" or add call-out for flag *		Accept	
11	ECN626742: You show the routing for K17 but leave out the routing for K16. ADD the K16 routing as well as a note flag call-out for note *		Routing for K16 is shown on ECN 628707. Flag notes will be added on that ECN.	

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
2/26/96	CP96-009
3. Project No.	**4. Page**
N/A	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
RMCST DESIGN MOD. DRAWINGS	CPO/RMCST	M.L. MCELROY	CPE QA/3E200	2704HV/B122/373-5588

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

4/25/96
Date

M.L. McElroy
Reviewer/Point of Contact

J.W. Milton
Author/Originator

11. CLOSED

4/25/96
Date

M.L. McElroy
Reviewer/Point of Contact

J.W. Milton
Author/Originator

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.	H-2-690142, GENERAL NOTES, #7---It says to apply "Loctite 222", is this the correct material? Or are we to use LA-CO T-O-T, as per J. Burton"s letter of 1/18/96?	MLM	This item is not assembled/disassembled in the field in the presence of flammable gas. Loctite 222 is correct.	C
2.	H-2-690142, Sheet 2---Item "18, SPRING", should be item "19", as per the Parts/Material List.	MLM	Accept/revise	C
3.	H-2-690132, SHT. 1---Item "1-RISER ADAPTER ASSEMBLY, should read "PURGE CAP ASSEMBLY", as per the Parts/ Materials List.	MLM	Accept/revise	C
4.	H-2-690132, SHT. 1---General note 5, says "THREADLOCKER 242", is this the correct material? See comment 1, above.		This item is not assembled/disassembled in the field in the presence of flammable gas. Loctite 222 is correct.	C
5.	H-2-690128, SHT. 1---General Note 1, should be a "flagged" note.		Accept/revise	C

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
3/12/96	100%
3. Project No.	**4. Page**
ETN-96-003	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
See block 13	Characterization RMCS	P. J. Martell	WCS/ES	MO255/373-5417

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

3-12-96 Date

P J Martell Reviewer/~~Point of Contact~~

G. W. Wilson Author/~~Originator~~

11. CLOSED

3-12-96 Date

P J Martell Reviewer/~~Point of Contact~~

G. W. Wilson Author/~~Originator~~

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
	The following documents were reviewed in support of the core sample truck, flammable gas modifications final design review: ECN# 628706 through 628715, 628717, 628720, & 626740 through 626742; and H-2 drawing# 690128, 690131, 690132, & 690142. No comments/discrepancies exist that would impact environmental approval of the described design.	none	none	closed

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
3/12/96	100%
3. Project No.	**4. Page**
ETN-96-003	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
See block 13	Characterization RMCS	A. P. Mousel	TCP/Field Eng.	2704HV/373-9207

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

4/23/96 Date — Reviewer/~~Point of Contact~~

Author/~~Originator~~

11. CLOSED

4/23/96 Date — Reviewer/~~Point of Contact~~

Author/~~Originator~~

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
	The following documents were reviewed in support of the core sample truck, flammable gas modifications final design review: Design Review Checklist; ECN# 628706 through 628715, 628717, 628720, & 626740 through 626742; and H-2 drawing# 690128, 690131, 690132, & 690142. No comments/discrepancies exist that would impact field engineering approval of the described design.	none	none	closed

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
3/12/96	100%
3. Project No.	**4. Page**
ETN-96-003	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
See block 13	Characterization RMCS	L. S. Krogsrud	TWRS Safety	2751E/372-2302

17. Comment Submittal Approval:

Organization Manager (Optional) — Date

10. Agreement with indicated comment disposition(s)

24 April 96 — Date — L S Krogsrud — Reviewer/Point of Contact

G W Walton — Author/Originator

11. CLOSED

24 April 96 — Date — L S Krogsrud — Reviewer/Point of Contact

G W Walton — Author/Originator

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
	The following documents were reviewed in support of the core sample truck, flammable gas modifications final design review: ECN# 628706 through 628715, 628717, 628720, & 626740 through 626742; and H-2 drawing# 690128, 690131, 690132, & 690142. No comments/discrepancies exist that would impact TWRS Safety approval of the described design.	none	none	closed

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
4/26/96	WFW-964Q-1
3. Project No.	**4. Page**
Core Sample Trucks	1 of 5

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
Engineering Change Notice 623775	200 General	William F. White	Instrument Systems Integration/74430	H6-11/ 376-8925

