START

Attachment 5

0022525

ENGINEERING CHANGE NOTICE

Page 1 of 13

1. ECN [illegible]

Proj. ECN B-714-78

ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.		4. Date
Supplemental ■	G. L. Koci, KEH, E6-31, 6-6049		03-04-91
Direct Revision ☐	5. Project Title/No./Work Order No.	6. Bldg./Sys./Fac. No.	7. Impact Level
Change ECN ☐	See Block 12	218-E-16	3
Temporary ☐	8. Document Number Affected (include rev. and sheet no.)	9. Related ECN No(s).	10. Related PO No.
Supersedure ☐	See Block 12	None	N/A
Discovery ☐			
Cancel/Void ☐			

11a. Modification Work	11b. Work Package Doc. No.	11c. Complete Installation Work	11d. Complete Restoration (Temp. ECN only)
☐ Yes (fill out Blk. 11b) ☐ No (NA Blks. 11b, 11c, 11d) UNKNOWN	UNKNOWN	Cog. Engineer Signature & Date	Cog. Engineer Signature & Date

12. Description of Change

Block 5: B-714, Grout Vault Pair (218-E-16-102 & 103) (218-E-16-104 & 105)/ER8007

Block 8: Specification B-714-C2, Rev 1 (V-B714C2.003, Rev 1)

*** SEE SUCCEEDING PAGES FOR DESCRIPTION OF CHANGES ***

See ECN B-714-79 for Related Direct Drawing Changes

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JUL 1992 RECEIVED EDMC

13a. Justification (mark one)	13b. Justification Details
Criteria Change ■	(CC): Vault support pit structures upgraded from Safety Class 3 to Safety Class 2 (Ref WHC ECN #129077, to the FDC). Vault pits redesigned to confine potential aerosol air pathway leaks within the pits. (Ref. WHC-SD-WM-RPT-004, Rev 1, Safety Class Assignment Report). THIS ECN INCORPORATES WHC ECN CHANGES TO THE FUNCTIONAL DESIGN CRITERIA.
Design Improvement ☐	
Environmental ☐	
As-Found ☐	
Facilitate Const. ☐	
Const. Error/Omission ☐	
Design Error/Omission ☐	

FDC

14. Distribution (include name, MSIN, and no. of copies)

KEH DISTRIBUTION
Const Doc Cntl E2-50
Engrg Doc Cntl E6-52

WHC DISTRIBUTION
Project Files R1-28
S. R. Briggs(PE) R3-27
T. K. Cordray S1-54
STATION 10 A3-87
LUPE GARZA A3-80

J. K. Epperley S0-05
O. A. Halverson R3-09
J. S. Hill [2] H4-57
K. S. McCullough N1-83
D. B. Powell [4] R4-03
J. E. Vanbeek R3-27

DOE
A. G. Lassila A5-18

RELEASE STAMP

OFFICIAL RELEASE BY WHC 13
DATE MAY 0 8 1991
STA. 4

A-7900-013 (11/88)

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1) B-714-78

15. Design Verification Required	16. Cost Impact		17. Schedule Impact (days)
■ Yes	ENGINEERING	CONSTRUCTION	
☐ No	Additional ☒ $ 1800 *	Additional ☒ $ 47,000 *	Improvement ☐ NA
	Savings ☐ $	Savings ☐ $	Delay ☐

* INCLUDES ECN B-714-79

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	☐	Seismic/Stress Analysis	☐	Tank Calibration Manual	☐
Functional Design Criteria	☐	Stress/Design Report	☐	Health Physics Procedure	☐
Operating Specification	☐	Interface Control Drawing	☐	Spares Multiple Unit Listing	☐
Criticality Specification	☐	Calibration Procedure	☐	Test Procedures/Specification	☐
Conceotual Design Report	☐	Installation Procedure	☐	Component Index	☐
Equipment Spec.	☐	Maintenance Procedure	☐	ASME Coded Item	☐
Const. Spec.	☐	Engineering Procedure	☐	Human Factor Consideration	☐
Procurement Spec.	☐	Operating Instruction	☐	Computer Software	☐
Vendor Information	☐	Operating Procedure	☐	Electric Circuit Schedule	☐
OM Manual	☐	Operational Safety Requirement	☐	ICRS Procedure	☐
FSAR/SAR	☐	IEFD Drawing	☐	Process Control Manual/Plan	☐
Safety Equipment List	☐	Cell Arrangement Drawing	☐	Process Flow Chart	☐
Radiation Work Permit	☐	Essential Material Specification	☐	Purchase Requisition	☐
Environmental Impact Statement	☐	Fac. Proc. Samp. Schedule	☐		☐
Environmental Report	☐	Inspection Plan	☐		☐
Environmental Permit	☐	Inventory Adjustment Request	☐		☐

