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Project Title/Work Order Design Criteria Document, Electrical System, K Basin Essential Systems Recovery, Project W-405 (WHC-SD-SNF-CR-001, Rev. 0)		EDT No. 610133 ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
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ENGINEERING DATA TRANSMITTAL

2. To: (Receiving Organization) Spent Fuel Support Projects	3. From: (Originating Organization) Spent Fuel Support Projects	4. Related EDT No.: NA
5. Proj./Prog./Dept./Div.: 'Project W-405/K-Basin Essential System Recovery	6. Cog. Engr.: J. R. Hoyle	7. Purchase Order No.: NA
8. Originator Remarks: Attached is the Design Criteria Document for the Electrical System of Project W-405.		9. Equip./Component No.: NA
11. Receiver Remarks:		10. System/Bldg./Facility: 20/100K
		12. Major Assm. Dwg. No.: NA
		13. Permit/Permit Application No.: NA
		14. Required Response Date: December 16, 1994

15. DATA TRANSMITTED					(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	WHC-SD-SNF-CR-001		0	Design Criteria Document, Electrical System, K-Basin Essential System Recovery, Project W-405	SQD	1	1	1

16. KEY		
Approval Designator (F) E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	Reason for Transmittal (G) 1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)	Disposition (H) & (I) 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				(G)	(H)
Reason	Disp.									Reason	Disp.
1	1	Cog.Eng. J. R. Hoyle		12/16/94	H4-79						
1	1	Cog. Mgr. J. M. Henderson		12/16/94	X3-85						
1	1	QA J. S. Sparks		12-22-94	X3-20						
1	1	Safety J. C. Harrick		12-8-94	X0-22						
1	1	K-Basin Eng. G. E. Conatore		12/16/94	X3-75						

18. Signature of EDT Originator Date 12/16/94	19. Authorized Representative Date for Receiving Organization J. M. Henderson Date 12/16/94	20. Cognizant Manager Date J. M. Henderson Date 12/16/94	21. DOE APPROVAL (if required) Ctrl. No. 94-PMDB-217-B18 94-PMDB-144 <input type="checkbox"/> Approved <input checked="" type="checkbox"/> Approved w/comments <input type="checkbox"/> Disapproved w/comments
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Department of Energy

Richland Operations Office
P.O. Box 550
Richland, Washington 99352

~~NOV 28 1994~~

94-PMDB-144

President
Westinghouse Hanford Company
Richland, Washington

Dear Sir:

PROJECT W-405, K BASIN ESSENTIAL SYSTEMS RECOVERY, DESIGN CRITERIA DOCUMENTS AND VALIDATION PROCESS (WHC-SD-SNF-CR-001, REV. 0/WHC-SD-SNF-CR-002, REV.0)

The Design Criteria Documents for the Electrical and Maintenance Shop/Support Facility have been reviewed and are approved upon satisfactory resolution and/or incorporation of the enclosed comments.

The subject project consists of four subprojects: 100K Water Supply and Distribution; Electrical; Fire Protection; and Maintenance Shop/Support Facility. A technical baseline was established for the Water Supply and Distribution Subproject in accordance with RLIP 4700.1A, Project Management System, through an RL-approved Functional Design Criteria (FDC). As discussed in meetings held on September 20 and 22, 1994, and in accordance with DOE Order 4700.1, Project Management System, RL concurs with the use of RL-approved Design Criteria Documents (DCD), in place of an FDC, to establish the technical baselines for the remaining three subprojects. The DCD shall be controlled in the same manner as an FDC, in accordance with RLID 4700.1.

If you have any questions, please contact Julie Schmitz on 376-5875.

Sincerely,

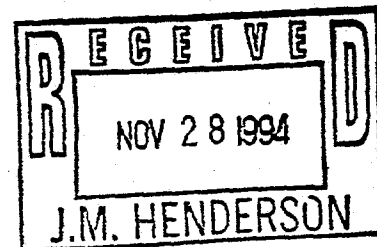
A handwritten signature in cursive script, appearing to read "J. L. Daily".