17. Comment Submittal Approval:

Organization Manager (Optional) _____ Date

10. Agreement with indicated comment disposition(s)

5/7/96 Date — Reviewer/Point of Contact

Author/Originator

11. CLOSED

5/7/96 Date — Reviewer/Point of Contact

Author/Originator

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	GENERAL: Several of the logic diagrams are extremely hard to read. Put them on 11X17 inch pages and they would be readable.		Noted: that is more a function of Word Perfect than anything else; have been trying to find a way to fix it.	
2	Page 1: Block 11b needs the Work Package Number.		Provided by JD Criddle Jr organization.	
3	Page 1: Block 12 needs the USQE number on the first line along with the ETN.		Provided by JD Criddle Jr organization.	
4	Page 1: Block 13b - I suggest you add a reference to the SA as additional justification for the change.		Provided by JD Criddle Jr organization.	
5	Page 3: Contact 32 FUNCTION currently reads "FUTURE USE" - need to **CHANGE** this to read "PENETRATION RATE LOW ALARM LIGHT"		Accept	
6	Page 3: Contact 5 should **ADD** lines 444, 486, and 473 (not 545) and it should also **REMOVE** lines 259 and 264.		Accept	

REVIEW COMMENT RECORD (RCR)	1. Date 4/26/96	2. Review No. WFW-964Q-1
	3. Project No. Core Sample Trucks	4. Page 2 of 5

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
7	Page 3: Contact 30 should read "<49, 395>" rather than "<49> 395" the way this change would be incorporated into the drawing.		Accept	
8	Page 3: Contact 31 should read "<50, 364>"		Accept	
9	Page 3: Contact 32 should read "<51, 495>"		Accept	
10	Page 3: Contact 40 - **CHANGE** "176" to "177"		Accept	
11	Page 3: Contact 52 - **CHANGE** "176" to "177"		Accept	
12	Page 3: Contact 66 should read "<89, 398>"		Accept	
13	Page 3: Contact 73 - **CHANGE** "216" to read "221" and **ADD** 373 and 375 to the listing.		Accept	
14	Page 4: For contact 4 you list "S43a", yet looking at the drawing on sheet 3, there does not seem to be a difference between S40, S41, S42 and S43. Do these all need to be "a"?		Accept, will remove "a".	
15	Page 6: For contacts 114 and 115, these need to be changed to be "40A" and "40B" to be consistant with page 14.		Accept	
16	Page 7: 4th line from the bottom - **CHANGE** "contact number 372, ..." to read "contact number 370, ..."		Accept	
17	Page 7: For contact 215, in addition to those given, **ADD** lines 259 and 264 to the listing.		Accept	

REVIEW COMMENT RECORD (RCR)	1. Date 4/26/96	2. Review No. WFW-964Q-1
	3. Project No. Core Sample Trucks	4. Page 3 of 5

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
18	Page 7: For contact 216, in addition to those given, **ADD** line 481 to the listing.		Accept	
19	Page 7: For Contact 320, **REMOVE** line 305.		Accept	
20	Page 8: For contact 301, **ADD** line 389.		Accept	
21	Page 8: Contact 341 - **CHANGE** "541" to "542" (see ECN page 31).		Accept	
22	Page 8: For contacts 354 and 355 - **CHANGE** "464" to "472"		Accept	
23	Page 8: For contact 355 **ADD** line 479.		Accept	
24	Page 8: For contact 220, **CHANGE** "428" to "482"		Accept	
25	Page 8: For contact 223, **CHANGE** "626" to "625"		Accept	
26	Page 10: For contact 772, **CHANGE** "626" to "625, 628"		Accept	
27	Page 10: For contact 773, **CHANGE** "627" to "626, 629, 631"		Accept	
28	Page 13: The module in slot 2 is the same as the module in slot 3. Why are they wired differently?		Response: the 8 new inputs added to slot 2 are tied (via the various switches) to 48-H1. The corresponding neutral is 49-N. (See pg 14 of the ECN). This is not the case for the module in slot 3.	

REVIEW COMMENT RECORD (RCR)	1. Date 4/26/96	2. Review No. WFW-964Q-1
	3. Project No. Core Sample Trucks	4. Page 4 of 5

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
29	Page 14: [This is an example of hard to read!] The "SHOULD BE" drawing includes the title for line 34 that was changed on page 12 of this ECN but is unchanged here. Need them to be consistant.		Accept; will revise this page of the ECN.	
30	Page 12: The first group of changes would eliminate the "(NOTE 8)" that follows the existing text. I am pretty sure you want to keep the reference to note 8. If you do, within each of the quotes, **ADD** "(NOTE 8)".		Accept; will keep reference to note 8.	
31	Page 22: For the third group of changes on this page, I suggest adding the line numbers for these changes to make them easy to find (They are 346, 322, and 326 respectively).		Accept	
32	Page 30: In the sketch, the line joining the three legs is extended downward. Where are the other contacts for this alarm?		Accept; will remove errant line.	
33	Page 31: **CHANGE** "SINGE" to "SINGLE"		Accept	
34	Page 42: The line numbers and the contacts do not line up properly. Line 625 should have 772 and <223>; Line 626 should have 773; Line 628 should have 772 and <224>; Line 629 should have 773; and Line 631 should have 773 and <R341>.		Accept	
35	H-2-690069, Sheet 5, Zone C4 & D4: Lines 110 through 115 have wire run numbers that start with a "C" - Should these start with a "0"?		Response: "C" prefix is correct as shown.	

