RMIS View/Print Document Cover Sheet

This document was retrieved from the Documentation and Records Management (DRM) ISEARCH System. It is intended for Information only and may not be the most recent or updated version. Contact a Document Service Center (see Hanford Info for locations) if you need additional retrieval information.

Accession #: D196034215

Document #: SD-SNF-DRR-005

Title/Desc:

FINAL DESIGN REVIEW REPORT FOR K BASIN DOSE
REDUCTION PROJECT CLEAN & COAT TASK

Pages: 55

FEB 27 1996

ENGINEERING DATA TRANSMITTAL

Page 1 of 1

1. EDT

No 615122

2. To: (Receiving Organization) Spent Nuclear Fuel/K Basin Projects		3. From: (Originating Organization) Mechanisms Engineering		4. Related EDT No.: N/A	
5. Proj./Prog./Dept./Div.: Dose Reduction/A.8		6. Cog. Engr.: L. D. Blackburn		7. Purchase Order No.: N/A	
8. Originator Remarks: Keywords: Spent Nuclear Fuel, K Basin, Dose Reduction, Water Level				9. Equip./Component No.: N/A	
				10. System/Bldg./Facility: 105KE	
				12. Major Assm. Dwg. No.: N/A	
11. Receiver Remarks:				13. Permit/Permit Application No.: N/A	
				14. Required Response Date: 02/23/96	

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-SNF-DRR-005		0	Final Design Review Report for K Basin Dose Reduction Project Clean and Coat Task	ESQ	1,2	1	

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

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)									
(G)	(H)	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN
1	1	Cog.Eng.	RF Creed	2/23/96	X3-85	K Basin Operations	WH Cloos	2-20-96	X3-72
1	1	Cog. Mgr.	FW Moore	2/23/96	X3-85				
1	1	QA	JI Diehl	2/23/96	X3-80				
1	1	Safety	DO Hess	2/23/96	X3-80				
1	1	Env.	RG Gant	2/23/96	X3-79				
1	1	Design Agent	LD Blackburn	2-20-96	H5-53				
1	1	Design Auth.	WA Frier	2-20-96	X3-74				

18. Signature of EDT Originator L. D. Blackburn Date: 2-20-96		19. Authorized Representative Date for Receiving Organization F. W. Moore Date: 2/23/96		20. Cognizant Manager Date R. B. Pan Date: 02/23/96		21. DOE APPROVAL (if required) Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments	
---	--	---	--	---	--	---	--

FINAL DESIGN REVIEW REPORT FOR K BASIN DOSE REDUCTION PROJECT CLEAN AND COAT TASK

L. D. Blackburn
ICF Kaiser Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: 615122 UC: 510
Org Code: 57E00 Charge Code: F1W3R3
B&R Code: EW3135040 Total Pages: 52

Key Words: K Basin, Dose Reduction

Abstract: The strategy for reducing radiation dose originating from radionuclides absorbed in the concrete is to raise the pool water level to provide additional shielding. The concrete walls need to be coated to prevent future radionuclide absorption into the walls. This report documents a final design review of equipment to clean and coat basin walls. The review concluded that the design presented was acceptable for release for fabrication.

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

Printed in the United States of America. To obtain copies of this document, contact: WHC/BCS Document Control Services, P.O. Box 1970, Mailstop H6-08, Richland WA 99352, Phone (509) 372-2420; Fax (509) 376-4989.

Janis Bishop 2-27-96
Release Approval Date

Approved for Public Release

CONTENTS

	<u>Page</u>
1.0 INTRODUCTION.	1
2.0 SCOPE	1
3.0 SUMMARY	1
4.0 DOCUMENTATION	2

APPENDICES

APPENDIX A - Design Review Checklist	A-1
APPENDIX B - K Basin Dose Reduction Project Clean and Coat Task Final Design Review	B-1
APPENDIX C - Review Comment Records.	C-1
APPENDIX D - Action Item List.	D-1
APPENDIX E - Action Item Database Status of Comments From Conceptual Design Review	E-1
APPENDIX F - K Basin Dose Reduction Project Clean and Coat Task Final Design Review Briefing	F-1
APPENDIX G - Dose Reduction Project Clean and Cost Task Final Design Review	G-1

FINAL DESIGN REVIEW REPORT FOR K BASIN DOSE REDUCTION PROJECT CLEAN AND COAT TASK

1.0 INTRODUCTION

Radionuclides absorbed into the concrete walls are a major source of radiation above the water level in the 105 K-East Basin. The current strategy for reducing radiation dose is to raise the water level of the basin by about eighteen inches after the concrete is coated with a material that will prevent absorption of radionuclides into the newly submerged portion of the walls. Application of the epoxy coating will be preceded by physical cleaning of the concrete to be submerged to promote good adherence to the walls. These activities constitute the Clean and Coat Task and are a part of the Dose Reduction Project.

2.0 SCOPE

The proceedings of a conceptual design review for this activity are documented in Conceptual Design Review Report for K Basin Dose Reduction Project Clean and Coat Task, WHC-SD-SNF-DRR-003, Rev. 0. The documents reviewed for this final design review of clean and coat equipment were provided by Oceaneering Hanford, the equipment vendor, and included drawings, a materials procurement list, an operation and maintenance manual, an acceptance test procedure, a training plan, space allocation requirements, a fabrication and inspection plan, a list of equipment interfaces with K-East facility utilities, vendor information for commercial items, and an ALARA analysis for the clean and coat task. A copy of these documents is retained in K Basin Project files.

3.0 SUMMARY

The design review process included a Design Review Briefing held on January 16, 1996 and a Design Review Meeting held on February 6, 1996. At the Design Review Meeting, all comments submitted by committee members and dispositions proposed by the design team were discussed and a Design Review Checklist was completed. The conclusion of the meeting was that the design described was acceptable for release for fabrication.

An Action Item List summarizing actions to be completed before final acceptance of the equipment is provided in this report. These items will be tracked and closed through a comment database maintained by the design team.

4.0 DOCUMENTATION

Documentation provided as part of this report include:

Copy of the completed Design Review Checklist (Appendix A);

List of Design Review Committee members (Appendix B);

Copy of Review Comment Records generated by committee members
(Appendix C);

List of Action Items that should be completed before final acceptance of
equipment (Appendix D);

Action Item Database status of comments from Conceptual Design Review
(Appendix E);

Meeting minutes for the Design Review Briefing (Appendix F) and Design Review
Meeting (Appendix G).

APPENDIX A
Design Review Checklist

In answering the checklist questions, a "No" answer should require the preparation of a written comment per the Design Review guidelines.

	YES	N O	N/ A
A. GENERAL DESIGN			
Does the design comply with good design practices?			
1. Are functional requirements defined and really necessary?			✓
2. Can any requirements be relaxed?			✓
3. Has existing equipment been evaluated for use, modification, or design ideas?			✓
4. Were alternate design approaches considered?	✓		
5. Is design overly ^{simple} complicated?	✓		
6. Does cost or quantity justify a value engineering analysis?			✓
7. Are assumptions made reasonable?	✓		
8. Are remote handling features required?	✓		
9. Have calculations been documented and checked?			✓
10. Have prior design review comments been addressed?		✓	
11.			
12.			
13.			
B. ARRANGEMENT			
Does the design meet arrangement requirements?			
1. Component size limitations?	✓		
2. Component accessibility?	✓		
3. Adequate clearance between components?	✓		
4. All current or future attachments considered?	✓		
5. Complies with reference design and requirements?			✓
6. Is it consistent with the application?	✓		

DESIGN REVIEW CHECKLIST

	YES	N O	N/ A
7. Stack-up and tolerance studies performed?			✓
8.			
9.			
10.			
C. RADIOLOGICAL			
Does the design meet the radiological requirements?			
1. Minimize radiation levels?	✓		
2. Contain contamination?	✓		
3. Shielding provided and verified?			✓
4. Meet facility design criteria of Article 527 of (XXXXXX)?			✓
5. Decontamination?	✓		
6.			
7.			
8.			
D. NUCLEAR SAFETY			
Does the design comply with nuclear safety requirements?			
1. Is there a process plan per (XXXXXXXX)?			✓
2. Does the equipment fall within a group type per (XXXXXXXX)?			✓
3. Are materials identified and evaluated for moderation, reflection, etc.?	✓		
4. ^{not} Will the fuel be crushed?	✓		
5. Will isolation be provided?			✓
6. Will it meet WHC Double Accident Criteria?			✓