J. L. Daily, Acting Director
Nuclear Materials Division

PMD:JKS

Enclosure

cc w/enc1:
J. M. Henderson, WHC



RL COMMENTS ON DESIGN CRITERIA DOCUMENTS
PROJECT W-405
K BASIN ESSENTIAL SYSTEMS RECOVERY

NOVEMBER 10, 1994

ELECTRICAL SUB-PROJECT DESIGN CRITERIA DOCUMENT

1. Page 1, Section 1.1.1.2 - The pumps need to be sampled for PCB (oil and capacitors) and the transformers too. Old control panels that will be replaced are also known to contain PCBs. Design Criteria should include a statement with the suggested wording: "A sampling plan shall be prepared to evaluate all equipment required to be taken out of service. Equipment that poses a risk to the environment will be sampled for PCB's and will be disposed of in accordance with WAC 173-303, 40 CFR 761, and all Federal Regulations."
2. Add a sentence to the end of Section 1.4.1.1. Suggested wording: "Coordination is also necessary to ensure changes or modifications to the sewer are approved by the Washington Department of Health in accordance with WAC 246-272."
3. Revise Section 1.4.3.2 to include appropriate wording to ensure EPA regulations for worker protection will be followed when transformers are drained of oil by KEH Electrical Utilities. Suggested wording: "This oil contains between 0 and 5000 ppm PCB's and will be disposed of in accordance with WAC 173-303, 40 CFR 761, and all Federal Regulations by KEH Utilities."
4. Add a sub-section under Section 3.1. Suggested wording is "A Hazard and Operability Report (HAZOP) will be prepared during the design phase to identify risks and hazards associated with construction and operation for this subproject. This information shall be incorporated into the design media as applicable."
5. Regulations governing the protection of workers are not properly reflected. Add to Section 3.1 the following: "All work shall be performed in accordance with WHC-CM-4-3, Industrial Safety Manual."

RELEASE AUTHORIZATION

Document Number: WHC-SD-SNF-CR-001, REV 0

Document Title: Design Criteria Document, Electrical System, K-Basin
Essential Systems Recovery, Project W-405

Release Date: 12/13/94

**This document was reviewed following the
procedures described in WHC-CM-3-4 and is:**

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:


Kara M. Broz


December 13, 1994

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SUPPORTING DOCUMENT		1. Total Pages <u>14</u>	
2. Title Design Criteria Document, Electrical System, K-Basin Essential Systems Recovery, Project W-405		3. Number WHC-SD-SNF-CR-001	4. Rev No. 0
5. Key Words Project W-405, K-Basins, Electrical System, 100K Area <div style="text-align: center;"> APPROVED FOR PUBLIC RELEASE </div> <i>12/13/94</i>		6. Author Name: J. R. Hoyle  Signature Organization/Charge Code 7FA20/L122B	
7. Abstract <p>This Design Criteria Document provides the criteria for design and construction of electrical system modifications for 100K Area that are essential to protect the safe operation and storage of spent nuclear fuel in the K-Basin facilities.</p> <p style="text-align: center;">DISCLAIMER</p> <p>This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. 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. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.</p>			
<h1>MASTER</h1>		8. RELEASE STAMP <div style="border: 1px solid black; padding: 10px; text-align: center;"> OFFICIAL RELEASE BY WHC DATE DEC 14 1994 <i>Sta. 4</i> </div>	

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DESIGN CRITERIA DOCUMENT
PROJECT W-405
ELECTRICAL SYSTEM
WHC-SD-SNF-CR-001
Rev 0
September 26, 1994

Prepared by: Julian R. Hoyle

Approvals:

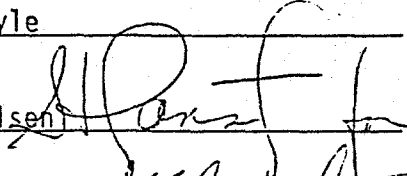
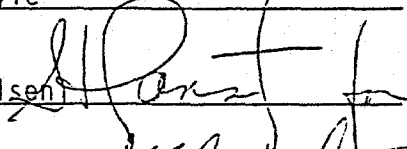
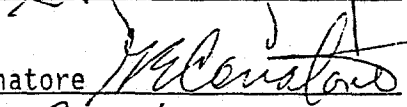
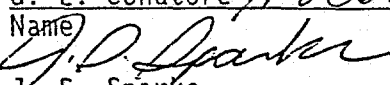
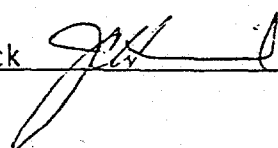
J. R. Hoyle Name		Date
L. E. Nilsen Name		10-5-94 Date
G. E. Conatore Name		10-5-94 Date
J. S. Sparks Name		10-5-94 Date
J. C. Hamrick Name		10/6/94 Date