REVIEW COMMENT RECORD (RCR)	1. Date 4/26/96	2. Review No. WFW-964Q-1
	3. Project No. Core Sample Trucks	4. Page 5 of 5

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
36	H-2-690069, Sheet 6, lines 138 & 139: Just a side note these two lines are logically the same as having 205 and 206 in parallel followed by the series contact of 216. THIS IS NOT A COMMENT FOR A CHANGE, IT IS JUST A NOTE.		Noted	
37	H-2-690069, Sheet 6, Zone D4, Line 152: Since changing other locations (Lines 156 & 159) from "206" to "214", should the contact in this location also be "214"?		Response: either way is functionally the same.	

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
5/1/96	CP96-014
3. Project No.	**4. Page**
N/A	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
FINAL DESIGN REVIEW CLOSEOUT, RMCST MOD'S FOR FLAMMABLE GAS TANKS	CHARACTERIZATION PROJECT	M.L. MCELROY	CPE QA/75820	2704HV/B-122 373-5588

17. Comment Submittal Approval:

Organization Manager (Optional) Date

10. Agreement with indicated comment disposition(s)

M.L. McElroy 5/7/96
Reviewer/Point of Contact Date

D.W. Wilson 5/7/96
Author/Originator Date

11. CLOSED

M.L. McElroy 5/7/96
Reviewer/Point of Contact Date

D.W. Wilson 5/7/96
Author/Originator Date

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.	ECN 630017, page 3 of 3---there is a an addtion of item 32, "Bushing; Reducing 3/4 X 1/8 IPS", this should read "3/4 X 3/8 NPT".	MLM	Accept. ECN changed.	C

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
May 1, 1996	484-96
3. Project No.	**4. Page**
Characterization	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
Drawings H-2-690134, H-2-690136/ RMCST Drill String Arrangements.	Characterization	Omar Jaka	TWRS-Nuclear Safety	2751E/F111/2-2322

17. Comment Submittal Approval:

Organization Manager (Optional) — Date

10. Agreement with indicated comment disposition(s)

5/7/96 — Date

Reviewer/Point of Contact

Author/Originator 5/7/96

11. CLOSED

5/7/96 — Date

Reviewer/Point of Contact

Author/Originator 5/7/96

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.	Title blocks of these drawings do not specify RMCS truck numbers. Also these drawings should spell out the Title of the project instead of Acronyms.	OJ	Truck numbers are identified on face of end item drawing, zone E-7. Title blocks are consistent with existing released drawings.	C

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
05/04/96	1
3. Project No.	**4. Page**
Characterization Project - RMCS Trucks 3 and 4	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN 623775 ECN 630017 Dwg H-2-690134 H-2-690136	Characterization Project RMCS Trucks 3 & 4	K. S. Tollefson	TWRS Characterization Project - Environmental Compliance	2704 HV/B-119 372-2234

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

5/3/96 Date — Kathy S. Tollefson Reviewer/Point of Contact

Kathy S. Tollefson Author/Originator

11. CLOSED

5/5/96 Date — Kathy Tollefson Reviewer/Point of Contact

Kathy S. Tollefson Author/Originator

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	No comment response			

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
5-6-96	
3. Project No.	4. Page
	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
ECN 630017	200G	R.Y. Seda	75250	ETC1/3-0061

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

5/7/96 Date — Reviewer/Point of Contact

Author/Originator 5/7/96

11. CLOSED

5/7/96 Date — Reviewer/Point of Contact

Author/Originator 5/7/96

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	On block 18, the operating procedures were identified. The instruction on block 18 indicate that the affected document has to be entered in block 19. Block 19 indicates N/A. Please correct this and indicate the affected document.		Accept, ECN corrected.	C
2	On page 3, Part No. 16 was deleted. On H-2-91671 general note 10 states "The pressure gauge adapter can be used to measure tank pressure by inserting into PN 16 and reading pressure gauge when gauge is in vertical position". Please change note 10 to reflect deletion of PN 16.		Accept, note and reference deleted by ECN.	C

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
5-6-96	
3. Project No.	4. Page
	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
H-2-690134 Drill String Arrangements (RMCST)	200G	R.Y. Seda	75250	ETC1/3-0061