D:\SNF_ES\DOSE_RED\CLN_COAT\PROCURMT\APPEND-D.WPD

August 28, 1995

DESIGN REVIEW CHECKLIST

	YES	N O	N/ A
7.			
8.			
9.			
E. OPERATION			
Does the design comply with operational needs and limitations?			
1. Reliability provisions?	✓		
2. Utilized preferred or commonly used components?	✓		
3. Provide fabrication and as-built drawings?			✓
4. Provide operating instructions?	✓		
5. Safety provisions?	✓		
6. Meet intended use and foreseeable misuse?	✓		
7. Provide interlocks/safety devices?	✓		
8. Operation and maintenance provisions?	✓		
9. Simple operations?	✓		
10. Understandable and operable controls?	✓		
11. Spare parts availability?	✓		
12. Environment effects of:			
a. Extremes of service voltages?			✓
b. Extremes of service water hardness?			✓
c. Extremes of service pressure?			✓
d. Extremes of service temperature?			✓
e. Extremes of external vibration?			✓
f. Extremes of external shock?			✓
g. Extremes of ambient temperature?	✓		

DESIGN REVIEW CHECKLIST

	YES	N O	N/ A
h. Extremes of humidity?			✓
i. Foreign material (sand, grit, oil, lint, dirt, etc.)?			✓
j. Corrosive ambients (water, acids, etc.)?			✓
k. Extremes of external magnetic fields?			✓
l. Weather extremes?			✓
m. Radio interference?			✓
n. Nuclear radiation?			✓
o. Supplementary products (detergents, bleaches, oils, grease, etc.)?			✓
13. Effect on environment of:			
a. Appearance?	✓		
b. Noise?	✓		
c. Odor?	✓		
d. Temperature?			✓
e. Vibration?			✓
f. Light?			✓
g. Radiation?	✓		
h. Exhaust?	✓		
i. Space?	✓		
j. Packaging disposal/recycle?	✓		
k. Final product disposal/recycle?	✓		
1. Material content?	✓		
2. Hazardous materials?	✓		
3. Lubricants?	✓		
14. Human engineering factors?	✓		
15.			

DESIGN REVIEW CHECKLIST

	YES	N O	N/ A
16.			
17.			
18.			
F. FAILURE			
Does the design account for failure modes?			
1. Failure modes identified?	✓		
2. How failures detected?	✓		
3. Compensating factors for failures?	✓		
4. Recovery from failures?	✓		
5. Repairable?	✓		
6. Is a Failure Mode and Effect Analysis needed?			✓
7.			
8.			
9.			
G. RELIABILITY			
Does the design meet reliability requirements?			
1. Maximum stresses within limits through full range of travel, load, voltage, etc.?			✓
2. Derating utilized?			✓
3. Simplicity optimized?	✓		
4. Failure modes of critical elements analyzed?	✓		
5. Optimum use of standard proven parts?	✓		
6. Correct current problems and complaints?			✓

DESIGN REVIEW CHECKLIST

	YES	N O	N/ A
7. Similar design data considered?			✓
8. Allowable stresses per (XXXXXX)?			✓
9.			
10.			
11.			
H. MATERIALS			
Does the design meet materials requirements?			
1. Allowable materials for specific function and (XXXXXX)?	✓		
2. Prohibited materials per (XXXXXX)?			✓
3. Corrosion resistance?			✓
4. Cleanliness requirements?			✓
5. Galling?	✓		
6. Surface wear?	✓		
7. Electrical/bearing/lubricants, etc. per (XXXXXX)?			✓
8.			
9.			
10.			
I. INTERFACES			
Does the design comply with facility interface requirements?			
1. Will it fit through doors and openings?	✓		
2. Will it require support equipment and utilities?	✓		
3. Is there adequate visibility of operation?	✓		
4. Is there operation access?	✓		

DESIGN REVIEW CHECKLIST

	YES	N O	N/ A
5. Protection for fire, water space?			✓
6.			
7.			
8.			
J. MANUFACTURING			
Does the design minimize manufacturing problems by:			
1. Utilizing existing equipment for fabrication, finishing, assembly, calibration, testing, packaging, etc.?			✓
2. Utilizing more efficient new processes, equipment, and facilities?			✓
3. Avoiding hazardous operations?			✓
4. Optimizing tool/piece costs?			✓
5. Permitting maximum standardization?			✓
6. Specifying tolerances consistent with acceptable processes and equipment?			✓
7. Correcting or avoiding previous or current manufacturing problems?			✓
8. Minimizing operations requiring special skills or special attention?			✓
9. Clearly identifying critical parameters to be controlled during the procurement and manufacturing cycle?			✓
10. Specifying materials conforming to standards?			✓
11. Being clearly and completely described on drawings?			✓
12.			
13.			
14.			
K. QUALITY ASSURANCE			

DESIGN REVIEW CHECKLIST

	YES	N O	N/ A
Does the design provide for testing and quality assurance?			
1. Inspection and testing of fabrication?			✓
2. Functional tests?	✓		
3. Load tests?	✓		
4. Special tests?	✓		
5. Supplier test specification?			✓
6. Test documentation?	✓		
7. Acceptance criteria?	✓		
8. Westinghouse inspection?			✓
9. Post installation tests?			✓
9. Post installation tests?			✓
10. Records and certifications?			✓
11.			
12.			
13.			
L. INSTALLATION			
Does the design consider installation requirements?			
1. Is weight and size compatible with lifting equipment?	✓		
2. Are there lifting and handling aids?			✓
3. Center-of-gravity identified?			✓
4. Vendor responsibilities defined?			✓
5.			
6.			
7.			

DESIGN REVIEW CHECKLIST

	YES	N O	N/ A
M. PACKAGING			
Does the design minimize packaging, shipping, handling, and warehousing problems by:			
1. Utilizing standard packaging?	✓		
2. Minimizing offsets, projections, etc. which require additional packing material?			✓
3. Withstanding applicable transportation tests?			✓
4. Considering shipping and warehousing environment?			
a. Shock?			✓
b. Vibration?			✓
c. Temperature extremes?			✓
d. Humidity extremes?			✓
e. Handling equipment?			✓
f. Sand and dust?			✓
5. Permitting shape and size of packaged product which would optimize rail car and truck loading?			✓
6. Providing clear handling instructions on outside of packaging?			✓
7. Considering disposal of used packaging material?			✓
8.			
9.			
10.			
N. LAWS AND SPECIFICATIONS			
Does the design comply with applicable laws and agency requirements?			

DESIGN REVIEW CHECKLIST

	YES	N O	N/ A
1. Does the product comply with applicable laws and agency requirements?			
a. State laws?			✓
b. Federal laws?			✓
2. Does the product comply with applicable agency standards or guidelines?			
a. Underwriters' lab?	✓		
b. OSHA?	✓		
c. ANSI?			✓
d. DOE?	✓		✓
e. NEMA?	✓		
f. NEPA?			✓
g.			
h.			
i.			
3. Local requirements?			
a. Radiological Controls?	✓		
b. Nuclear Safety?	✓		
c. Lifting and Handling?			✓
d. Safety?	✓		
e. Fire Protection?			✓
f.			
g.			
h.			
i.			

