START

ENGINEERING CHANGE NOTICE

0023325

Page 1 of 13

1. ECN ~~159439~~

Proj. ECN B-714-098

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.		4. Date 8-23-91 ~~11-15-91~~
Supplemental ■ Direct Revision ☐ Change ECN ☐ Temporary ☐ Supersedure ☐ Discovery ☐ Cancel/Void ☐	A. R. Snowhite, KEH, E6-42, 6-0324		
	5. Project Title/No./Work Order No. See Block 12	6. Bldg./Sys./Fac. No. 218-E-16	7. Impact Level 3 /SC-2
	8. Document Number Affected (include rev. and sheet no.) See Block 12	9. Related ECN No(s). B-714-86	10. Related PO No. N/A

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

SC-2

Block 5: B-714, Gout 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)

****

SECTION 01400. APPENDIX A

Commercial Grade Items Listings for Section 16300, 16400, and Elec Drawings:
Replace pages 01400-A-5 thru 01400-A-12 with pages 3 thru 13 of this ECN.

(Note: Section 16400, Para 2.1.4, 2.1.4.1, 2.1.4.2, 2.1.4.3, & 2.1.4.4 of this ECN replaces Page 5 of ECN B-714-86)

SEP 1992 RECEIVED EDMC

GREGORY P. HIGGINBOTHAM STATE OF WASHINGTON REGISTERED PROFESSIONAL ENGINEER

12-18-91

13a. Justification (mark one)	13b. Justification Details
Criteria Change ☐ Design Improvement ■ Environmental ☐ As-Found ☐ Facilitate Const. ☐ Const. Error/Omission ☐ Design Error/Omission ☐	This ECN is required to more clearly define, for each item listed, the following: (1) The Acceptable Value, Condition or Tolerance, (2) The Method of Verification and (3) The Sample Size. **THESE CHANGES DO NOT AFFECT THE INTEGRITY OF THE FACILITY DESIGN.**

14. Distribution (include name, MSIN, and no. of copies) Lupe Garcia A3-80

KEH DISTRIBUTION			
Const Doc Cntl	E2-50	J. S. Hill [2]	H4-57
		K. S. McCullough	N1-83
		D. B. Powell [4]	R4-03
WHC DISTRIBUTION		T. W. Staehr (PE)	R3-27
Project Files	R1-28	J. E. Vanbeek	R3-27
J. K. Epperley	R1-29	G. H. Weissberg	R3-10
T. K. Cordray	S1-54	DOE	
STA 10	A3-	A. G. Lassila	A5-18
STA 6	T2-03		

RELEASE STAMP

OFFICIAL RELEASE BY WHC
DATE DEC 23 1991
STA 4

A-7900-013 (11-88)

9312760138

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): B-714-098

15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
■ Yes	Additional	☒ $ 27,790	Additional	■ $ 652	Improvement	☐ N/A
☐ No	Savings	☐ $	Savings	☐ $	Delay	☐

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	☐
Conceptual 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	[illegible]	12/17/91	PE	K C Burgard	12/16/91
Cog./Project Engr. Mgr.	[illegible]	12/17/91	QA	B.R. Sugiura	11-19-91
QA	J.K. Teardroy	12/18/91	Safety	[illegible]	11-19-91
Safety			Design	A.R. Snowhite	11/18/91
Security			Other SPECS:	J E Breeden	11/18/91
Proj.Prog./Dept. Mgr.			ENVIR:	S.D. Consort	11/18/91
Def. React. Div.			PLE:	[illegible]	11/18/91
Chem. Proc. Div.			C.Q.A.	[illegible]	12-3-91
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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PROJECT B-714

GENERAL NOTE:

1. Receipt inspection shall, as a minimum, verify the following:

   a) Items are not visibly damaged.

   b) The catalog number on the item received or on the shipping container agrees with the catalog number listed in the Item Description column and/or on the purchase order.

   c) Additional requirements as listed in the Method of Verification Column.

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
16300 2.1.2.1	PVC Conduit Schedule 40	Material: PVC Dimensions: O.D., wall thickness Markings	Visual: Conduit marked "Rigid Nonmetallic Conduit Aboveground and Underground (Schedule 40)" Test: Measure outside diameter and wall thickness. Verify dimensions agree with UL651, Table 2.1 (Schedule 40).	(1) piece per bundle (min.) (1) piece per bundle (min.)
2.2.5 H-2-77638 Sh 1 H-2-78504 Sh 1	Manholes ARCO #6060-7	Catalog No. Material: Concrete Equipment: Pulling eyes and embedded channels Markings Dimensions	Visual: Verify pulling irons in each side, embedded channels in walls and inclusion of ring and cover. Verify cover is embossed as required by the specification. Test: Measure wall thickness and verify 6" ±1/8". Measure inside and verify 6'-0" x 6'-0" ±1/2". Measure vertically and verify each of two sections at 3'-6" ±1/2" ea.	100% 100%
16400 2.1.1.1.b	Terminal Lugs Thomas & Betts Sta-Kon	Catalog No. Configuration Size	Visual: Inspect for: Manufacturer's identification on lug; plastic insulating sleeve; metal ring or spade type.	Minimum of one per smallest box

