START 9513358.0238

Mr. John Grantham
State of Washington
Department of Ecology
Nuclear & Mixed Waste Program
P. O. Box 47600
Olympia, WA 98504-7600

FLUOR DANIEL, INC.

Date: March 17, 1994

Reference: Hanford Waste Vitrification Plant
DOE Contract DE-AC06-86RL10838
Fluor Contract 8457

Transmittal No.: WDOE-901

Dear Mr. Grantham:

TRANSMITTAL

We enclosed 2 copy of the items listed below. These are issued per US-DOE request.

[] Approval [] Reference [] Review and Comment [X] DCN-RFC

Response due to Fluor: N/A
Responds to: A160 PACKAGE

NUMBER	REV	DATE	TITLE
DCN - #0160	1	03/09/94	DCN TITLE: **REPLACES PAGES 15 THROUGH 23 OF DCN-0136** "RELEASED FOR CONSTRUCTION"

Reference: FRP-1421, FUP-838
Distribution:
R. L. Long - DOE-RL, w/0
TWP/AME Corresp Cntrl Cntr MSIN A5-10 (A160 PACKAGE), w/0
P. Felise - WHC-RL (MSIN G6-06), w/1
Environmental Data Management Center (MSIN H6-08), w/1
D. Duncan - US EPA, Region X, w/0
M. D. Talbot, WHC - w/0

MAR 1994
RECEIVED
EPIC

Very truly yours,

Eshraghi for

Poulter
Director

RSP:JBB:nre

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FLUOR DANIEL

US DEPARTMENT OF ENERGY
HANFORD WASTE VITRIFICATION PLANT

DESIGN CHANGE NOTICE

DCN - 0160	REV 1	PAGE 1 OF 17
DCN TITLE: Replaces Pages 15 through 23 of DCN-0136		DATE INITIATED: 01/28/94
		PACKAGE NO. A160

SECTION 1: DESCRIPTION OF CHANGE

Pages 3 through 17 supersede DCN-0136 Pages 15 through 23. Changed Rev. 2A to Rev. 2 to comply with the current issued specification revisions.

REV. 1 OF THIS DCN CLARIFIES HOLD NUMBER USED FOR THIS DCN; INCLUDES ENTIRE DOCUMENT NUMBER FOR SPEC. REFERENCES; PROVIDES SPEC. SECTION LOCATION REFERENCES FOR REVISED TABLES IN DCN; CORRECTS INSTRUMENT BLDG. NO. LOCATIONS; AND DETAILS PARAGRAPH RENUMBERING DUE TO SPEC. ADDITIONS.

FOR LIST OF AFFECTED DOCUMENTS, SEE SECTIONS 6 AND 7.

REV 1 CHANGE

CAUSE OF CHANGE:

- ☐ Field Change Request
- ☐ Supplier Disposition
- ☐ Deficiency Report
- ☐ Design Development
- ☐ Change Request
- ☐ TBD/Hold
- ☒ Other Title III Review

Initiating Document(s)

SECTION 2: EVALUATION

			IF "YES", ADDITIONAL REVIEW REQUIRED BY:	REVIEWER COMMENTS AND SIGNATURE/DATE
WAPA DWG/SPEC?	☒ NO	☐ YES		
QUALITY LEVEL I DWG/SPEC?	☒ NO	☐ YES		
SAFETY CLASS 1 OR 2 DWG/SPEC?	☒ NO	☐ YES		
SYSTEMS ANALYSES AFFECTED?	☒ NO	☐ YES		
MULTI-DISCIPLINE CHANGE?	☒ NO	☐ YES		

DCN Evaluated by: Systems J. Thompson 2/1/94 ADM G. Clore Others

SECTION 3: APPROVED FOR CONSTRUCTION

J. Cotriga 1/31/94
Originator Date

P.J. Bedell by G. Clore 2/2/94
Project/Resident Engineer Date

SECTION 4: CONCURRENCE

2-15-94
Project Management Date

Homer E. Savage 2-15-94
Systems Date

2-21-94
Independent Safety Date

2-23-94
Quality Assurance Date

Frances Stokes 2-17-94
Configuration Management Date

SECTION 5: RELEASED FOR CONSTRUCTION

PE STAMP REQUIRED? ☒ NO ☐ YES

3-9-94
WHC Date

3-9-94
UCAT Date

3/9/94
DOE Date

COMMENTS:

FORM REV. 09/23/93
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FLUOR DANIEL