APPENDIX B

**K Basin Dose Reduction Project Clean
and
Coat Task Final Design Review**

APPENDIX B

K BASIN DOSE REDUCTION PROJECT
CLEAN AND COAT TASK FINAL DESIGN REVIEW

COMMITTEE MEMBERS

L. D. Blackburn	Chairman
W. H. Cloos	Operations
J. I. Diehl	Operations Quality Assurance
L. E. Formo	ICF-KH Construction
W. A. Frier	Engineering (Design Authority)
R. G. Gant	Environmental
D. O. Hess	Operations Safety
W. J. Millsap	ALARA

APPENDIX C
Review Comment Records

REVIEW COMMENT RECORD (RCR)

1. Date 1/31/96		2. Review No.	
3. Project No. A.8		4. Page 1 of 3	

5. Document Number(s)/Title(s) Oceanengineering-Phase I Final Design Review 105KE Basin Clean and Coat Task	6. Program/Project/ Building Number Dose Reduction/A.8/ 105KE	7. Reviewer W. J. Millsap	8. Organization/Group SNF Projects/Dose Reduction	9. Location/Phone M0293/376-3676
---	--	------------------------------	--	-------------------------------------

10. Agreement with indicated comment disposition(s) <div style="display: flex; justify-content: space-between;"> <div> <p>Organization Manager (Optional)</p> <p><i>William J. Millsap</i></p> <p>14 Jul 96</p> </div> <div> <p>Reviewer/Point of Contact</p> <p><i>William J. Millsap</i></p> <p>Date</p> </div> </div>		11. CLOSED
---	--	------------

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 vacuum canister is mounted on the support frame to allow the equipment to be moved as a single unit and to keep it close to the brush to keep the capture velocity as high as practical. However, the canister may become a source which irradiates the operators to an unacceptably high dose. In such case, it may need to be moved further from the operators.	WJM	The canister will be designed so that it can be taken from the frame and mounted on a cart and operated further from the operators. This will be demonstrated in the Acceptance Test Procedure (ATP).	Open <i>WJM</i>
2	To control contamination while changing the brush, it needs to be changed in a glove bag.	WJM	The brush will be designed so that it can be changed in a glove bag. This will be demonstrated and practiced in the ATP and operator training.	Open <i>WJM</i>
3	There is a chance that radioactive contamination can be spread while raising the brush to the point that it can be put in a glove bag. Some means to control this - probably by bagging - needs to be developed.	WJM	A means to control the contamination while raising the brush to put it in a glove bag will be developed. This will be demonstrated and practiced in the ATP and operating training.	Open

REVIEW COMMENT RECORD (RCR)	1. Date 1/31/96	2. Review No.
	3. Project No. A.8	4. Page 2 of 3

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
4	To change the brush presently requires that 8 small screws be removed and re-installed. This will be slow and tedious in a glove bag. If practical, a faster and easier way should to be developed.	WJM	An effort will be made to find an attaching mechanism for the brush more amenable to changing in a glove bag. If such a means can be found, it will be demonstrated and practiced in the ATP and operating training.	Open JEL
5	There are sometimes instances of glare interfering with vision when using video systems near water and shiny surfaces. The lights, as presently planned, have no intensity controls, a feature which sometimes helps with glare.	WJM	The vision system will be mocked-up in the 305 building and such features as variable lighting intensity added if needed.	Open JEL
6	Carbon steel surfaces that can be coated should be coated with a hard, durable material that is easy to decontaminate.	WJM	The carbon steel surfaces that are practical to coat will be coated.	Open JEL
7	In case of emergency, the operators in the basin needed to be in direct and immediate communication with operators outside the basin.	WJM	A means of direct and immediate communication between operators will be provided. This will be demonstrated and practiced in the ATP and operating training.	Open Open
8	Operators should be trained to respond to potential accidents such as an epoxy hose rupture and a vacuum line break.	WJM	The operators will be trained to respond to such accidents during operator training.	Open

C-3

MHC-SD-SNF-DRR-005
Rev. 0

REVIEW COMMENT RECORD (RCR)	1. Date 1/31/96	2. Review No.
	3. Project No. A.8	4. Page 3 of 3

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/ resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
9	There is a potential that a vacuum hose could come loose or rupture causing a puff of radioactive material to be released. If practical, ways to mitigate this risk should be found and implemented.	WJM	Oceaneering will examine this potential accident and look for practical ways to mitigate it. Two ways that will be considered are a more rupture resistant hose and cam-lock fittings on the hose connectors. Any means found will be demonstrated during the ATP.	Open

C-4

REVIEW COMMENT RECORD (RCR)	1. Date 1/24/96	2. Review No.
	3. Project No. A.8	4. Page 1 of 4

5. Document Number(s)/Title(s) Clean and Coat Equipment Final Design Review	6. Program/Project/ Building Number SNF/Dose Reduction/105KE	7. Reviewer Rick G. Gant	8. Organization/Group K Basins Standards and Requirements	9. Location/Phone M0401/22/ 373-3781
--	--	-----------------------------	--	--

17. Comment Submittal Approval:

10. Agreement with indicated comment disposition(s)

11. CLOSED

Organization Manager (Optional)

2/14/96
Date

C. DeFigh-Price for RG Gant
Reviewer/Point of Contact
2/14/96
Date
John E. Renard
Author/Originator
2/15/96

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	Section 2 - Materials list calls for 10 ea. p/n 27 brush and 1 ea. p/n 28 shaft. Since shaft and brush are an assembly, this needs to be revised.	RGG	Agreed, drawings will be revised to reflect 10 Assemblies.	Closed <i>VR</i>
2	Section 3, V.A.6 (pg.5) - There is no specification for how long the heaters for the epoxy supply lines need to have been heated prior to beginning operation.	RGG	The BIO-DUR vendor recommends the hoses be heated for one hour before painting operations begin. This will be specified in the Operating and Maintenance Manual.	Open <i>VR</i>

C-5

REVIEW COMMENT RECORD (RCR)		1. Date 1/24/96	2. Review No.
		3. Project No. A.8	4. Page 2 of 4

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
3	Section 3, V.B.10 - There is confusion over how the two part hoses (heated) will be handled. a)Will there be an attempt to blow out these lines at the completion of the work? b)Will the hoses be capped to retain the epoxy inside? c)Will the hoses be cleaned with thinner? The exact disposition of the hose contents after disconnecting is unclear.	RGG	The two part heated hose will be sleeved in a robust three inch diameter hose. a)Yes, the contents of the hose will be pumped back to the hoppers at the completion of the coating process. b)No, there are shut off valves downstream of the mixing valve and the material will be left in the hoses to be used the following day. c)No, the hoses will be removed from the sleeve and discarded as non hazardous waste. The Operating and Maintenance Manual will provide details for this process.	Open <i>1/24</i>
4	Section 3, V.B.14&15 - There is confusion over the redundant wording in these two sections, are both sections necessary? Further, is this equipment a consumable or can it be reused? (The ALARA plan, 1.3.3, defines these as consumables.)	RGG	These items are consumable. The replacements are new items to be used for continued operations. The wording in these steps will be clarified.	Open <i>1/24</i>
5	Section 4, 1.3 - What materials will be applied to the concrete that is capable of being brushed off?	RGG	WHC will evaluate and supply a material that will demonstrate the cleaning effectiveness. This material will be specified in the ATP.	Open
6	Section 4, 1.5 - One cleaning brush is specified. Is there an intent to evaluate different brush materials or only one?	RGG	Black nylon bristle (Dia .028) has been specified based on Oceaneer's engineering judgement and the brush manufacturers recommendation. This is a durable brush that meets the requirements and will clean the concrete surface without removing excessive material from the wall.	Closed <i>1/24</i>

W4C-SD-SNF-DR3-005
Rev. 0

REVIEW COMMENT RECORD (RCR)

		1. Date 1/24/96		2. Review No.	
		3. Project No. A.8		4. Page 3 of 4	
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	General - The workers connecting/disconnecting equipment containing the epoxy components will surely need at least PPE to protect their hands. This is not mentioned in the procedures.	RGG	Workers handling the hoses in the basin will be dressed in Anti C's and have PPE on at the time that the hoses are handled. The Operating and Maintenance Procedure will require long sleeves, eye protection, and gloves for workers outside the basin.	Open ✓✓	
8	Section 4, 1.6.2.4 - If the ATP is to be conducted in 305, then why will decontamination be necessary? Or will it be simulated?	RGG	The decontamination of the equipment is to be simulated in the 305 facility to provide experience on the best process for cleaning the equipment and removing it from the basin.	Closed	
9	Section 7 - As a minimum, the critical dimensions or functions that need to be checked should be defined.	RGG	<p>The Inspection Plan has been revised to add the following;</p> <p>"The critical dimensions and functions of the Clean and Coat equipment will be checked during fabrication. Critical dimensions and functions include but are not limited to the following:</p> <p>Short swing arm length Swing arm extension length Telescoping vertical lengths Location of the telescoping vertical connection to the support channel Swing arm capable of being retracted and Locked into position Slider carriage capable of traversing along the lead screw Brush head support bracket and shroud assembly allow for free motion of the shroud"</p>	Open ✓✓	