17. Comment Submittal Approval:

Organization Manager (Optional)

10. Agreement with indicated comment disposition(s)

5/7/96
Date

Rosa Y. Seda
Reviewer/Point of Contact

Author/Originator

11. CLOSED

5/7/96
Date

Rosa Y. Seda
Reviewer/Point of Contact

Author/Originator

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	On Sheet 1 and 2, Zone C-4, item 54 is called out. There is no such part. Please call out correct PN.		Accept, PN changed to 53.	C
2	Item 21 is a 1/8 thick gasket. On Sheet 1 and 2, Zone C-4, item 21 points at something that does not look like a gasket. Please correct call out.		Call out is correct. Full size drawing shows better detail.	C
3	General Note: Two washer assemblies are being used in this design (H-2-91671 Drill Rod Washer and H-2-690131 Riser Sleeve Spray Washer). Can the RMCST accommodate the additional height due to the riser sleeve spray washer?		Yes; the riser adapter, PN 13, has been redesigned to accommodate the additional spray washer without increasing RMCST height.	C

REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
5/7/96	
3. Project No.	**4. Page**
	1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/ Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
H-2-690092	Characterization	AP Mousel	75210	2704HV D100A 373-2278

17. Comment Submittal Approval:

Organization Manager (Optional) _____ Date _____

10. Agreement with indicated comment disposition(s)

Reviewer/Point of Contact _____ Date _____

Author/Originator _____

11. CLOSED

Reviewer/Point of Contact _____ Date _____

Author/Originator _____

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	Drawing H-2-690092 specifies a momentary action switch for part number 12. A change to an RLU which will automatically release a sampler has also been made as a result of this design effort. If the sampler catches in the drill string or is lowered onto the SR ball valve, the sampler may plummet down the drill string or fall to the ground when subsequent actions are taken (such as opening the ball valve). Use of a return to center switch is necessary in this application to greatly reduce the likelihood of events of this nature.			
2	This change should be made to all systems on which the mechanical RLU will be used, including trucks #1 and #2 even though the overall H2 design effort does not apply to those systems.			

ATTACHMENT 3

Meeting Minutes

MEETING MINUTES

SUBJECT: Final Design Review Briefing, RMCST Modifications for Flammable Gas Tanks

TO:		BUILDING		
Distribution		N/A		
FROM:		CHAIRMAN		
J. E. Corbett		R. J. Blanchard		
DEPARTMENT-OPERATION-COMPONENT	AREA	SHIFT	DATE OF MEETING	NUMBER ATTENDING
Characterization	200E	Day	2/6/96	See Roster

The meeting was chaired by Roy Blanchard. A list of attendees is contained on the attached meeting roster. The meeting opened with introductions and discussion of objectives and responsibilities. Adjustments were made to the design review committee. The committee assignments agreed to are as follows:

RJ BLANCHARD	DESIGN REVIEW CHAIRMAN
JE CORBETT	DESIGN REVIEW SECRETARY
PJ MARTELL	ENVIRONMENTAL ENGINEERING
JA HARVEY	INDUSTRIAL SAFETY
ME HUDA	INDUSTRIAL SAFETY - ALTERNATE
LS KROGSRUD	NUCLEAR SAFETY
NJ MILLIKEN	SAFETY ANALYSIS
DC BOARD	QUALITY ASSURANCE
ML McELROY	QUALITY ASSURANCE - ALTERNATE
GN BOECHLOR	MECHANICAL ENGINEERING
WF WHITE	ELECTRICAL ENGINEERING
AP MOUSEL	FIELD ENGINEERING
GJ BOGEN	OPERATIONS
FA SCHMORDE	OPERATIONS - ALTERNATE
BJ SHOEMAKE	MAINTENANCE
JL SMALLEY	COGNIZANT DESIGN ENGINEER
JD CRIDDLE	COGNIZANT ELECTRICAL DESIGN ENGINEER

The Chairman explained that the Safety Assessment for RMCS in flammable gas tanks is under development and the open issues being resolved are responsible for the recent rescheduling of the design review briefing. When the SA controls are finalized a compliance matrix will be sent out to committee members for review.

Jeff Smalley presented the mechanical portion of the design presentation which consists of 12 Engineering Change Notices (ECN's) to the current RMCS design, and drawings/sketches of the new RLU, riser adapter, riser sleeve, and riser sleeve spray washer. The design information for these components was provided for information only, and will be finalized in approximately 10 days, and will then be formally submitted to committee members for review.

Jim Criddle presented the electrical portion of the design presentation which consists of 3 ECN's to the current RMCS design. A drawing package was also included, showing the ECN's incorporated. Although changes to the Programmable Logic Controller (PLC) are anticipated, this information is not currently defined. When the SA controls are finalized, ECN's related to the PLC will be formally submitted to committee members for review.