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number/Revision

20. Approvals

	Signature	Date		Signature	Date
OPERATIONS AND ENGINEERING			ARCHITECT-ENGINEER		
Cog./Project Engineer	LR Briz	5/7/91	PE	K C Burgard	5/7/91
Cog./Project Engr. Mgr.	LRB JE Vk Beck	5/7/91	QA	TD Harp DMcGuire	5-7-91 5/7/91
QA	T. K. Cordroy	5-7-91	Safety	D Lindsay	5-7-91
Safety			Design	C/S: [illegible]	5/7/91
Security			Other	PIPING: CR Zook	5/7/91
Proj.Prog./Dept. Mgr.				SPECS: J E Breed	5/7/91
Def. React. Div.				ENVIR: R Hollenbeck	5-7-91
Chem. Proc. Div.					
Def Wst. Mgmt. Div.			DEPARTMENT OF ENERGY		
Adv. React. Dev. Div.					
Proj. Dept.					
Environ. Div.			ADDITIONAL		
IRM Dept.					
Facility Rep. (Ops)					
Other					

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CHANGES TO SPECIFICATION B-714-C2, REV 1

1. SECTION 01300

ADD to Article 1.3 Schedule of Submittals the following:

03301/1.2.23	Welding Procedures and Personnel	15	Before welding	---
03301/1.2.24	NDE Personnel and Procedures	15	Before welding	---
05500/1.2.3	Manufacturers Data	15	Before delivery	---
05500/1.2.4	Welding Filler Metal	15	Before welding	---
05500/1.2.5	Welding Procedures and Personnel	15	Before welding	---
05500/1.2.6	NDE Personnel and Procedures	15	Before welding	---

2. SECTION 01400

A) **ADD** to Appendix A as shown on Pages 8 thru 13.

B) **CHANGE/ADD** to subparagraph 1.3.1.4.a 1) as follows:

Section 03301 **CHANGE TO:**	Vault and Basin Cast-In-Place Concrete. (Includes Excess Water Pits, Leachate Pit, and Vault Pit cast-in-place concrete and cover blocks.)
ADD: Section 05500	Metal Fabrications (Includes materials forming part of: Vault, Basin, Excess Water Pits, Vault Pit, and Leachate Pit), as noted on Drawings.
ADD/CHANGE to last line: Section 15493	(Parts noted on Dwgs H-2-77608, Sh 1; H-2-77609, Sh 1; H-2-78478, Sh 1; H-2-78479, Sh 1).

C) **CHANGE** subparagraph 1.3.1.4.a 2) as follows:

Section 05500	Metal Fabrications (other than materials or components that are part of Vault concrete structure or where noted for Excess Water Pits, Vault Pit, and Leachate Pit).

D) Appendix A, Page 01400-A-3, Reference Spec/Dwg, Sub-item 2.1.5: **ADD** ", 2.1.5.3" to ACCEPTABLE VALUE column.

3. SECTION 01720

A) **CHANGE** paragraph 1.4.6.11 to read as follows: Weld identification: Deliver map required in Section 03301, subparagraph 3.2.3.4.d, 3.3.3.1, and drawing/sketches required in Section 05500, subparagraph 1.3.2.2.