REVIEW COMMENT RECORD (RCR)

		1. Date 1/24/96		2. Review No.	
		3. Project No. A.8		4. Page 4 of 4	
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
10	ALARA Plan, Section 5.0, c.f., 5.2.1, 5.2.2, 5.2.3 - Decontamination of components needs to be further clarified. Depending on the effort required to decontaminate vs. protect from contamination, further use of coating or sealing in plastic prior to use in the basin should be evaluated. A conclusion should be arrived at as to exactly what items are to be coated, etc, or not. Determination of the exact tactics should be a part of the ALARA planning.	RGG	This work is in progress: Oceaneering will design in further evaluation and consult with supplier of hot cell equipment for optimal shape, any specific details not addressed will be evaluated during the ATP, training, and included in the Operation and Maintenance Manual.		Open 1/96

REVIEW COMMENT RECORD (RCR)

1. Date January 23, 1996	2. Review No. 1 (DOREDATP.RCR)
3. Project No. A.8	4. Page 1 of 3

5. Document Number(s)/Title(s) Phase I Final Design Review 105 KE Basin Clean and Coat Task	6. Program/Project/ Building Number A.8	7. Reviewer W. A. Frier	8. Organization/Group K Basins Cognizant Engineering	9. Location/Phone M0402-100 K/373- 3946
---	---	----------------------------	--	---

17. Comment Submittal Approval:

10. Agreement with indicated comment disposition(s)
11. CLOSED

Organization Manager (Optional)
WAF
 Date 2/15/96
 Reviewer/Point of Contact
WAF
 Date 2/15/96
 Reviewer/Point of Contact
WAF
 Date 2/15/96
 Author/Originator
WAF

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.	Section 4.0--WHC-CM-6-1, EP-4.2, Section 2.5 specifies test documentation for Safety Class 1 and 2 equipment items. Granted the basin is not an equipment item but a structure, a supporting document shall be used. The test procedure shall follow the guidance provided in WHC-IP-1026, Appendix K. (RCR comment #2 on Test Plan Qualitative Determination dated January 2, 1996 stated that test plans are to be prepared in accordance with WHC-IP-1026, EPG-4.2, and Appendix K).	WAF	The ATP will be developed in accordance with CM6-1. Acceptance criteria will be added to the ATP. The ATP will be released as a project supporting document.	Open

REVIEW COMMENT RECORD (RCR)			1. Date January 23, 1996	2. Review No. 1 (DOREDATP.RCR)
			3. Project No. A.8	4. Page 2 of 3
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
2.	The acceptance test as proposed appears to be an operating procedure and an equipment checklist which is fine and good. It does not meet the requirement of placing coating on concrete walls of a desired thickness. (Comment disposition on concept design review RCR dated December 7 stated that details for coating application including coating thickness will be developed in the ATP....)	WAF	<p>Comment partially accepted - Section 1.6.3.3 of the ATP tests the coating application equipment and the application of the coating. Thickness of the coating is not a required acceptance criteria. Complete coverage by visual inspection is. The following steps will be revised as follows in this section:</p> <p>5. Visually inspect the epoxy after it has been applied to the wall. Check for complete coverage of the test area.</p> <p>6. If complete coverage has not been achieved or excess epoxy has been applied adjust the control valves for the epoxy flow. Retest the application of the epoxy.</p> <p>7. Record the results of the coverage of the epoxy. Record the valve settings for the epoxy.</p>	Open
3.	Provide "acceptance criteria" to be used if performance is satisfactory.	WAF	The acceptance criteria has been added to the ATP. Acceptable coating on the wall is 95% coverage per WHC-S-0375. Criteria is based on a visual color contrast between the concrete and the coating.	Closed

C-10

REVIEW COMMENT RECORD (RCR)			1. Date January 23, 1996	2. Review No. 1 (DOREDATP.RCR)
			3. Project No. A.8	4. Page 3 of 3
12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
4.	Add a "Safety Section" into the ATP. (Assurance is needed that all hoses are leak tight).	WAF	Comment partially accepted- A warning has been inserted after step 5 of section 1.6.2.5. The warning reads as follows: WARNING check all hose connections to ensure that they are tight before starting the SPRAY QUIP equipment. The hoses are subject to high pressures.	Open
5.	Section 6.0, "Space Allocation Requirements"--Is this compatible with Operations & Security?	WAF	Yes, their concurrence will be documented in the work package.	Closed

REVIEW COMMENT RECORD (RCR)	1. Date 1/23/96	2. Review No. jd96-010
	3. Project No. A.8	4. Page 1 of 2

5. Document Number(s)/Title(s) Oceaneering-Phase I Final Design Review 105KE Basin Clean and Coat Task	6. Program/Project/ Building Number Dose Reduction	7. Reviewer JI Diehl	8. Organization/Group SNFPQA	9. Location/Phone 1719Bldg 100K 373-4734
--	--	-------------------------	---------------------------------	---

17. Comment Submittal Approval: Organization Manager (Optional)	10. Agreement with indicated comment disposition(s) J.I. DIEHL 2-14-96 Date	11. CLOSED Date	Reviewer/Point of Contact Date	Author/Originator Date
--	--	------------------------	---------------------------------------	-------------------------------

C-12

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
1.	Ref. CM 6-1. Standard Engineering Practices EP 1.1 Engineering Document Identification Requirements. The Design documents must be controlled. Design verification must be in accordance with EP 4.1. Without unique identifiers how will the process be traceable?	JID	Documents will be controlled through the CVI identification number and release of WHC-SD Design Review Reports. Design verification is made through WHC-EP-4.1, section 2.2.4, "Formal design reviews".	Closed
2.	Is there a design specification? If not what is the governing document?	JID	The design specification for the clean and coat task is WHC-S-0375. This will be provided in the Dose Reduction Projects FDR package.	Closed

REVIEW COMMENT RECORD (RCR)	1. Date 1/23/96	2. Review No. jd96-010
	3. Project No. A.8	4. Page 2 of 2

C-13

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
3.	The design does not address welding qualifications, Suspect materials, tolerances, certification requirements, material certifications(ie hoists if applicable)	JID	Specific criteria for materials and tolerances are not essential given the simplistic design of the tool. There are certification requirements associated with fasteners and completed equipment. Acceptance of this system will be made through acceptance testing and certification by the vendor for the equipment and coating material (as specified in the Statement of Work appendix A).	Closed
4.	ATP: Should follow CM 6-1 and IP 1026. I do not see acceptance criteria.	JID	The ATP will be developed in accordance with CM6-1. Acceptance criteria will be added to the ATP. The ATP will be released as a project supporting document.	Open

REVIEW COMMENT RECORD (RCR)	1. Date 1 Feb 96	2. Review No. 96-091
	3. Project No. Clean & Coat	4. Page 1 of 1

5. Document Number(s)/Title(s) CLEAN & COAT PROCESS DESIGN AND ALARA REVIEW	6. Program/Project/ Building Number CLEAN & COAT	7. Reviewer DAVE O. HESS	8. Organization/Group SNF SAFETY	9. Location/Phone MO-401(1719-K)/28/100-K; 3-1767/X3-80
--	--	---------------------------------	---	---

17. Comment Submittal Approval:	10. Agreement with indicated comment disposition(s)	11. CLOSED
Organization Manager (Optional)	Date <u>2/14/96</u> Reviewer/Point of Contact <u>David O. Hess</u> Author/Originator <u>Steve C. Zell</u>	Date _____ Reviewer/Point of Contact _____ Author/Originator _____