US DEPARTMENT OF ENERGY
HANFORD WASTE VITRIFICATION PLANT

DESIGN CHANGE NOTICE

DCN - 0160	REV	DISCIPLINE	PKG. NO.	PAGE
	1	Cntrl. Sys.	A160	2

PREPARED BY: M. Weimer Date: 01/28/94

DISCIPLINE ENGINEER: J. Bunning Date: 01/28/94

SECTION 6: CONSTRUCTION DOCUMENTS AFFECTED

DOCUMENT NUMBER	SHT/ PAGE	REV NO	DOCUMENT NAME	INCLD Y/N	DESCRIPTION OF CHANGE
Spec Section B-595-C-A160-17704 Attachment B	5	2	General Instrument Installation and Testing (Installation Index)	Y	Released Hold No. 436, put on per DCN-0136. Instruments associated with PX-500-001A&B put on hold, with Hold No. HWVP-FD-451.
Attachment C	5	2	(Engineering Index)	Y	Released Hold No. 436, put on per DCN-0136. Instruments associated with PX-500-001A&B put on hold, with Hold No. HWVP-FD-451.
Spec Section B-595-C-A160-17801	ii, 5, 10, 12, 13, 15, 18, 19, 23, 32, 33	2	Mechanical Site Utilities, Instrumentation	Y	Released Hold No. 436, put on per DCN-0136. Instruments associated with PX-500-001A&B put on hold, with Hold No. HWVP-FD-451. A160 instrumentation specification clarifications.

REV. 1 CHANGE

REV. 1 CHANGE

SECTION 7: NON-CONSTRUCTION DOCUMENTS AFFECTED

This section references affected items such as P&IDs or calculations/analyses, but they are generally not included in DCN package.

DOCUMENT NUMBER	SHT/ PAGE	REV NO	DOCUMENT NAME	DESCRIPTION OF CHANGE
N/A				

REV. 1 CHANGE → BASE DOC. No. B-595-C-A160-17704

U.S. DEPARTMENT OF ENERGY
HANFORD WASTE VITRIFICATION PLANT
RICHLAND, WASHINGTON
DOE CONTRACT DE-AC06-86RL10838

D=DIRECT
E=ELECTRICAL
P=PROCESS PIPING
C=COMBINATION

INSTALLATION INDEX
SPECIFICATION SECTION 17704, ATTACHMENT B
PAGE 5
05/26/93

REV			P&ID		(NEW) INSTRUMENT TAG NUMBER	PNL \ RACK	INSTL TYPE	LOCATION PLAN DWG	INSTALLATION ASSEMBLIES				ELECTRICAL	TEST PRESS	NOTES
	BDG	RM	NUMBER	SHT					PROCESS	PNEUMATIC	IAS	SUPPORT	INSTL ASSY		
2	21	--	123358	03	PDL-RWX-040	LP-500-008A	E	121204	---	---	---	---	---	---	2
2	21	0	123358	03	PDSH-RWX-040	NA	C	121204	121424/1	---	---	121380/2	X02	165	---
2	21	0	123358	03	PV-RWX-040	NA	C	121201	---	---	---	---	X01	---	---
2	21	--	123358	03	HS-RWX-043-1	LP-500-001A	E	121204	---	---	---	---	---	---	2
2	21	--	123358	03	IT-RWX-043-1	LP-500-001A	E	121204	---	---	---	---	---	---	2
2	21	--	123358	03	KS-RWX-043-1	LP-500-001A	E	121204	---	---	---	---	---	---	2
2	21	--	123358	03	YC-RWX-043-1	LP-500-001A	E	121204	---	---	---	---	---	---	2
2	21	--	123358	03	HS-RWX-043-2	LP-500-001B	E	121204	---	---	---	---	---	---	2
2	21	--	123358	03	IT-RWX-043-2	LP-500-001B	E	121204	---	---	---	---	---	---	2
2	21	--	123358	03	KS-RWX-043-2	LP-500-001B	E	121204	---	---	---	---	---	---	2
2	21	--	123358	03	YC-RWX-043-2	LP-500-001B	E	121204	---	---	---	---	---	---	2
2	21	--	123358	03	II-RWX-043B-1	LP-500-001A	E	121204	---	---	---	---	---	---	2
2	21	--	123358	03	II-RWX-043B-2	LP-500-001B	E	121204	---	---	---	---	---	---	2
2	21	--	123358	03	PI-RWX-044-1	NA	P	121204	121422/3	---	---	---	---	165	---
2	21	--	123358	03	PI-RWX-044-2	NA	P	121204	121422/3	---	---	---	---	165	---
2	21	--	123358	03	YC-RWX-049	LP-500-001B	E	121204	---	---	---	---	---	---	2
2	21	--	123358	03	YV-RWX-049	NA	D	121204	---	---	---	---	---	---	---
2	21	--	123358	03	YY-RWX-049	NA	C	121204	---	---	121423/4	---	X01	---	3
2	21	--	123358	03	ZSH-RWX-049	NA	E	121204	---	---	---	---	X13	---	3
2	21	--	123358	03	ZSL-RWX-049	NA	E	121204	---	---	---	---	W/ZSH	---	3
2	21	--	123358	03	PSL-RWX-051	NA	C	121204	121422/2	---	---	121380/3	X02	165	3
1	21	--	123361	07	LE-DRX-402	NA	C	121204	---	---	---	---	X14	---	---
1	21	--	123361	07	LSH-DRX-402	NA	E	121204	---	---	---	121380/3	W/LE	---	---
1	20	0	123361	07	LSHH-DRX-402	NA	E	121204	---	---	---	W/LSH	W/LE	---	---
1	21	--	123361	07	LSL-DRX-402	NA	E	121204	---	---	---	W/LSH	W/LE	---	---
1	21	--	123361	07	PI-DRX-404-1	NA	P	121204	121422/3	---	---	---	---	110	---