B) **ADD** new paragraph as follows:

1.4.6.22 Deliver welding and NDE procedures and personnel documents as specified in Section 01400, Article 1.6.

4. SECTION 02752

ADD the following reference to paragraph 1.1.1.1:

Section II	Material Specification

5. SECTION 03301

ADD new paragraphs to Article 1.2 as follows:

1.2.23 Welding Procedures and Personnel: Submit welding procedure specifications, procedure qualification records, and welder performance qualification test results meeting the requirements of Paragraph 1.3.1.

1.2.24 Nondestructive Examination (NDE) Personnel and Procedures: Submit personnel certifications and written NDE performance procedures meeting the requirements of Paragraph 1.3.2.

6. SECTION 05500

A) **ADD** to paragraph 1.1.1.1 as follows:

Section II	Material Specifications

B) **ADD** to paragraph 1.1.1.2 as follows:

A 181-87	Standard Specification for Forgings, Carbon Steel, for General-Purpose Piping.
C 920-87	Standard Specification for Elastomeric Joint Sealants.

C) **ADD** to paragraph 1.1.1.3 as follows:

AWS QC1-86	Standard Qualification and Certification of Welding Inspectors

D) **RENUMBER** paragraph 1.1.1.4 to 1.1.1.5.

E) **ADD** Paragraph 1.1.1.4 as follows:

1.1.1.4 Federal Specifications (FS)

TT-S-00230C, Including AMD 2	Sealing Compound: Elastomeric Type, Single Component (For Calking, Sealing, And Glazing In Buildings And Other Structures)

F) **CHANGE** paragraph 1.2.2 to read as follows: Certified Material Test Reports (CMTR): Submit legible reports, certified by responsible manufacturer, showing chemical analysis and physical properties of material used for waterstops and materials indicated on drawings to be procured from a qualified supplier or as Commercial Grade Items (CGI).

G) **ADD** new paragraph sequentially as follows:

1.2.3 Manufacturers Data: Submit manufacturers description of materials and installation instructions including cleaning, priming, and application for sealants meeting the requirements of paragraph 2.1.15.

1.2.4 Welding Filler Metal: Submit certified material test reports giving results of tests in applicable material specifications in ASME Section II, Part C. If testing is not required by material specification, submit Certificate of Conformance (COC) to applicable materials specification.

1.2.4.1 Minimum levels of testing and lot classifications of welding filler material shall be in accordance with ASME Section II, Part C, SFA 5.01.

a.

Level of Testing	Application
Schedule J	Materials indicated on drawings procured from qualified suppliers or as commercial grade items (CGI).
Schedule F	All other welding.

b.

Lot Classification	Application
C-5 (Covered Electrodes) S-3 (Bare Solid Electrodes and Rods)	Materials indicated on drawings procured from qualified suppliers or as commercial grade items (CGI).
C-1 (Covered Electrodes) S-1 (Bare Solid Electrodes and Rods)	All other welding

1.2.5 Welding Procedures and Personnel: Submit welding procedure specifications, procedure qualification records, and welder preformance qualification test results meetingh the requirements of Paragraph 1.3.1.

1.2.6 Nondestructive Examination (NDE) Personnel and Procedures: Submit personnel certifications and written NDE performance procedures meeting the requirements of Paragraph 1.3.2.

1.3.2 Qualification of Nondestructive Examination (NDE) Personnel

1.3.2.1 Visual weld examinations and appropriate documentation shall be performed by Certified Welding Inspectors (CWI) who have received certification in accordance with AWS QC1. Certified Associate Welding Inspectors (CAWI), certified in accordance with above standard, may perform examinations when under immediate direction of CWI. Welding related examination documentation shall be signed, or stamped by individual performing examination. Where CAWIs are used for examinations, documentation shall be signed, or bear CAWIs stamp in addition to CWIs under whom examinations were performed.

1.3.2.2 Deliver 2 copies of personnel certifications to KEH 5 days before examining. Maintain additional copies as specified in Section 01400, Paragraph 1.6.2.

H) **CHANGE/ADD** the following to paragraph 2.1:

2.1.4 **ADD:** ", Type E or S, Grade B." after ASTM A 53

2.1.8 **DELETE:** "or B, except requirement for bolt head marking is waived"

2.1.11 **ADD:** "or ASTM A 181."