John Corbett handed out the design review checklist to be used. Committee members present agreed to the checklist, provided comments are incorporated. The revised checklist will be sent out with these minutes. At the end of the meeting, reviewers were asked to submit RCR's to John Corbett, within 10 working days. The next meeting is scheduled for 2/20/96.

LISTING OF ECN'S FOR REVIEW Mechanical:628706 through 628715, 628717, and 628720.
Electrical:626740 through 626742.

FINAL DESIGN REVIEW
Rotary Mode Core Sampling Truck Modifications for Flammable Gas Tanks

MEETING ROSTER

SUBJECT: 100% Design Review Briefing

DATE: 2/6/96	CHAIRMAN: R. J. Blanchard
LOCATION: 2704HV/G229	PROGRAM: Characterization

NAME	COMPANY	MSIN	PHONE
John Corbett	WHC	57-12	2-2001
Roy Blanchard	WHC	57-12	3-1244
[illegible] (DON BOARD)		[illegible]	[illegible]
William F White	WHC	S2-02	376-8925
Greg J Bogen	WHC	57-12	373-5822
Dennis Hamilton	WHC	57-12	372-1130
F. John Martell	WHC	53-95	373-5417
Andrew Housel	LATA	[illegible]	373-5578
Gus Myers	WHC	57-01	2-1664

MEETING MINUTES

SUBJECT: Final Design Review Briefing, RMCST Modifications for Flammable Gas Tanks

TO:	BUILDING
Distribution	N/A
FROM:	CHAIRMAN
J. E. Corbett	R. J. Blanchard

DEPARTMENT-OPERATION-COMPONENT	AREA	SHIFT	DATE OF MEETING	NUMBER ATTENDING
Characterization Equipment Design (CED)	200E	Day	2/22/96	See Roster

The meeting was chaired by Roy Blanchard. A list of attendees is contained on the attached meeting roster. The meeting opened with introductions and discussion of the design review scope and objectives, and the need for multiple briefings to accommodate the design schedule.

The first order of business was to complete the design review process for the ECN's that had been submitted for review at the February 6, 1996 meeting. There were a total of 18 RCR's received. Jim Criddle gave a verbal report of the dispositions for the four electrical related RCR's. Copies will be provided to anyone who requests one (all RCR's will be included in the final design review report). Jeff Smalley reported that one RCR was considered out of scope, as it requested a change to existing hose reel labeling that is not directly related to modifications for flammable gas tank sampling. Andy Mousel (author of the RCR) and CED later agreed that the request would be considered outside the formal design review process. Jeff handed out copies of the remaining 13 RCR's, which are signed off as closed.

Roy Blanchard reported on the status of the Bureau of Mines testing (the only ignitions thus far are attributed to heat buildup, during drilling beyond the operating envelope, and not sparking). Dennis Hamilton noted that the test environment is worst case, as the oxygen-hydrogen gas mixture is the bounding condition for ignition.

The second portion of the meeting was a briefing on the new RLU and riser equipment. Jeff Smalley handed out the drawings for review. Committee members were asked to have comments submitted, via RCR to John Corbett, within 10 working days. The purpose of the riser liner was described by Jeff as twofold: to allow additional downforce to be used during push mode sampling, and to provide a sleeve to suppress sparking during rotary mode sampling of flammable gas tanks.

The status of the SA was also addressed. LANL is to deliver the "final draft" to WHC on Saturday, February 24th. Changes to the Programmable Logic Controller (PLC) will be baselined on the SA controls from the final draft. Software documentation and ECN's related to the PLC will be formally submitted to committee members for review. CED will develop a compliance matrix based on the SA controls, including any changes made before the SA is released and approved.

The next meeting is scheduled for Wednesday, March 6th, at 1 PM.

LISTING OF DRAWINGS HANDED OUT

FOR REVIEW: H-2-690128, H-2-690131, H-2-690132, and H-2-690142

FOR INFO: Unreleased RMCST H-2-6900xx drawings, Revised to include flammable gas tank ECN information; H-2-690000, 01, 05, 09, 12, 15, 16, 20, 26-28, 30, 35, 55, & 90.