C-14	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.	<p>Basic concern about significant spill of unmixed and mixed epoxy components: The mixed components form a solid coating that has excellent adhesive properties. A significant spill could result in glueing fuel assemblies to each other or to the storage canister. The possibility of such a spill is small but Mr. Murphy (of Murphy's Law fame) is alive and well. There are several ways of handling this contingency: have a floating catch pan under the application device and mixed product lines; retrieving the affected fuel canister with subsequent dumping and separation of the fuel until the epoxy cure and then reracking; retrieving, dumping and attempting underwater wiping of the material off the assemblies; letting the epoxy set-up and using a long handled cold chisel or pry bar to separate the fuel from each other or the canister at fuel retrieval time; etc. Spilling of the unmixed components is a lesser problem, unless there is some resultant mixing after the spill. If the components do happen to mix then we would have the same potential problems as previously described. The individual components shouldn't be a problem for fuel retrieval as gravity would cause it to flow off of any fuel or component, but would require the fuel to be segregated and not mixed with fuel or components that had been wetted by the other part of the mixture. Besides potential fuel retrieval problems, the epoxy or its individual components could be a problem for the High Temperature Conditioning process that is forecast for the current fuel inventory. I guess the basic question is "Should we take additional steps to catch a potential leak or should we rely on an emergency response of some kind if the event happens?"</p>	DOH	<p>in order to cause this type of accident, one of three things must happen, A) an over pressure causing a burst, B) something extremely heavy and sharp dropped on the hose such that there is a high shear stress, or C) an improperly fitted connection leak.</p> <p>A) Maximum capability of Spray Quip model 397346 is 4000 psi; the bursting pressure for the lines are 18,000 psi which gives a margin of safety of 4.5. This type of accident is incredible.</p> <p>B) The hose is spiral wound with two layers of mesh and would require an item be heavy and dropped just right to cause any damage, and to shear the hose is nearly impossible. It is possible to cause a leak with bolt cutters, but to cut this type of hose requires a chop saw with a particulate blade. This type of accident is incredible.</p> <p>C) Qualified pipe fitter will install all fittings, and both the operating procedure and the work instructions will include inspection of fittings at the beginning of each operating shift and after any service. This type of accident is credible.</p> <p>Accident and recovery scenarios will be addressed in the ATP and Operating and Maintenance Manual.</p>	Open

REVIEW COMMENT RECORD (RCR)

5. Document Number(s)/Title(s) Clean and Coat Equipment Final Design Review		6. Program/Project/ Building Number SNF/Dose Reduction/105KE	7. Reviewer F. W. Moore	8. Organization/Group 2A900/SNF Projects	9. Location/Phone MO-293/373-4079
17. Comment Submittal Approval:		10. Agreement with indicated comment disposition(s) 2/14/96 Date		11. CLOSED 2/14/96 Date	
Organization Manager (Optional) 2/14/96 Date		Reviewer/Point of Contact 2/14/96 Date		Reviewer/Point of Contact 2/14/96 Date	
Author/Originator 2/14/96 Date		Author/Originator 2/14/96 Date		Author/Originator 2/14/96 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	There where no details on the vacuum head plenum. There will need to be an air flow region behind the brush to capture material and prevent it from being thrown back out by the brush.	FWM	The brush shroud design has been modified to provide a plenum behind the brush. Details of the shroud and brush head are provided in the revised drawing.	Closed
2	Has consideration been given to equipment operability for personnel wearing anti 'C's and 2 sets of gloves?	FWM	Yes, handles and switches have been sized to allow for ease of operations for suited subjects. The ATP and Training will be conducted using the same hand protection that will be used in actual operation.	Closed
3	Add to ATP Section 1.1 Purpose/Scope, "The acceptable completion of this test is the basis for final acceptance of equipment by Westinghouse Hanford Company."	FWM	These words have been incorporated into Section 1.1	Closed

REVIEW COMMENT RECORD (RCR)

5. Document Number(s)/Title(s) Clean and Coat Equipment Final Design Review		6. Program/Project/ Building Number SNF/Dose Reduction/105K E	7. Reviewer Larry E. Formo	8. Organization/Group ICF/KH CONSTRUCTION	9. Location/Phone X2-90/539-3234
17. Comment Submittal Approval:					
10. Agreement with indicated comment disposition(s) 11. CLOSED					
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					

Organization Manager (Optional)
Date 2-13-96 Reviewer/Point of Contact Larry E. Formo Author/Originator [Signature]

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	WE NEED TO INCORPORATE A TIME DELAY TO THE VACUUM AND BRUSH SYSTEM SO THE VACUUM WILL START APPROX. 5 SECONDS PRIOR TO THE BRUSH AND RUN FOR 5 SECONDS AFTER THE BRUSH TO PROPERLY CONTROL CONTAMINATION WITH GOOD NEGATIVE AIR FLOW AT THE POINT OF CONTACT WITH THE BASIN WALL.	LEF	The electrical system will be changed to control the vacuum so that it operates continuously unless manually shut off. The brush motor will be wired so that it cannot receive power unless the vacuum is running. This will be demonstrated in the Acceptance Test.	Closed
2	WE ALSO NEED TO LOOK AT THE USE OF BRONZE BUSHINGS INSTEAD OF STAINLESS STEEL SO A LOWER FRICTION LEVEL WILL BE ON THE STAINLESS STEEL SHAFTS TO ALLOW FOR A SMOOTHER POWER TRANSFER AT THESE CONTACT POINTS. THIS WOULD LET THE MACHINE RUN MUCH MORE CONSTANT WITH WALL PRESSURE AND MOVEMENT.	LEF	Bronze bushings will be supplied for rotating parts.	Closed

REVIEW COMMENT RECORD (RCR)	1. Date 01/19/96	2. Review No.
	3. Project No. A.8	4. Page 1 of 2

5. Document Number(s)/Title(s) Phase I Final Design Review 105 KE Basin Clean and Coat Task	6. Program/Project/ Building Number SNF/Dose Reduction/105K E	7. Reviewer W. H. Cloos	8. Organization/Group K Basins Operations	9. Location/Phone 105 KE/372-2853
---	--	----------------------------	--	--------------------------------------

17. Comment Submittal Approval:

10. Agreement with indicated comment disposition(s)

11. CLOSED

Organization Manager (Optional)

1-14-96
Date

Reviewer/Point of Contact

Author/Originator

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	Extra bulbs are needed for the light	WHC	Oceaneering will supply 2 spare bulbs for the light.	Closed
2	Extra bags for the vacuum cleaner are needed	WHC	Oceaneering will supply 5 additional bags for the vacuum.	Closed
3	Wooden storage boxes are needed for the different units, so they can be stored outside after use.	WHC	WHC has completed a contract change to include storage boxes.	Closed
4	The plastic sleeving used to sleeve the hose has to be heavy enough so it will not get holes in it when the hose is moved on the grating.	WHC	The sleeving that is provided around the two part epoxy hoses is a strong fire hose type material. The sleeve material will be very durable for the conditions seen in the basin.	Closed
5	The delivery hose should be longer so it will reach all of the basin.	WHC	200 feet of delivery hose will be supplied. 200 feet of hose was the maximum length of hose recommended by the vendor supplying the equipment. This length of hose will allow access to all areas of the basin with a minimal rerouting of the hose during operations.	Closed

C-17

WHC-SD-SNF-DRR-005
Rev. 0

REVIEW COMMENT RECORD (RCR)

		1. Date	2. Review No.
		01/19/96	
		3. Project No.	4. Page
		A.8	2 of 2

12. Item	13. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Hold Point	15. Disposition (Provide justification if NOT accepted.)	16. Status
6	What's the criteria for vacuum cleaner bag change out, volume or activity? What document will this be addressed in?	WHC	The criteria for bag change out will be based on activity first, and volume second. The maximum allowable activity will be determined by K Basin Radiation Control and documented in the JCS Work Package.	Open

APPENDIX D
Action Item List

APPENDIX D

ACTION ITEM LIST

1. Document the maximum allowable activity (determined by K Basin Radiation Control) permitted before change out of the vacuum cleaner bag in the JCS Work Package.