ADD new paragraphs sequentially as follows:

2.1.14 Backer Rod: Closed-cell polyethylene foam rod, approximately 25 percent larger than width of joint in which to be installed.

2.1.15 Sealants

2.1.15.1 One component polysulfide: Nonsag type meeting the requirements of FS TT-S-00230, Type II.

2.1.15.2 Low modulus, one component silicone: Nonsag type meeting the requirements of ASTM C 920, Type S, Grade NS, Class 50 (±50 percent joint movement), use A.

J) **ADD** new paragraphs sequentially as follows:

3.2 Field Quality Control

3.2.1 Visual Examination: Perform 100 percent visual examination of final welding configuration in accordance with AWS D1.1, 8.15.1 for following fabrications and assemblies.

3.2.1.1 Pits, pit cover blocks, cover block sleeves, cover block plugs, pit floor plates, drain seal assemblies, and hose handle assembly.

3.2.2 NDE Documentation: Document visual examination of welds by stamping or signing CWI number/name and date on weld identification drawings or sketches. Documentation shall be traceable to individual vaults and individual pits on vaults. Deliver completed weld documentation to KEH at completion of individual vaults.

7. <u>SECTION 09805</u>

A) **Renumber** paragraph 2.1.5.1.b to 2.1.5.1.c

B) **ADD** new paragraph 2.1.5.1.b as follows:

b. Carboline D3359: Yellow (S625) as specified on Drawings.

8. <u>SECTION 15493</u>

ADD new paragraph as follows:

1.2.5.1 Minimum levels of testing and lot classifications of welding filler material shall be in accordance with ASME Section II, Part C, SFA 5.01.

a. Level of Testing	Application
Schedule J	M-25, M-26a pressure boundary welds
Schedule F	All other welding

b. Lot Classification	Application
C-5 (Covered Electrodes) S-3 (Bare Solid Electrodes and Rods)	M-25, M-26a pressure boundary welds
C-1 (Covered Electrodes) S-1 (Bare Solid Electrodes and Rods)	All other welding

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SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE, CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
B-714-C2 05500 2.1.2	Rolled Steel Shapes and Plates ASTM A 36	1. Minimum yield strength of 36,000 psi	1. Perform tensile tests in accordance with ASTM A 370	1 sample per heat of material
		2. Chemical composition in accordance with ASTM A 36 Table 2	2. Perform a chemical analysis in accordance with ASTM A 751	1 sample per heat of material
		3. Dimension variations in accordance with ASTM A 6 Section 13	3. Visual, scale	1 sample per product heat-plate, shape, or bar
2.1.4	Steel Pipe, ASTM A 53, Type E or S, Grade B	1. Minimum yield strength of 35,000 psi	1. Perform a tensile test in accordance with ASTM A 370	1 sample per heat of material
		2. Chemical composition meeting requirements of ASTM A 53, Table 1 & 2	2. Perform a chemical analysis in accordance with ASTM A 751	1 sample per heat of material
2.1.4	Steel Pipe, ASTM A 106 Grade B	1. Minimum yield strength of 35,000 psi	1. Perform a tensile test in accordance with ASTM A 370	1 sample per heat of material
		2. Chemical composition meeting requirements of ASTM A 106, Table 1 & 2	2. Perform a chemical analysis in accordance with ASTM A 751	1 sample per heat of material

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE, CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
2.1.6	H4L weld stud manufactured by Nelson Stud Welding Company	1. Minimum ultimate tensile strength of 60,000 psi	1. Perform tensile tests in accordance with ASTM A 370	1 stud per heat of material
		2. Weld strength	2. Perform a bending, torquing or tensioning test in accordance with AWS D1.1 Article 7.6.6	10 studs of each size
		3. Dimensions within ±1/16" of the dimensions specified by manufacturer	3. Visual, scale	10% of each size
2.1.7	Steel Bars and Rods ASTM A 108	1. Minimum yield strength of 36,000 psi	1. Perform a tensile test in accordance with ASTM A 370	1 sample per heat of material
		2. Chemical composition in accordance with ASTM A 108, 0.30% Carbon Max	2. Perform a chemical analysis in accordance with ASTM A 751	1 sample per heat of material
		3. Dimensions in accordance with ASTM A 29, Section 9	3. Visual, scale	1 sample per product size
2.1.8	Bolts, ASTM A 307 Grade A	1. a. For bolt greater than 3 diameters in length: Minimum ultimate tensile strength of 60,000 psi. b. For bolt less than 3 diameters in length: Hardness requirements of ASTM A 307, Table 1	1. Perform a tensile and hardness test in accordance with ASTM A 370 Appendix A3	1 Bolt of each size per 100 received
		2. Dimensions in accordance with ANSI B18.2.1 and ANSI B1.1	2. Visual, scale	1 bolt of each size per 100 received