FINAL DESIGN REVIEW
Rotary Mode Core Sampling Truck Modifications for Flammable Gas Tanks

MEETING ROSTER

SUBJECT: 100% Design Review Briefing II

DATE: 2/22/96	CHAIRMAN: R. J. Blanchard
LOCATION: 2704HV/G227	PROGRAM: Characterization

NAME	COMPANY	MSIN	PHONE
JOHN CORBETT	WHC	S7-02	2-2001
J D CRIDDLE JR.	WHC	S7-12	6-9224
D W Hamilton	WHC	S7-12	2-1130
G J BOGEN	WHC	S7-01	3-5822
M.L. McELROY	WHC	S7-07	3-5588
D C Board (D.C. BOARD)SC	WHC	S7-07	3-7191
NANCY MILLIKEN	WHC	A3-37	376-7846
FRED SCHMORDE	WHC	S7-01	376-0662
Robert Watson	WHC	S7-12	3-1340
R Blanchard	WHC	S7-12	3-1248
Nick Boechler	WHC	R1-17	3-3041

MEETING MINUTES

SUBJECT: Final Design Review Closeout, RMCST Modifications for Flammable Gas Tanks

TO:	BUILDING
Distribution	N/A
FROM:	CHAIRMAN
J. E. Corbett	R. J. Blanchard

DEPARTMENT-OPERATION-COMPONENT	AREA	SHIFT	DATE OF MEETING	NUMBER ATTENDING
Characterization Equipment Design (CED)	200E	Day	4/25/96	See Roster

The meeting was chaired by Roy Blanchard. A list of attendees is contained on the attached meeting roster. The meeting opened with introductions and discussion of the process required to close out the design review.

Jim Criddle and Galen Wilson discussed the SA controls compliance matrix. Each credited design feature listed in chapter six of the SA was read and, for all features not covered by the original design of trucks 3 & 4, the related flammable gas mod ECN or drawing number was noted. A design change, to satisfy the requirement for footclamp closure by two independent actions, is in work and is not currently available for review.

The rest of the meeting followed the attached agenda, with the following ECN's approved for release: 628706 through 628715, 628717, 628720, and 626740 through 626742. The following new drawings were approved for release: H-2-690128, H-2-690131, H-2-690132, and H-2-690142. All RCR's related to these drawings and ECN's were closed. The design review checklist, with dispositions and comments made during the meeting, is attached.

In closing remarks, it was noted that the ATP/OTP and Bureau of Mines testing should be carried as open items for the design review. Nancy Milliken noted that the controls listed in the SA for RMCS in flammable gas tanks would have to be followed for RMCS in any tank, unless SARR-031 is updated to reflect new information on envelope testing. [Although a change in SARR-031 is beyond the scope of this design review, it is an important concern for future sampling.]

The new material handed out for review included two additional ECN's (623775 & 630017) and two new drawings (H-2-690134 & H-2-690136). Due to organizational changes, Kathy Tollefson will now be responsible for the environmental review and Omar Jaka will be responsible for the nuclear safety review. Dan Owen is representing the maintenance organization for Bill Shoemeke. Galen Wilson is the cognizant mechanical design engineer. Comments, in the form of RCR's sent to John Corbett, are due by 5/2/96. The design review closeout for this material is scheduled for 5/7/96, 1 PM.

FINAL DESIGN REVIEW
Rotary Mode Core Sampling Truck Modifications for Flammable Gas Tanks

AGENDA

FINAL DESIGN REVIEW CLOSEOUT MEETING

- Background/Introductions
- ECN's for Approval
- New Drawings for Approval
- Design Review Checklist
- Presentation of New Material for Review
- Closing Remarks

FORMAL DESIGN REVIEW CHECKLIST
Rotary Mode Core Sampling Truck Modifications for Flammable Gas Tanks

Documents Reviewed: ECN# 628706 through 628715, 628717, 628720, & 626740 through 626742; H-2 drawing# 690128, 690131, 690132, & 690142, and WHC-SD-WM-DRR-052 REV. 0.

Item	Review Consideration	Yes	No	NA	Remarks
1	Have assumptions necessary to perform the design task been adequately described and are they reasonable? Where necessary, have assumptions been identified for reverification when the design task has been completed?	X			Assumptions were conservative.
2	Have the appropriate Quality Assurance requirements been specified?	X			
3	Were sources of information identified?	X			
4	Does the design meet the established requirements or design criteria?	X			
5	Does the design meet established requirements for associated system physical and functional interfaces?	X			
6	Are there any interface problems?	X			
7	Has appropriate consideration been given to use of standardized parts, materials and processes, and have engineering standards and criteria been specified properly in the design?	X			
8	Does the design represent the simplest design consistent with functional requirements and expected service conditions?			X	Not reviewed, due to schedule constraints.
9	Can the equipment be readily assembled/disassembled as designed?	X			
10	Does the design minimize overall cost to the extent practicable?			X	Not reviewed, due to schedule constraints.
11	Are the specified materials compatible with each other and the environmental conditions to which the material will be exposed?	X			
12	Are the applicable codes, standards and requirements, including revisions, properly identified and are their design requirements provided for?	X			
13	Have modifications to commercial grade items and any associated verification operations or tests been appropriately documented?	X			
14	Have qualified and certified parts been specified?	X			