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PROJECT B-714

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
2.1.2.1	Rigid Steel Conduit	Material Coating Dimensions	Visual: Conduit marked "Rigid Metal Conduit" and galvanized. Physical appearance indicates presence of galvanized coating and that the coating is continuous on all external surfaces. Test: Measure wall thickness and verify dimensions agree with ANSI C80.1-1983, Table 2. (Note: Wall thickness shall not be less than nominal less 12.5 percent.)	10% 100% Minimum (1) Length per each size of conduit
2.1.2.1	PVC Conduit Schedule 40	Material: PVC Dimensions: O.D., wall thickness Markings	Visual: Conduit marked "Rigid Nonmetallic Conduit Aboveground and Underground (Schedule 40)" Test: Measure outside diameter and wall thickness. Verify dimensions agree with UL651, Table 2.1 (Schedule 40).	(1) piece per bundle (min.) (1) piece per bundle (min.)

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PROJECT B-714

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
2.1.2.2	Rigid Steel Conduit, PVC Coated	Material Coating Dimensions	Visual: 1) Verify presence of PVC coating and that the coating is free of blisters, bubbles, and pinholes and is continuous over the entire external length of the conduit, except at the threads. 2) Verify conduit wall thickness conforms to ANSI C80.1, Table 2. See Note below. 3) Verify PVC coating thickness conforms to NEMA RN-1, Section 3.1. See Note below. NOTE: Combined (conduit plus PVC coating) wall thickness may be verified in lieu of individual thicknesses. Combined thickness shall be equal to or greater than: Nominal thickness less 12.5 percent plus 0.035 inches.	100% Minimum (1) length per conduit size Minimum (1) length per conduit size
2.1.2.3	Conduit Fittings (Standard and PVC coated)	Catalog No. Material Coating	Visual (PVC Coated Conduit): Verify presence of PVC coating and that the coating is free of blisters, bubbles, and pinholes, and is continuous over the entire external surface of the fitting. Visual (Std. Cnd. Fittings): Verify physical appearance indicates fittings are aluminum or, are galvanized.	100% 100%
2.1.2.5	Watertight Fittings	Catalog No. Coating	Visual: Verify physical appearance indicates fittings are aluminum or are galvanized.	100%

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PROJECT B-714

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
2.1.4	Sensing Cable Raychem TraceTek, Cat. No. TT-3000-MSC-XX-LP. ("XX" = cable length in feet.)	Catalog No.	Test: Measure cable length received and verify agreement with length specified on purchase order.	100%
2.1.4.1	Connectorized Jumper Cable. Raychem TraceTek, Cat. no. TT-MJC-3-MC	Catalog No.	Visual: See General Note	100%
2.1.4.2	End Termination Raychem TraceTek, Cat. No. TT-MET-MC	Catalog No.	Visual: See General Note	100%
2.1.4.3	Scotchlok Plastic Connector Raychem TraceTek, Cat. No. TT-JSK-SL	Catalog No.	Visual: See General Note	100%
2.1.4.4	Heat Skrinkable Tubing Raychem TraceTek	Catalog No.	Visual: See General Note	100%
2.1.9.2	Conduit Protection Tape 3M Co. Scotchrap No. 50	Catalog No.	Visual: See General Note	100%
2.1.11	Duct Sealing Compound "Sealex" (Procelain Prod, Co.) or, "Kerite" (Kerite Co.)	Catalog No. (or product trade name)	Visual: See General Note	100%