Responsible Organization: WHC
Date: April 1, 1996

2. Revise the Acceptance Test Procedure to conform to CM 6-1 and add acceptance criteria.

Responsible Organization: Oceaneering
Date: April 1, 1996

3. Revise Acceptance Test Procedure Section 1.6.2.5 to add after step 5, "WARNING: Check all hose connections to ensure they are tight before starting SPRAY QUIP equipment. The hoses are subject to high pressure.

Responsible Organization: Oceaneering
Date: April 1, 1996

4. Revise the Acceptance Test Procedure to specify the material that will be used to demonstrate cleaning effectiveness. WHC will evaluate and supply the material.

Responsible Organization: Oceaneering and WHC
Date: April 1, 1996

5. Revise the Operations and Maintenance Manual to include the following:

- a. Heat the hoses for epoxy supply lines for one hour before painting operation begin, per BIO-DUR vendor recommendation.
- b. The contents of the two part heated hoses will be pumped back to the hoppers at the completion of the coating process.
- c. There are shut off valves downstream of the mixing valve and the material will be left in the hoses to be use the following day.
- d. The two part hoses will be removed from the external sleeve (three-inch diameter hose) and discarded an non-hazardous waste.
- e. Long sleeves, eye protection, and gloves are required for operators stationed outside the basin.

Responsible Organization: Oceaneering
Date: April 1, 1996

6. Revise the Operations and Maintenance Manual , Section V. B. items 14 and 15 to show that the pressure roller head, trigger mechanism, mixer manifold, and flexible tube are consumable items that can be replaced by new items for continued operations.

Responsible Organization: Oceaneering
Date: April 1, 1996

7. Revise the Inspection Plan to add the following:
"The critical dimensions and functions of the Clean and Coat equipment will be checked during fabrication. Critical dimensions and functions include, but are not limited to, the following:

- Short seing arm length (?????)
- Swing arm extension length
- Telescoping vertical lengths
- Location of the telescoping vertical connection to the support channel
- Swing arm capable of being retracted and locked into position
- Slider carriage capable of traversing along the lead screw
- Brush head support bracket and shroud assembly allow for free motion of the shroud"

Responsible Organization: Oceaneering
Date: April 1, 1996

8. Revise the ALARA Plan Sections 5.0, 5.2.1, 5.2.2, 5.2.3 to clarify decontamination of components. Depending on the effort required to decontaminate an item versus that required to prevent contamination of the item, use of either coating or sealing in plastic prior to use should be further evaluated. A decision as to what items are to be coated or are to be protected by plastic should be made as part of the ALARA planning.

Responsible Organization: Oceaneering
Date: April 1, 1996

9. Revise the Operations and Maintenance Manual to add possible accident scenarios and recovery actions. Include practicing accident scenarios and recovery actions in the Training Plan.

Responsible Organization: Oceaneering
Date: April 1, 1996

10. Modify the design of the vacuum canister such that it can be removed from the support frame and mounted on a cart farther away from the operator in the event the canister becomes a significant source of radiation. Demonstrate canister removal in ATP testing.

Responsible Organization: Oceaneering
Date: April 1, 1996

11. Provide design features for changing the brush in a glove bag to control contamination. Demonstrate brush change in ATP testing and include in Training Plan.

Responsible Organization: Oceaneering
Date: April 1, 1996

12. Provide a means for control radioactive contamination spread (probably by bagging) while raising the brush to the point it can be put into a glove bag. Demonstrate the operation in ATP testing and include in Training Plan.

Responsible Organization: Oceaneering
Date: April 1, 1996

13. Develop a faster, easier way to change the brush that avoids the use of 8 small screws to be removed and reinstalled in a glove bag. Demonstrate the operation in ATP testing and include in the Training Plan.

Responsible Organization: Oceaneering
Date: April 1, 1996

14. Determine the need for variable lighting intensity for the video system during ATP testing. Glare can interfere with vision when using video systems near water or shiny surfaces, and intensity control can help avoid glare.

Responsible Organization: Oceaneering
Date: April 1, 1996

15. Coat carbon steel surfaces with a hard, durable material that is easy to decontaminate, where such coating is practical.

Responsible Organization: Oceaneering
Date: April 1, 1996

16. Provide a means of direct and immediate communication between operators inside the basin and operators outside the basin for use in case of emergency.

Responsible Organization: WHC
Date: April 1, 1996

17. Provide operator training for response to potential accidents such as an epoxy hose rupture or a vacuum line break.

Responsible Organization: Oceaneering
Date: April 1, 1996

19. If practical, provide ways to mitigate the risk that a vacuum hose could come loose or rupture, causing a puff of radioactive material to be released.

Responsible Organization: Oceaneering
Date: April 1, 1996

APPENDIX E

Action Item Database Status of Comments From Conceptual Design Review

Clean and Coat AIDB

ITEM NUMBER	ORIGIN	DOCUMENT	COMMENTER	DATE ENTERED	DESIGN REVIEW COMMENT	ACTION / DISPOSITION	RESPONSIBLE	STATUS	Open / Closed	DATE COMPLETE
CLEAN AND COAT EQUIPMENT CONCEPTUAL DESIGN REVIEW										
6	C&C-COR	RCR JID 1	JJ DIEHL	12/12/95	Please specify the criteria for surface preparation. How will this be verified?	ACCEPTED Details for surface preparation and verification will be developed and documented in the Acceptance Test Procedure (ATP) and equipment operating procedures. The details will be validated during the operator training and demonstration phase of the project. (DRR action item 2)	Ockershawing		Open	
7	C&C-COR	RCR JID 2	JJ DIEHL	12/12/95	Please specify if there are minimum film thicknesses required to certify this product	ACCEPTED Details for coating thickness will be developed and documented in the ATP and operating procedures. (DRR action item 3)	Ockershawing	See CSC FOR RCR WAF 2	Closed	2/6/96
8	C&C-COR	RCR JID 3	JJ DIEHL	12/12/95	If required how will the film thickness be verified?	ACCEPTED If coating thickness verification is determined to be required the details will be identified in the ATP and operating procedures. (DRR action item 3)	Ockershawing	See CSC FOR RCR WAF 2	Closed	2/6/96
9	C&C-COR	RCR JID 4	JJ DIEHL	12/12/95	How will verifications be documented?	ACCEPTED The Job Control System (JCS) work package will provide steps and/or hold points to document the required verifications.	Furthman		Closed	11/7/96

E-2

Clean and Coat AIDB

DRP_AIDB.XLS

ITEM NUMBER	ORIGIN	DOCUMENT	COMMENTS	DATE ENTERED	DESIGN REVIEW COMMENT	ACTION / DISPOSITION	RESPONSIBLE	STATUS	Open / Closed	DATE COMPLETE
10	C&C-CDR	RCR.JID.5	JL DIEHL	12/12/95	Ref. page 18 of the Test Results: Item G, which is Bio-Dur 561. States that this is a paste-like material and is best applied by blade or stiff brush. Is there any information dealing with the ability to use this material with a roller application? NOTE: Item G goes on to say that the material must be pushed into holes and pockets which leads back to the surface requirement question.	ACCEPTED The Bio-Dur 560 family of coating materials (which includes Bio-Dur 561) are precisely the same resinous ingredients and pigmentation content. The slight difference is the proportion of Kevlar fibers introduced into the mixture. Bio-Dur 561 varies slightly from bio-dur 560 as Kevlar is an efficient thickening agent which gives the coating material a thixotropic gel or false body. This causes the material to be too thick for application with a power roller. Bio-Dur 560 has a slightly reduced amount of Kevlar fiber so that it flows smoothly through a power roller.	Fordham		Closed	1/17/96
11	C&C-CDR	RCR.JID.6	JL DIEHL	12/12/95	Will testing of the process and materials be required?	ACCEPTED Yes, testing criteria will be documented in the Acceptance Test Procedure (ATP) and reviewed at the Final Design Review (FDR). (DRR action item 2)	Oceanengineering	To be demonstrated in the ATP	Open	

® Trademark of Thin Films Technologies, Houston, Texas.