Item	Review Consideration	Yes	No	NA	Remarks
15	Does the design meet functional requirements? a. Stresses are within design limits? b. Derating is used? c. Steady-state and transient conditions? d. Have actual and "worst case" condition stresses been considered rather than nominal average stresses?	X			
16	Will the design meet the following environmental conditions? a. Temperature (steady-state and transient) b. Flow (steady-state and transient) including induced vibration c. Pressure (steady-state and transient) d. Natural phenomena e. Nuclear radiation	X			
17	Is the design producible by conventional means?	X			
18	Do manufacturing, processing, and fabrication procedures minimize stress corrosion and fatigue?	X			
19	Are the specified construction materials resistant to the following as applicable: a. Moisture b. Oxygen c. Acids d. Salts e. Radiation	X			
20	Do the clearances and tolerances take into account the effects of age and wear?	X			
21	Are mechanical tolerances within the limits of normal shop practice?	X			
22	Are assembly clearances adequate?	X			
23	Have allowable leakages been specified?	X			
24	Have non-corrosive materials been used where required?	X			
25	Does the design avoid any materials unproven for use in the anticipated environment?	X			

Item	Review Consideration	Yes	No	NA	Remarks
26	Can the assembly be stored for extended periods of time without degrading effects?	X			Applied to equipment required to enter the tank.
27	Has the design appropriately considered maintenance, operation and reliability, including maintenance procedures and techniques, unique maintenance requirements and frequencies?	X			
28	Are coatings (or finishes) compatible with the expected environment? With expected usage?	X			
29	Are surface finish requirements the least stringent possible?	X			
30	Are required tolerances, fabrication techniques, processes, etc., consistent with standard practices?	X			
31	Can the design and its parts be easily inspected for conformance to engineering specifications?	X			
32	Has adequate accessibility been provided for in-service inspection?	X			
33	Does the design meet all established safety requirements?	X			
34	Has an acceptable level of radiation exposure been defined?	X			
35	Have personnel radiation protection requirements been considered and identified?	X			
36	Have nuclear criticality safety considerations been incorporated?			X	None required.
37	Have necessary features been provided to maintain personnel radiation exposure as low as reasonably achievable?	X			
38	Can the hardware be adequately disposed of after use if it is radiologically or chemically contaminated?	X			Note: The riser sleeve is in sections.
39	Have requirements for storing the equipment been defined?			X	Equipment is mobile.
40	Have adequate acceptance criteria been specified and are the verification methods stated appropriately?	X			
41	Have welding, bolting, joining methods been adequately specified?	X			
42	Have NDE methods been applied correctly?	X			
43	Will a separate Acceptance Test Spec/Procedure be required? - If yes, identify responsible organization(s) for preparation and issue (TBD if unknown)	X			Characterization Equipment Design will provide ATP's.
44	Have human factors engineering and operability been considered?	X			
45	Is an Operation and Maintenance Manual required? If so, have requirements been clearly identified?		X		Operating and maintenance procedures exist. Characterization Field Engineering will update.

Item	Review Consideration	Yes	No	NA	Remarks
46	Are current operating documents (procedures, specifications, etc.) applicable to the design or are changes necessary?		X		Characterization Field Engineering will provide documents.
47	Does the design use engineered safety and operational protections to avoid an excessive risk-taking dependence on administrative infallibility?	X			
48	Are reliability requirements specified? If so, does the reliability analysis of the design meet the specified reliability requirements?	X			Information is in the SA.
49	Have all credible non-standard conditions been properly considered?	X			
50	Is the equipment, system, or facility operable?	X			This will be demonstrated by OTP.
51	Is the equipment design adequate to implement the proposed maintenance philosophy?	X			
52	If any development work is needed, has it been funded or performed?	X			
53	Has drawing traceability been provided?	X			
54	Has the need for safety analysis of this design been determined by Safety?	X			
55	Is the equipment, system, or facility covered by an existing Safety Analysis Report? If not, complete the safety analysis in time to incorporate findings of the analyzed in the design.	X			SA is WHC-approved, DOE approval in process.
56	Does the design match the intended (and possible abnormal) methods of operation of the system or facility?	X			
57	Is a single point failure analysis required?	X			Completed in the SA.
58	Are all indication lights and electrical control considered fail-safe?	X			As required by SA.
59	Do the design media, format, content, reproducibility, and quality comply with all applicable requirements (including Hanford Plant Standards and referenced codes and standards)? Are the drawings structured to meet the needs of users after project completion?	X			
60	Have availability of power requirements for the project been verified?	X			
61	Have requirements for providing as-built drawings been specified?	X			
62	Is the design in compliance with applicable regulatory requirements and/or WHC regulatory commitments?	X			
63	Are design tolerances appropriate and applied in a cost-effective manner and are standard materials and material sizes used where practicable?	X			
64	Is all computer software and data properly identified and controlled?	X			