TABLE OF CONTENTS

	PAGE
1.0 INTRODUCTION-----	1
1.1 BACKGROUND-----	1
1.2 WORK SCOPE-----	2
1.3 SITE LOCATION-----	3
1.4 PROJECT INTERFACES-----	3
1.5 JUSTIFICATION-----	4
2.0 PROJECT REQUIREMENTS-----	6
2.1 FUNCTIONAL REQUIREMENTS-----	6
3.0 GENERAL REQUIREMENTS-----	7
3.1 SAFETY REQUIREMENTS-----	7
3.2 ENVIRONMENTAL REQUIREMENTS-----	7
3.3 SAFEGUARDS AND SECURITY REQUIREMENTS-----	8
3.4 QUALITY ASSURANCE-----	8
3.5 DECONTAMINATION AND DECOMMISSIONING-----	9
4.0 REFERENCES, CODES AND STANDARDS-----	9
5.0 ATTACHMENTS-----	11
ATTACHMENT 1-SITE ASSESSMENT STUDY FINDINGS AND OBSERVATIONS	
ATTACHMENT 2-COST SAVINGS ANALYSIS	
ATTACHMENT 3-SK-1-80000 THRU SK-1-80012: ONE LINE DIAGRAMS	
ATTACHMENT 4-ENGINEERING STUDY-100K AREA FIRE PROTECTION UPGRADES (WHC-SD-N037-ES-001)	
ATTACHMENT 5-100K REACTOR AREA PLAN DRAWING	

1.0 INTRODUCTION

1.1 BACKGROUND

1.1.1 Elimination of 4160 Volt System

1.1.1.1 The 4160 volt electrical distribution system in the 165KE and 165KW buildings was originally constructed to provide electrical power to the large motors for the reactor operations. These large motors have since been decommissioned and disconnected. Presently, the 4160 volt switchgear supplies power to only ten (10) pumps in the 100KE area (of which 6 are in use) and 4160 volt-480 volt transformers providing power to miscellaneous facilities throughout the 100K Reactor Area.

1.1.1.2 The existing ten(10) pumps that utilize 4160 volt power supplies are presently slated for deactivation based on the Water Supply and Distribution System Sub-Project. The only other equipment presently powered from the 4160 volt system are eleven miscellaneous 4160 volt-480 volt transformers. These transformers provide power to the 105KW Reactor Building, 165KE and 165KW Power Control Buildings, 183KE and 183KW Filter Plants, 1706KE Water Studies Semiworks Facilities, 1717K Maintenance and Transportation Building and other miscellaneous facilities. These transformers will be replaced with 13.8 kV - 480 volt dry type transformers within unit substations.

1.1.1.3 The elimination of the 4160 volt system will eliminate the need to maintain and operate miscellaneous medium voltage equipment. Unnecessary energization and unknown energized equipment creates safety concerns which can be mitigated by the elimination of the 4160 volt system.

1.1.2 Reconfiguration of 480 Volt Area Motor Control Centers

1.1.2.1 During the reactor operation, 480 volt motor control centers 3 and 5 in 105KE and 105KW provided electrical power mainly to the reactor auxiliary loads. However, due to the reactor decommissioning, motor control centers 3 and 5 in 105KE and 105KW have very few loads being served from them. Motor control center 7 in 165KW is presently active although no loads are fed from this motor control center.

1.1.2.2 Due to the division of responsibility between Bechtel Hanford Incorporated (BHI) and Westinghouse Hanford Company (WHC), it is difficult to perform routine and abnormal maintenance activities. In order to perform routine maintenance activities, the maintenance personnel must obtain permission from BHI prior to obtaining access to the equipment that they need to maintain. During abnormal occurrences, it is extremely important to have an immediate access to the power supply to shutting down of a piece of equipment. The maintenance personnel must obtain permission from BHI prior to obtaining access to the equipment that they need to shut down.

1.1.2.3 The reconfiguration of the 480 volt motor control centers will eliminate the need to keep the miscellaneous motor control centers active. Unnecessary energization and unknown energized equipment creates safety concerns which can be mitigated by reconfiguring the loads and deenergizing these motor control centers.