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PROJECT B-714

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
2.2.2.1	Terminal Blocks Marathon or Buchanan	Catalog No. Voltage Rating Current Rating	Visual: Verify voltage rating and current rating by comparing part no. on terminal block or on shipping container with manufacturer's catalog data.	100%
2.2.3	Annunciator Ronan Co. Series X12 w/NEMA Type 4 Enclosure	Catalog No. Configuration Horn Lights Controls Window Engraving Door Gasket	Visual: Inspect for damaged enclosure, windows, horn or pushbuttons. Open door and inspect for damaged door gasket, wiring, circuit boards, electronic components, transformer or other devices. Check for missing window lamps, fuses and proper window engraving per the Drawings.	100%
H-2-77637 Details #3, 4, 5, & 7	Terminal Boxes Hoffman Engineering Co. NEMA Type 4X	Catalog No. Door Gsket Dimensions Corrosion Protection	Visual: Inspect for missing or damaged door gasket, missing or damaged interior panel. Visual: Verify enclosure material exhibits a continuous gray protective coating. Test: Measure box and verify size is as specified on Drawings. (Tolerance = ± 1")	100%
H-2-78503 Details #3 & 7	Terminal Boxes Hoffmann Engineering Co. NEMA Type 4X	Same as above	Same as above	100%
H-2-77638 Sh. 1 H-2-78504 Sh. 1	Conduit Spacer Carlon Co.	Catalog No.	Visual: See General Note	100%

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PROJECT B-714

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
H-2-77638 Sh. 1 (Note 12) H-2-78504 Sh. 1 (Note 12)	Cadweld Connections	Catalog No.	Visual: Verify mold and powder charge are as recommended by the manufacturer for the steel ground cable.	100%
H-2-77638 Sh. 1 (Note 12) H-2-78504 Sh. 1 (Note 12)	Tube Clamps Unistrut Cat. No. P2014	Catalog No. Corrosion Protection	Visual: Verify that the physical appearance of the item indicates the presence of a continuous galvanized coating.	100%
H-2-77638 Sh. 3 H-2-77639 Sh. 1&2 H-2-77640 H-2-78504 Sh. 3 H-2-78505 Sh. 1&2	Tube Steel 2" x 2" x 1/4" ASTM A500	Dimensions	Verify dimensions are as specified. Tolerances: Across flats ±0.020" Wall thickness ±10%	100%
H-2-77638 Sh. 3 Details No. 5 & 14 H-2-78504 Sh. 3 Elevation "J" and "K"	Pull Box Crouse-Hinds Cat. No. WJB181206	Catalog No. Dimensions Cover Gasket Corrosion Protection	Visual: Inspect for missing or damaged cover gasket. Test: Measure box and verify size is as specified on Drawings. (Tolerance = ±1") Visual: Verify physical appearance indicates the presence of a continuous galvanized coating.	100% 100% 100%

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PROJECT B-714

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
H-2-77638 Sh. 3 H-2-77639 Sh. 1&2 H-2-77640 H-2-78504 Sh. 3 H-2-78505 Sh. 1&2	Weld Studs Nelson Stud Welding Company Type CPL 3/8" x 1" (Part No. 101-017-178)	Part No. Dimensions	Test: Measure shank dia and length. Tolerances: Length ±1/16" Dia 0.330" ±0.02"	10%
H-2-77638 Sh. 3 H-2-77639 Sh. 1&2 H-2-77640 H-2-78504 Sh. 3 H-2-78505 Sh. 1&2	Backplates 1/4" carbon steel plate ASTM A 36	Thickness Material	Test: Measure thickness and verify 1/4" ±0.03", -0.01". Test: Verify backplates exhibit magnetic property consistent with steel materials	100% 100%
H-2-77639 Sh. 1&2 H-2-78505 Sh. 1&2	Transformer 3KVA	Catalog No. KVA Voltage Rating Outdoor Type	Visual: Verify KVA and voltage rating agree with that specified.	100%
H-2-77639 Sh. 1&2 H-2-78505 Sh. 1&2	Instrument Pull Box I-PB-102-2 I-PB-103-2 I-PB-104-2 I-PB-105-2 Crouse-Hinds Catalog No. WJB241208	Catalog No. Dimensions Cover Gasket Corrosion Protection	Visual: Inspect for missing or damaged cover gasket. Test: Measure box and verify size is as specified on Drawings. (Tolerance = ±1") Visual: Verify physical appearance indicates the presence of a continuous galvanized coating.	100% 100% 100%

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PROJECT B-714

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
H-2-77639 Sh. 1&2 H-2-78505 Sh. 1&2	Enclosure 16" x 12" x 6" Hoffman Engineering Co. Cat. No. A-16H12ALP, NEMA Type 4X with panel. Catalog No. A16P12	Catalog No. Dimensions Door Gasket Corrosion Protection	Visual: Inspect for missing or damaged door gasket, missing or damaged interior panel. Test: Measure enclosure and verify size is as specified on Drawings. (Tolerance = ±1") Visual: Verify enclosure material exhibits a continuous gray protective coating.	100% 100% 100%
H-2-77638 Sh. 3 H-2-77639 Sh. 1&2 H-2-77640 H-2-78504 Sh. 3 H-2-78505 Sh. 1&2	Heavy Hex Nuts, ASTM A563 Grade A, 3/8" - 16UNC-2B	Threads per inch Hexagonal shape.	Visual: Verify hex nut Test: Verify no. of threads per inch equals 16	10%
H-2-77639 Sh. 1&2 H-2-78505 Sh. 1&2	Horn Edwards, Catalog No. 876-N5	Catalog No. Weatherproof Box	Visual: See General Note.	100%
H-2-77639 Sh. 1&2 H-2-78505 Sh. 1&2	Pilot Light Square D, Cat. No. 9001-KT-1R6	Catalog No. Red Lens	Visual: Verify red lens. See General Note.	100%