Clean and Coat AIDB

DRP_AIDB.XLS

ITEM NUMBER	ORIGIN	DOCUMENT	COMMENTER	DATE ENTERED	DESIGN REVIEW COMMENT	ACTION / DISPOSITION	RESPONSIBLE	STATUS	Open / Closed	DATE COMPLETE
12	CAC-CDR	RCR/NGC-1	RC/ GANT	12/5/95	<p>The concept of wire brushing the wall seems unsupported and might actually remove concrete unnecessarily.</p> <p>A visual survey of the wall surface to be coated needs to be made. The survey should verify the condition of the wall surface and whether loose material can be observed. Some areas of the wall may be very rough, e.g., exposed aggregate and this needs to be factored into the decision to clean and/or coat.</p> <p>Alternatives to wire brushing have not been reviewed. Bristle brushing, plastic scrub pads, etc. might be alternatives that would have less tendency to remove concrete and still provide an adequate base for painting.</p> <p>Some of the alternative cleaning methods would seem to be easily adopted to the present design and could be evaluated further during initial trials.</p>	<p>ACCEPTED</p> <p>Wire brushing has been proposed for cleaning of the basin walls. The cleaning head will be powered by a variable speed motor that will allow the operator to control the rate of brushing. The pressure applied on the basin wall will be controlled by the operator. The speed and pressure will be controlled to ensure that grinding of the concrete does not take place. Various soffits, density and alternate materials for brushes are available and will be selected appropriately to provide adequate cleaning. Details for surface preparation and verification will be developed and documented in the Acceptance Test Procedure (ATP) and equipment operating procedures. The details will be validated during the operator training and demonstration phase of the project.</p> <p>A visual survey of the area to be cleaned and coated was completed on 5/2/95 and recorded on VHS tape (tape # 100-1311). This information was shared with vendors prior to the clean and coat request for proposals. (DHR action item 2)</p>	Overseeing	See CAC-3 DR/RCR/NGC-6	Closed	2/6/96
13	CAC-CDR	RCR/WAF-1	WAFRIER	12/7/95	<p>General comment-Provide tangible evidence that coating on the 105 AE basin walls will be good for the 10 year warranty period of the process/product. (During the committee meeting on December 5, representative provided no acceptable resolution to this issue. I would recommend assurances that a 20 mil coating is applied, coupons be placed in the basin, and annual inspectors to determine degradation. The basin roof has a warranty. To maintain the roof warranty, a core of beam for every 5000 ft² was obtained to assure coating thickness. The vendor will also perform annual inspections of the roof coating).</p>	<p>ACCEPTED</p> <p>Details for the coating application including coating thickness will be developed in the demonstration tests, operator training, and operating procedure. (DHR action item 3)</p> <p>Consideration will be given to the program for monitoring the coating material integrity by basin. Operators while repainting the walls clean. (DHR action item 4)</p>	Overseeing	See CAC-3 DR/RCR/WAF-2	Closed	2/6/96
14	CAC-CDR	RCR/WHC-1	WM GLOUS	12/5/95	<p>Does the HEPA vacuum require a canister to collect the larger pieces from the cleaning?</p>	<p>ACCEPTED</p> <p>Details of final design will address a HEPA vacuum system capable of collecting material removed from the wall of the basin. (DHR action item 5, a)</p>	Overseeing	See Overseeing Final Design Review Package	Closed	2/6/96

WHC-3D-SMF-DRR-005
Rev. 0

Clean and Coat AIDB

DRP_AIDB.XLS

ITEM NUMBER	ORIGIN	DOCUMENT	COMMENTS	DATE ENTERED	DESIGN REVIEW COMMENT	ACTION / DISPOSITION	RESPONSIBLE	STATUS	Open / Closed	DATE COMPLETE
15	CAC-CDR	RCR.WM.2	WH CLOOS	12/6/95	A vision system will be provided along with some lights since the edge of the beam will be lined with lead shields.	ACCEPTED The added constraint of the shielding around the perimeter of the beam will require that a lighted vision system be supplied. WMC has initiated a contract change for Cleansewing to design a vision and lighting system into the clean and coat equipment. (DRR action item 5-b)	Cred	Internal Memo RCE-65-007	Closed	12/12/95
16	CAC-CDR	RCR.WM.1	WJ MILLSAP	12/7/95	Re-evaluate the requirement to paint the surface within 48 hours of descaling (cleaning with the wire brush). Consider doing all the descaling and then switching the equipment to the painting mode. This would increase efficiency.	ACCEPTED The 48 hour requirement has been dropped by the project since the Conceptual Design Review meeting. This will allow the beam to be completely cleaned and then coated afterwards. Operations may be controlled at the Project area (IL). ECN 195526 will revise the Specification for 105 K East Basin Dose Reduction Project Design and Seal Task WMC-S-0375 to eliminate the 48 hour requirement.	Cred	Internal Memo RCE-65-007	Closed	12/12/95
17	CAC-CDR	RCR.WM.2	WJ MILLSAP	12/7/95	Add a TV camera and lighting to the equipment so the work area can be viewed while the cleaning and coating is in progress. This will likely be essential since the operators will probably be standing on the perimeter shielding and will not have line of sight vision.	ACCEPTED The added constraint of the shielding around the perimeter of the beam will require that a lighted vision system be supplied. WMC has initiated a contract change for Cleansewing to design a vision and lighting system into the clean and coat equipment. (DRR action item 5-b)	Cred	Internal Memo RCE-65-007	Closed	12/12/95

WMC-SD-SNF-DRR-005
Rev. 0

Clean and Coat AIDB

DRP_AIDB.XLS

ITEM NUMBER	ORIGIN	DOCUMENT	COMMENTER	DATE ENTERED	DESIGN REVIEW COMMENT	ACTION / DISPOSITION	RESPONSIBLE	STATUS	Open / Closed	DATE COMPLETE
18	C&C-CDR	RCR.WAM.3	WJ.MILLSAP	12/7/95	Plan to do the work without respiratory protection. This will require that a reliable capture velocity at the cleaning head be established and since the head will be operating close to the water line, water may get into the system. Therefore, select a wet-dry vacuum cleaner with a flow rate that will ensure that all debris and contamination are collected. Alternately, install a collection system between the housing and the vacuum cleaner to separate the liquid from the air stream.	ACCEPTED The detailed final design will address establishing a reliable capture velocity with the vacuum head selected. The delivery system is being developed such that it will not come in contact with the water of the basin. Wet/Dry HEPA filtered vacuums are available if a need is determined. (DRR action item 5.a)	Occurrence	To be demonstrated in the ATP	Open	
19	C&C-CDR	RCR.WAM.4	WJ.MILLSAP	12/7/95	Rather than rotate the wire brush by hand (which will quickly tire the operator), use a power tool to rotate the brush. The tool should have a trigger so that the speed of rotation can be adjusted.	ACCEPTED The cleaning head will be powered by a variable speed motor that will allow the operator to control the rate of brushing. The pressure placed on the basin will be controlled by the operator. Details will be developed in the final design. Details will be developed in the final design.	Closed	Internal Memo RCR-95-007	Closed	12/12/95
20	C&C-CDR	RCR.WAM.5	WJ.MILLSAP	12/7/95	Considering testing the epoxy material on a representative portion of the walls of the C&C Basin this will ensure that the coating will properly stick before the work starts in the actual basin. From an ALARA perspective, the worst possible outcome would be for the coating to be applied and then fail. If such a test is practical, the small dose to do the test would be well worth the information that would be gained from the test.	ACCEPTED Occurrence proposed to conduct a test on the basin wall to ensure that the coating will stick before work starts. Occurrence can supply a small sample of the coating material to conduct the test. VHC will determine the practicality and details of a test program. (DRR action item 7.)	Tests	See ICF-KH Interfacial Memo #STED-95-006	Closed	2/8/96
21	C&C-CDR	RCR.WAM.6	WJ.MILLSAP	12/7/95	Develop a way to contain the wire brush housing so that the brush can be replaced without the need for complex respiratory controls and respirators.	ACCEPTED Ease of change out and radiological controls for the cleaning head and the painting head will be addressed in detail in final design. (DRR action item 3.0)	Occurrence	See C&C-FDR RCR.WAM.3 See C&C-FDR RCR.WAM.4	Closed	2/8/96
22	C&C-CDR	RCR.WAM.7	WJ.MILLSAP	12/7/95	Make sure all pulleys and other components are contained so that they stay out of the basin water.	ACCEPTED Final design of the polycarbonate system will include measures to prevent any of the equipment from entering the water. Consideration will be given to maximizing the distance of all parts from the water line. (DRR action item 5.1)	Occurrence	See Occurrence Final Design Review Package	Closed	2/8/96