1.2 WORK SCOPE

1.2.1 This project will have two (2) electrical tasks.

- a) Task 1: Elimination of 4160 Volt System
- b) Task 2: Reconfiguration of the 480 Motor Control Centers

1.2.1.1 Elimination of 4160 Volt System

1.2.1.1.1 Disconnect and remove the existing 13.8 kv-4160 volt transformers and power regulators from service.

1.2.1.1.2 Disconnect and remove the existing 4160 volt-480 volt transformers and replace with new 13.8 kv-480 volt unit substations. These new unit substations shall be fed from the existing 13.8 kv switchgear in the 165KE and 165KW buildings and will refeed the existing 480 volt switchgear. See Attachment 3 for One Line Diagrams.

1.2.1.1.3 All feeders that are required to be taken out of service shall be disconnected at both ends. Feeders shall be taped up at each end and the breakers tagged out as inactive. The removal of these conductors shall be part of the K Area facility decommissioning by Bechtel Hanford Incorporated consistent with the present mission plan and other ongoing activities at the K-Basin Area.

1.2.1.1.4 Disconnect and remove the existing 5 kv transfer switch. The new service to 1717K shall be fed from the existing 13.8 kv switchgear in the 165KW building and will feed the new 13.8 kv-480 volt transformer. See Attachment 3 for One Line Diagrams.

1.2.1.1.5 New feeders shall be provided throughout the project. No existing conductors shall be utilized.

1.2.1.2 Reconfiguration of 480 volt Motor Control Centers

1.2.1.2.1 Equipment required to remain active shall be refeed from MCC2A and MCC2B in 105KE and 105KW.

1.2.1.2.2. Disconnect motor control center 7 in 165KW.

1.2.1.2.3 All the existing deactivated feeders shall be disconnected upon the completion of the reconfiguration of motor control centers 3 and 5 in 105KE and 105KW, and motor control center 7 in 165KW. The removal of these conductors shall be part of the facility decommissioning consistent with the

present mission plan and other on-going activities at the K-Basin Area. Breakers shall be locked out and motor control centers shall be deenergized.

1.3 SITE LOCATION

1.3.1 The 100K Area is located on the Hanford Site approximately 25 miles Northwest of Richland, Washington. There are two identical reactors located in this area. The Eastern-most of the reactors is designated 105KE, and the Western-most, 105KW. The reactors and the support facilities were constructed between 1952 and 1954.

1.4 PROJECT INTERFACES

1.4.1 100K Water Distribution System Essential Systems Recovery Sub-Project Interface

1.4.1.1 The pumps that are presently in use for water supply and sewer are fed from the 4160 volt system. Coordination is required in order to maintain the operation of the existing equipment until the new systems are constructed and operational. This will be done through appropriate scheduling of the demolition within Project W-405. Coordination is also necessary to ensure changes or modifications to the sewer are approved by the Washington Department of Health in accordance with WAC 246-272.

1.4.1.2 The pumps that are presently in use for the fire protection system are fed from the 4160 volt system. Coordination is required in order to maintain the operation of the existing equipment until the new systems are constructed and operational. This will be done through appropriate scheduling of the construction and demolition within Project W-405.

1.4.2 Hanford Fish Program at the K-Pools Interface

1.4.2.1 The present supply of water for the fish in the K-Basins is two (2) 1500 HP river water pumps which are fed from the 4160 volt system. It is assumed that an alternate source for raw water will be established to provide supply water for the fish. The existing scope of the Electrical Systems Project does not include funding to support new work associated with the fish rearing. Any changes to this assumption must be received within one month of the start of detailed design in order to maintain the project schedule. Any changes received will require separate funding to support any design or construction modifications required to the electrical system design. In order to provide time for an alternate method of providing a new fish water supply, the project will stage the construction and deactivation of the 4160 volt system. Partial deenergization can take place and the raw water pumps can be kept active until the last portion of the construction activity is scheduled to take place.

1.4.3 Electrical Utilities Interface

1.4.3.1 The necessary modifications to the existing 13.8kv switchgear required to provide the power to the 13.8 kv-480 volt transformers will be provided by KEH Electrical Utilities. This will include procurement of any

new relays and protective devices and installation and testing of the 13.8 kv system in the switchgear.