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PROJECT B-714

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
H-2-77639 Sh. 1&2 H-2-78505 Sh. 1&2	Solid State Relay B/W Controls, Cat. No. 5200-HF2-N4, inverse operation, w/electrode circuit monitor	Catalog No. Inverse Operating Type (normally energized load relay) Contact Transfer NEMA Type 4 Enclosure	Visual: Inspect for missing or damaged cover gasket. Set-Up: Install resistors as shown on Drawing H-2-77636, Sh. 1. Install a jumper between terminals 14 and 14A, remove jumper between terminals 7 and 14. Test: Connect a 120 V ac power source to terminals 10 and 11. Verify contact transfer of all contacts by use of a volt-ohmmeter. Remove jumper between terminals 14 and 14A and verify contact transfer of all contacts by use of a volt-ohmmeter. Turn off 120 V ac power source and verify contact transfer by use of a volt-ohmmeter.	100% 100% 100%
H-2-77639 Sh. 1&2 H-2-78505 Sh. 1&2	Fuse Block (Leak detector circuit) Gould Shawmut, Cat. No. 30311R	Catalog No.	Visual: See General Note.	100%
H-2-77639 Sh. 1&2 H-2-78505 Sh. 1&2	Fuse (leak detector circuit) Gould Shawmut-Amp-Trap, Class CC Catalog No. AMTR20	Catalog No.	Visual: See General Note.	100%
H-2-77639 Sh. 1&2 H-2-78505 Sh. 1&2	Ground Clamp Connector Teledyne Penn-Union, Type GM, Cat. No. GM-4	Catalog No.	Visual: See General Note.	100%

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PROJECT B-714

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
H-2-77640	Transformer, 750 VA	Catalog No. Voltage Rating Volt-Amp Rating Outdoor Type	Visual: Inspect for voltage rating 240/480-120/240 V ac, VA rating 750. Outdoor type specified on item or in Cat. No. for item.	100%
H-2-77640	Enclosure 10" x 8" x 4" Hoffman Engineering Co, Cat. No. A1008CHNF, NEMA Type 4X, with panel, Cat. No. A10P8	Catalog No. Dimensions Door Gasket Corrosion Protection	Visual: Inspect for missing or damaged door gasket, missing or damaged interior panel. Test: Measure enclosure and verify size is as specified on Drawing. (Tolerance = ± 1") Visual: Verify enclosure material exhibits a continuous gray protective coating.	100% 100% 100%
H-2-77640	Fuse Block (3 Pole) (Annunciator Circuit) Gould Shawmut, Cat. No. 30313R	Catalog No.	Visual: See General Note.	100%
H-2-77640	Fuse (Annunciator Circuit) Gould Shawmut-Amp-Trap, Class CC Cat. No. ATMR7	Catalog No.	Visual: See General Note.	100%
H-2-77641 H-2-78507	Wire Type 1 (1/C THHN or XHHW)	Insulation type THHN or XHHW Solid copper conductor. 600 Volt rating	Visual: Verify marking on insulation and conductor reel indicates THHN or THHN/THWN or XHHW, 600 V ac, #12 AWG. Visual: Solid copper conductor.	100%

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PROJECT B-714

SPEC/DWG REF	ITEM DESCRIPTION	ACCEPTABLE VALUE CONDITION OR TOLERANCE	METHOD OF VERIFICATION	SAMPLE SIZE
H-2-77641 H-2-78507	Wire Type 2 (TC) Rockbestos, Fire Wall III	Stranded Copper Conductors Insulation Type TC	Visual: Verify cable and cable reel is marked Rockbestos Type TC, Fire Wall III, 600 V, on cable jacket. Verify stranded copper conductors.	100%
H-2-77638 Sh. 1 Note 6 H-2-78504 Sh. 1 Note 8	5/8" Ground Cable 7 strand, Class B zinc coating per ASTM A 475	Size Material: Steel Cable Corrosion Protection Number of Strands	Visual: Verify complete coverage of galvanizing. Visual: Verify cable has (7) strands. Test: Measure cable diameter and verify 5/8" diameter ±1/16". Test: Verify cable exhibits magnetic property consistent with carbon steel materials.	100% 100% 100% 100%