WHC-SJ-SNF-DRR-005
REV. 0

Clean and Coat AIDB

DRP_AIDB.XLS

ITEM NUMBER	ORIGIN	DOCUMENT	COMMENTER	DATE ENTERED	DESIGN REVIEW COMMENT	ACTION / DISPOSITION	RESPONSIBLE	STATUS	Open / Closed	DATE COMPLETE
23	C&C-CDR	RCR.WJM.8	WJ MILLSAP	12/7/95	The planned location to load the equipment into the basin and to change out equipment is the dummy elevator pit, which has the highest dose rates of any potential location in the basin. Look for an alternative location to do these tasks. Consider the opening in the grating to be made by the SLP debris project, a low dose rate area.	ACCEPTED Change out of the equipment will not be performed in the Dummy Elevator Pit (DEP). Equipment change out will take place in a low dose area. The only operation currently planned for the DEP is deploying the trolley carriage with the cleaning or painting head already attached. WHC will identify other locations to deploy the equipment based on the availability and access. (DRR action item 5.g)	DRP	The Job Control System Work Package will identify the deployment location	Open	
24	C&C-CDR	RCR.WJM.9	WJ MILLSAP	12/7/95	Verify that the coating material will not become a mixed waste.	ACCEPTED Rod Jochen, from 100 K Area, Operations Analysis and Waste Handling will verify mixed waste issues in the Waste Plan. Preliminary investigations indicate this will not be a problem. Verification that the waste plan is complete will be made at final design. (DRR action item 5.h)	Jones	See Waste Management Plan #WMP-01-96	Closed	1/8/96
25	C&C-CDR	RCR.WJM.10	WJ MILLSAP	12/7/95	A storage box and storage location for the equipment is needed if it is to be kept.	ACCEPTED WHC has initiated a contract change to include storage boxes.	Creed	Internal Memo RCF-65-007	Closed	12/12/95
26	C&C-CDR	RCR.WJM.11	WJ MILLSAP	12/7/95	The shroud with the brush needs to float against the wall so it can move with wall non-uniformities.	ACCEPTED Details of final design will address flexible rubber strips attached to the end of the cleaning head shroud allowing it to float against the wall non-uniformities. (DRR action item 5.d)	Oceaneering	The sealing material will be validated in the ATP	Open	
27	C&C-CDR	RCR.WJM.12	WJ MILLSAP	12/7/95	Make sure brushes and rollers are designed to go on and off easily.	ACCEPTED Details of final design will address ease of change out and radiological controls for the cleaning and painting head. (DRR action item 5.c)	Oceaneering	To be demonstrated in the ATP	Open	
28	C&C-CDR	RCR.WJM.13	WJ MILLSAP	12/7/95	Make sure non-disposable components which might become contaminated are designed to be decontaminated with standard decontamination methods (for example, rinsing, stripcoat, etc.).	ACCEPTED Details of final design will address the systems ability to be decontaminated by rinsing of the non-disposable components. (DRR action item 5.e)	Oceaneering	See C&C-FDR RCR.WJM.5 See C&C-FDR RCR.RGG.5 See C&C-FDR RCR.RGG.10	Closed	2/5/96

APPENDIX F

K Basin Dose Reduction Project Clean and Coat Task Final Design Review Briefing

APPENDIX F

K-BASIN DOSE REDUCTION PROJECT CLEAN AND COAT TASK FINAL DESIGN REVIEW BRIEFING

MEETING MINUTES

The Design Review Briefing for the Final Design Review of equipment for the Clean and Coat Task was held on January 16, 1996 in the MO293 conference room. An Oceaneering Hanford representative presented a verbal summary of the information contained in the documentation distributed for review.

After the Oceaneering Hanford presentation, the following comments were offered and/or discussed:

- ~ A time delay feature that provide continued operation of the vacuum system after the brush has been turned off would be desirable.
- ~ Stainless steel bushings could be subject to friction or galling.
- ~ Another material choice should be considered.
- ~ Consideration should be given to adding pan capability to the video camera.

APPENDIX G

Dose Reduction Project Clean and Coat Task Final Design Review

APPENDIX G

DOSE REDUCTION PROJECT CLEAN AND COAT TASK FINAL DESIGN REVIEW

MEETING MINUTES

The Design Review Meeting for the Final Design Review of equipment for the Clean and Coat Task was held on February 6, 1996 in the M0293 conference room. Those in attendance were:

- * L. D. Blackburn, Chairman
- R. F. Creed
- * W. H. Cloos
- * J. I. Diehl
- D. D. Faris-Zyph
- J. C. Fordham
- * L. E. Formo
- * W. A. Frier
- * R. G. Gant
- * D. O. Hess
- M. T. Husain
- * W. J. Millsap
- V. E. Renard, Oceaneering Hanford

The agenda for the meeting was to review all comments and dispositions documented on Review Comment Record (RCR) forms, to review the status of action items from the Conceptual Design Review and close items as appropriate, and to complete a design review checklist. The final RCRs resulting from meeting discussions and the completed design review checklist will be included in the Design Review Report.

One significant discussion item was whether it was appropriate to specify a minimum coating thickness and require verification of coating thickness in Acceptance Test Procedure. The position recommended by the design team was that acceptance of the coating process be based on complete coverage of the surface to be coated, as evidenced by visual examination. There will be a color contrast between the basin walls and the coating that will make visual examination meaningful. Committee discussion led to a consensus to accept the design team recommendation.

Another significant discussion item addressed the issue of a significant leak of mixed epoxy coating into the basin. An RCR comment raised the question of whether it was appropriate to include in the design an engineered feature to catch a spill, or whether we should rely on a response to deal with a leak into the basin. Discussion led to the conclusion that accident scenarios that might create a leak into the basin should be identified in the Acceptance Test Procedure. Operator responses to the accidents should be covered in the Training Plan and practice in training sessions.

Richard Creed reported that test coating of small areas of concrete in the K-East Basin was accomplished using American Society for Testing and Materials procedures, and that coating adherence was excellent. The test results will formally reported.

As a result of this review, the committee concluded that release of the design for fabrication was appropriate.

DISTRIBUTION SHEET

To	From	Page 1 of 1
Distribution	Mechanisms Engineering	Date
Project Title/Work Order		EDT No. 615122
Final Design Review Report for K Basin Dose Reduction Project Clean and Coat Task		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
C. J. Alderman	R3-48	X			
K. H. Bergsman	R3-48	X			
L. D. Blackburn	H5-53	X			
W. H. Cloos	X3-72	X			
R. F. Creed	X3-85	X			
C. Defigh-Price	X3-79	X			
J. I. Diehl	X3-80	X			
J. C. Fordham	X3-85	X			
W. A. Frier	X3-74	X			
R. G. Gant	X3-79	X			
J. C. Hamrick	X3-71	X			
D. O. Hess	X3-80	X			
M. T. Husain	X3-85	X			
K. M. Jones	X3-85	X			
R. E. Lacey	X3-85	X			
W. J. Millsap	X3-85	X			
F. W. Moore	X3-85	X			
R. L. Simons	H0-35	X			
M. J. Wiemers	X3-85	X			
Central Files	A3-83	X			
K Basin Project File	X3-85	X			