1.4.3.2 The existing 13.8 kv-4160 volt and 4160 volt-480 volt transformers, that are required to be taken out of service, shall be drained of oil and removed from the site by KEH Electrical Utilities. This oil contains between 0 and 500 ppm PCB's (Polychlorinated biphenyls) and will be disposed of in accordance with WAC-173-303 and 40 CFR 761 by KEH Electrical Utilities. All work associated with this effort will be provided for and coordinated by the Utility. This shall include the removal of the oil and scrap metals to the required repositories.

1.5 JUSTIFICATION

1.5.1 Elimination of 4160 Volt System

1.5.1.1 The existing 4160 volt system is approximately 40 years old and poses a significant personnel safety concern. The equipment has not been maintained properly for 25 years and contains malfunctioning protective devices. Unknown energized circuits are common due to a lack of adequate "as-built" drawings of the equipment. The elimination of the unnecessary 4160 volt system will reduce personnel exposure to energized equipment and will provide less equipment to maintain.

1.5.1.2 The elimination of the 4160 volt system will reduce maintenance and operations costs. See Attachment 2 for Maintenance and Operations cost savings.

1.5.1.3 A Site Electrical Task Group made an assessment of the 100K Reactor Area in February of 1991 and discovered many code violations and unsafe operating conditions for equipment and personnel safety. See Attachment 1 for their findings and observations. A sample of the findings are as follows:

- a) Building 165KW: Ground fault protection per NEC Art. 215-10, 230-95 and 240-13 is required on the 1000Kva 480Y/277 volt secondary transformer feeder.
- b) Buildings 165KE and 165KW: The 1000Kva transformers in the 165 building transformer yard do not have the proper protective devices to comply with NEC Art. 450-3(a).
- c) Buildings 165KE and 165KW: There is no equipment grounding conductor installed in the feeder raceway from the 1000Kva transformer to the 480 volt station service switchgear. This ground fault current path is required by NEC Art. 250-75 and 250-79, Hanford Plant Design Criteria, Electrical Design SDV-7.5, Rev. 25, Sect. 3, Equipment Grounding paragraph d.
- d) Building 165KW: The cable tray carrying the 4160 volt feeder to the 4160 volt switchgear is not bonded to the metal switchgear or switchgear ground bus. This is a violation of NEC Art. 250-75 and 250-79.

- e) Building 165KW: The 4160 volt feeder cable from the 4160 volt load terminals of Bus C, Sect. 25, to the cable tray system is not supported as required by NEC Art. 318-6(c). The six to seven feet of unsupported cable allows a stress condition to exist.

These findings will be mitigated by the elimination of the 4160 volt system.

1.5.1.4 Double transformation occurs from 13.8 kv-4160 volt and 4160 volt-480 volt. The elimination of the large unloaded 13.8 kv-4160 volt and 4160 volt-480 volt transformers and installation of new 13.8 kv-480 volt transformers, suited in size to the load they serve, will provide a much more energy efficient system that will save in utility costs during the expected remaining life of the facility. See Attachment 2 for Utility Cost Savings. Furthermore, this will allow for the complete deenergization of the 4160 volt system for removal during decontamination and decommissioning.

1.5.1.5 A WHC Fire Protection audit of the 100K Area facilities identified code violations, noncompliance with DOE orders and Factory Mutual (FM) Approval Guide for property, environmental and personnel safety. See Attachment 4 for their findings. Two of the total findings will be mitigated by the elimination of the 4160 volt system. They are as follows:

- a) Building 165: The oil-filled transformers east of the 165KE building are not mounted on bases that have the oil containment features described in FM Loss Prevention Data Sheet 5-4. The exposed fire wall has unprotected openings.
- b) 183KE Building: The oil-filled transformers are located 18 ft east of the 183KE building. Exposure protection is required for the transformers that are located at this distance. The transformers do not have adequate curbing to contain an oil spill.

1.5.1.6 The 4160 volt system has a high impedance ground due to the fault current contributions from large motor loads at 4160 volts that were used during reactor operation. A grounding resistor was used to provide this ground. This grounding resistor limits the fault current and, therefore, a low magnitude fault may go undetected. The elimination of the 4160 volt system and the grounding resistor will eliminate this situation.

1.5.2 Reconfiguration of 480 Volt Motor Control Centers

1.5.2.1 480 volt motor control centers 3 and 5 in 105KE and 105KW have very few loads being served from them. The elimination of motor control centers 3 and 5 in 105KE and 105KW and motor control center 7 in 165KE and the reconfiguration of the active loads will provide a much safer system for the expected remaining life of the facility. The reconfiguration will also allow for the above mentioned MCC's to be deactivated, thus eliminating the need for maintenance and operation.