FINAL DESIGN REVIEW
Rotary Mode Core Sampling Truck Modifications for Flammable Gas Tanks

MEETING ROSTER

SUBJECT: Final Design Review Closeout Meeting

DATE: 4/25/96 | CHAIRMAN: R. J. Blanchard

LOCATION: 2704HV/G108A | PROGRAM: Characterization

NAME	COMPANY	MSIN	PHONE
Galen W. Mihan	WHC	S7-12	3-1340
Tom Owen	WHC	S7-08	6-4984
M. E. Hilda	WHC	S7-07	2-2412
M. L. McElroy	WHC	S7-07	3-5588
William F. White	WHC	H6-11	6-8925
Nancy M. Hilkert	WHC	A3-37	376-7896
A P Mouser	LATA	S7-12	373-2278
Paul Deichelbaurer	WHC	S7-12	373-2037
Roy Blanchard	WHC	S7-12	373-1248
	WHC	S7-12	376-9224
John Corbett	WHC	S7-12	372-2001

MEETING MINUTES

SUBJECT: Final Design Review Closeout, RMCST Modifications for Flammable Gas Tanks

TO:	BUILDING
Distribution	N/A
FROM:	CHAIRMAN
J. E. Corbett	R. J. Blanchard

DEPARTMENT-OPERATION-COMPONENT	AREA	SHIFT	DATE OF MEETING	NUMBER ATTENDING
Characterization Equipment Design (CED)	200E	Day	5/7/96	See Roster

The meeting was chaired by Roy Blanchard, and opened with introductions. Tom Gowin was representing Operations, and Rosa Seda was representing mechanical engineering for Nick Boechler (the meeting roster is attached). Kathy Tollefson sent in a "no comment" RCR to close out the environmental review. The meeting scope was to close-out the design review of the remaining two ECN's and the remaining two new drawings for the RMCST flammable gas mod's. Roy Blanchard reported that the SA was approved by DOE and that the Bureau of Mines testing was essentially complete.

Six RCR's were submitted in support of the meeting scope. The dispositions were discussed and all RCR's were closed. The design committee approved ECN #623775 & #630017 and drawing #H-2-690134 & #H-2-690136. There are no open issues in these RCR's.

The design review checklist was revised to include the additional design documents. The completed checklist, including comments made during the meeting, is attached.* There are no open issues in the checklist, except for performing the ATP/OTP and providing procedures.

The SA compliance matrix was reviewed to verify all design features credited in the SA were included in the design review or were part of the existing design. As previously noted in the 4/25 meeting, modifying the footclamp operation is an open item. There are no other open items on the matrix.

In closing remarks, committee members were given the opportunity to raise any other concerns related to the flammable gas mod's. Andy Mousel recommended changing the SR hoist switch to a "return to center" switch, to reduce the possibility of an inadvertent release of the sampler from the RLU. The committee agreed to carry this action as an open item. Mousel agreed to submit an RCR to document the required action. The design review closed without further discussion.

* ATTACHMENT 1 OF REPORT JC 5/21/96

FINAL DESIGN REVIEW
Rotary Mode Core Sampling Truck Modifications for Flammable Gas Tanks

AGENDA

FINAL DESIGN REVIEW CLOSEOUT MEETING II

- Background/Introductions
- RCR Close-out
- ECN and New Drawing Approval
- SA Compliance Matrix
- Design Review Checklist
- Closing Remarks

FINAL DESIGN REVIEW
Rotary Mode Core Sampling Truck Modifications for Flammable Gas Tanks

MEETING ROSTER

SUBJECT: Final Design Review Closeout Meeting II

DATE: 5/7/96	CHAIRMAN: R. J. Blanchard
LOCATION: 2704HV/G110	PROGRAM: Characterization

NAME	COMPANY	MSIN	PHONE
J. D. CRIDDLE JR.	WHC	S7-12	376-9224
AP MOUSEL	LATA	S7-12	373-2278
WILLIAM F. WHITE	WHC	H6-11	376-8925
Rose Zeda for GN Boechler	WHC	H5-09	373-0061
M.L. McELROY	WHC	S7-07	373-5588
OMAR JAKA	WHC	R3-08	372-2322
T.D. GOWEN	WHC	S3-07	373-0258
Rich J. BLANCHARD	WHC	S7-12	373-1248
JOHN CORBETT	WHC	S7-17	372-2001
M. E. Hardy	WHC	S7-07	372-2412