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE, CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
2.1.9	Nuts, ASTM A 563, Grade A, Heavy Hex	1. Hardness requirements of ASTM A 563, Table 3	1. Perform Hardness Tests in accordance with ASTM A 307, Appendix A-3	1 nut of each size per 100 received
		2. Dimensions in accordance with ANSI B18.2.2 and ANSI B1.1	2. Visual, scale	1 nut of each size per 100 received
2.1.11	Steel Pipe Flanges, ASTM A 105	1. Brinell hardness rating ranging between 147 and 187	1. Perform a Brinell Hardness Test in accordance with ASTM E 10	1 sample per heat of material
		2. Chemical composition meeting requirements of ASTM A 105, Table 1 & 2	2. Perform a Chemical Analysis in accordance with ASTM A 751	1 sample per heat of material
2.1.11	Steel Pipe Flanges, ASTM A 181	1. Brinell hardness rating ranging between 147 and 187	1. Perform a Brinell Hardness Test in accordance with ASTM E 10	1 sample per heat of material
		2. Chemical composition meeting requirements of ASTM A 181, Table 1 & 2	2. Perform a Chemical Analysis in accordance with ASTM A 751	1 sample per heat of material
2.1.13	Gasket	1. Manufacturer, Anchor Packing Company, Part #443-A	1. Visual: Manufacturer's catalog number on shipping container or item	100%
		2. ASTM Line Call Out No. ASTM F104 F712 100 A9 B4 E22 K5 M6	2. Visual: ASTM Line Call Out No. traceable to item	100%

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE, CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
2.1.15.2	Low Modulus Silicone Sealant	1. Joint movement of ±50% without a cohesive or adhesive failure	1. Perform a cyclic movement test in accordance with ASTM C 719 for substrate	1 sample size in accordance with ASTM C 719 per batch of material
		2. A minimum peel strength of 7 lb/in	2. Perform a peel test in accordance with ASTM C 794 for substrate	1 sample size in accordance with ASTM C 794 per batch of material

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE, CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
B-714-C2 15493 H-2-77608 Sh 1 H-2-78478 Sh 1	O-Ring	1. Identification: Manufacturer, Parker Seals, Part #2-318.	1. Visual: Manufacturer's catalog number on shipping container or item.	100%
		2. ASTM Line Call Out No. ASTM D 2000 M2 AA 810 A13 EA14 F17.	2. Visual: ASTM Line call out No. traceable to item.	100%
		3. Hardness: 80 ±5 points.	3. Per ASTM D 1414, perform durometer test per ASTM D 1415.	100%
		4. Material: Ethylene Proplyene.	4. Visual: Manufacturer's catalog number or material description on shipping container.	100%
		5. Dimensions: Inside diameter of .0975 in ±.010 Width of .210 in ±.005.	5. Measure inside diameter and width with caliper.	100%

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE, CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
H-2-77608 Sh 1 H-2-77609 Sh 1 H-2-78478 Sh 1 H-2-78479 Sh 1	Gasket	1. Identification: Manufacturer, Anchor Packing Company Part #443-A	1. Visual: Manufacturer's catalog number on shipping container or item.	100%
		2. ASTM Line Call Out No. ASTM F 104 F712 100 A9 B4 E22 K5 M6.	2. Visual: ASTM Line Call Out No. traceable to item.	100%
		3. Dimensions: ID - per drawing OD - Per drawing Thickness - per drawing	3. Measure ID, OD, and thickness with caliper.	100%