1.5.2.2 The inaccessibility of motor control centers 3 and 5 in 105KE and 105KW creates a safety concern during operation and maintenance of the.

equipment. Maintaining active equipment unnecessarily in these areas adds to the risk of personnel injury.

2.0 PROJECT REQUIREMENTS

2.1 FUNCTIONAL REQUIREMENTS

2.1.1 Elimination of 4160 Volt System

2.1.1.1 The mission of 4160 Volt elimination is to provide four (4) unit substations to provide the power to the loads in 165KE, 165KW, 183KE and 1717 that are still required and are presently fed from the 4160 volt switchgear.

2.1.1.2 One(1) 13.8 kv-480 volt transformer within the active area of 105KE building to provide the power to the loads that are still required and are presently fed from the 4160 volt switchgear will be provided under ECN #160445. This is not in this project scope.

2.1.2 Reconfiguration of 480 Volt Motor Control Centers

2.1.2.1 The mission of the 480 volt Reconfiguration is to provide new feeders to provide the power to the loads that are still required in 105KE and 105KW, and are presently fed from motor control centers 3 and 5 of 105KE and 105KW and from motor control center 7 located in the 165KW building. The motor control centers not required to be energized will be deenergized and disconnected.

3.0 GENERAL REQUIREMENTS

3.1 SAFETY REQUIREMENTS

3.1.1 Safety classification for the project will comply with WHC-CM-1-3, "Management Requirements and Procedures," MRP 5.46, "Safety Classification of Systems, Components, and Structures." The highest safety classification to be applied to this project will be Safety Class 3.

3.1.2 This project is designated as a Hazard Type-Normal Public Risk(NPR). WHC-SD-WM-SAR-062, Rev 1 entitled "Safety Analysis Irradiated N Reactor Fuel" Addendum 2 entitled "Safety Equipment List for K-Area" identifies that all equipment under System #20, AC Electrical, is classified as Safety Class 3. This safety classification will remain the same for this sub-project. Formal safety analysis, in accordance with DOE Order 5481.1B, "Safety Analysis and Review System(SARS)," is not required for NPR projects. The construction and operation of the facility created by this project involves hazards that are routinely encountered and accepted in the course of everyday living by the vast majority of the general public. Safety reviews performed during the normal planning, design and execution of the project will mitigate identified hazards associated with construction and operations.

3.1.3 Work for this project involving the decommissioning/modification of reactor system at K-Basin is considered acceptable when it has been conducted within existing procedures and meets or exceeds general industry standards. All excavations shall be protected by a plastic fence to ensure protection of Westinghouse Hanford Company personnel during construction. The design of these systems shall consider the traffic safety impacts for both personnel and emergency response equipment. Mechanisms shall be provided to assure the continuous, safe operation of the facility.

3.1.4 A Hazard and Operability Report (HAZOP) will be prepared during the design phase to identify risks and hazards associated with construction and operation for this sub-project. This information shall be incorporated into the design media as applicable.

3.1.5 Construction contractors will be required to take reasonable precautions for protection of the health and safety of their employees, subcontractors, operating contractor and DOE personnel. These precautions shall be identified in the HAZOP Report. This includes providing continuous access to construction areas by emergency vehicles and personnel and ensuring that emergency evacuation routes are not obstructed.

3.1.6 All work shall be performed in accordance with WHC-CM-4-3, "Industrial Safety Manual."

3.2 ENVIRONMENTAL REQUIREMENTS

3.2.1 Regulatory Compliance

3.2.1.1 The design shall comply with the requirements of 40 CFR 260 and 40 CFR 261 where applicable.

3.2.1.2 The design shall comply with all applicable State and Federal laws and standards.

3.2.1.3 Only new construction items shall meet Resource Conservation and Recovery Act and all other applicable State and Federal laws and standards. Modifications to existing systems or portions of existing systems which may be necessary to bring such systems into compliance with applicable State and Federal laws and standards, including Resource Conservation and Recovery Act, are beyond the scope of this project.

3.2.1.4 All required National Environmental Policy Act (NEPA) documentation and approvals shall be in place prior to the beginning of definitive design.

3.2.2 Environmental Releases

3.2.2.1 Releases of radioactive material and non-radioactive hazardous material shall not exceed the criteria given in WHC-CM-7-5, "Environmental Compliance."

3.3 SAFEGUARDS AND SECURITY REQUIREMENTS

3.3.1 Safeguards and security requirements shall be established with formal assistance from the appropriate contact in Safeguards and Security.

3.3.2 Part of this project's work will be conducted in a security protected area and shall require escorted access into the area. A construction security plan approved by Safeguards and Security shall be required in accordance with WHC-CM-4-33, "Security Manual," Section 2.15, "Limited and Protected Area Construction Security Access." Escorts for noncleared personnel shall be required in accordance with that manual's Section 1.6., "Escorting."

3.4 QUALITY ASSURANCE

3.4.1 "Quality assurance(QA) activities for all contractors involved with the design, construction, testing and inspection of the proposed facility shall be formulated and executed through the use of the project specific quality assurance plan(QAP). The QAP shall establish QA program requirements which provide a format to verify inspection, testing, adequacy of design and the quality of construction and manufactured components. The QA program requirements shall be in accordance with DOE 5700.6C and 10CFR 830.120. "Quality Assurance" and DOE Order 6430.1A, "General Design Criteria," Section 0140, Quality Assurance to provide the following assurances:

- a) Design data and design decisions are documented and traceable.
- b) The design and design criteria are adequately supported by the prepared plans, specifications and analysis.
- c) The design meets the baseline design criteria.
- d) Construction is performed in accordance with the definitive design documents.
- e) Testing confirms the adequacy of design, the quality of the construction and manufactured components, operability and maintainability and reliability. The QA activities for all parties involved in WHC activities is formulated and executed through the use of the project specific quality assurance plan(QAP) per WHC-CM-4-2, "Quality Assurance Manual," QI 2.1.

3.5 DECONTAMINATION AND DECOMMISSIONING

3.5.1 The design shall incorporate features to facilitate cleanup activities that should be necessary in the future. Eventual decommissioning activities shall also be factored into the design. Decontamination and decommissioning shall be provided by the Environmental Restoration Contractor at a later date as part of the present mission plan.

4.0 REFERENCES, CODES AND STANDARDS

4.1 Design and construction shall be in accordance with the following regulation, codes and standards. Applicable Hanford Plant Standards will be used, along with the national consensus codes and standards (developed by organizations such as the American Society of Mechanical Engineers(ASME), American National Standards Institute(ANSI) and the Institute of Electrical and Electronic Engineers(IEEE). The latest edition of all codes and standards in effect at the beginning of definitive design shall be used. A list of codes and standards used shall be documented. DOE Order 6430.1A, "General Design Criteria," contains a conclusive list of codes and standards which this project is comply with. The following defines the appropriate Codes, Standards, Regulations, Orders, etc. that are not defined or referenced within DOE Order 6430.1A for the project.

- a) DOE 5480.1B, "Environmental, Safety and Health Program for DOE Operations"
- b) DOE 5480.4, "Environmental Protection, Safety and Health Protection Standards"
- c) DOE 5481.1B, "Safety Analysis and Review System(SARS)"
- d) DOE 5480.5, "Safety of Nuclear Facilities"
- e) DOE 5700.6C, "Quality Assurance"
- f) DOE 5820.2A, "Radioactive Waste Management"
- g) NFPA 70, "National Electrical Code"
- h) WAC-173-303, "Dangerous Waste Regulations"
- i) WHC-CM-1-3, "Management Requirements and Procedures"
- j) WHC-CM-4-2, "Quality Assurance Manual"
- k) WHC-CM-4-3, "Industrial Safety Manual"
- l) WHC-CM-4-9, "Radiological Design"
- m) WHC-CM-4-33, "Security Manual"
- n) WHC-CM-4-40, "Industrial Hygiene Manual"
- o) WHC-CM-4-41, "Fire Protection Program Manual"
- p) WHC-CM-7-5, "Environmental Compliance"
- q) 40 CFR 260, "Hazardous Waste Management System: General"
- r) 40 CFR 261, "Hazardous Waste Management System: Identification and Listing of Hazardous Wastes"

- s) 40 CFR 761, "Polychlorinated Biphenyls (PCB's) Manufacturing Processing, Distribution in Commerce, and Use Prohibition"
- t) 10 CFR 830.120, "Quality Assurance"