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REV. 1 CHANGE → RELEASED HOLD NO HWVP-FD-436 DCN-0136
ADDED HOLD NO HWVP-FD-451 DCN-0160

9513358.0211

DCN-0160 REV 1 PAGE 3

BASE DOC. No B-595-C-A160-17704

U.S. DEPARTMENT OF ENERGY
HANFORD WASTE VITRIFICATION PLANT
RICHLAND, WASHINGTON
DOE CONTRACT DE-AC06-86RL10838

RELEASED HOLD NO HWVP-FD-436 DCN-0136
ADDED HOLD NO HWVP-FD-451 DCN-0160

REV 1 CHANGE

ENGINEERING INSTRUMENT INDEX
05/26/93

P&ID NUMBER	SHT	SFTY CLS	INSTRUMENT TAG NUMBER	SERVICE DESCRIPTION	DCS I/O	PNL \ RACK	BLDG NO	ROOM NO	SPEC NO	CNST PKG	CWBS	QUAL LEVEL	WAPA	INSTRUMENT TYPE	REV
123358	03	3	HS-RWX-043-1	RAW WATER BOOSTER PUMP A	N	LP-500-001A	21	--	15540	A160	A160	2	N	HAND SWITCH	2
123358	03	3	IT-RWX-043-1	RAW WATER BOOSTER PUMP A MOTOR	1	LP-500-001A	21	--	15540	A160	A160	2	N	CURRENT XMTR	2
123358	03	3	KS-RWX-043-1	RAW WATER BOOSTER PUMP A	N	LP-500-001A	21	--	15540	A160	A160	2	N	TIMING RELAY	2
123358	03	3	YC-RWX-043-1	RAW WATER BOOSTER PUMP A	N	LP-500-001A	21	--	15540	A160	A160	2	N	LOGIC BLOCK	2
123358	03	3	HS-RWX-043-2	RAW WATER BOOSTER PUMP B	N	LP-500-001B	21	--	15540	A160	A160	2	N	HAND SWITCH	2
123358	03	3	IT-RWX-043-2	RAW WATER BOOSTER PUMP B MOTOR	1	LP-500-001B	21	--	15540	A160	A160	2	N	CURRENT XMTR	2
123358	03	3	KS-RWX-043-2	RAW WATER BOOSTER PUMP B	N	LP-500-001B	21	--	15540	A160	A160	2	N	TIMING RELAY	2
123358	03	3	YC-RWX-043-2	RAW WATER BOOSTER PUMP B	N	LP-500-001B	21	--	15540	A160	A160	2	N	LOGIC BLOCK	2
123358	03	3	II-RWX-043B-1	RAW WATER BOOSTER PUMP A MOTOR	N	LP-500-001A	21	--	15540	A160	A160	2	N	AMMETER	2
123358	03	3	II-RWX-043B-2	RAW WATER BOOSTER PUMP B MOTOR	N	LP-500-001B	21	--	15540	A160	A160	2	N	AMMETER	2
123358	03	3	PI-RWX-044-1	RAW WATER BOOSTER PUMP A DISCHARGE	N	NA	21	--	17801	A160	A160	2	N	PRESS GAUGE	2
123358	03	3	PI-RWX-044-2	RAW WATER BOOSTER PUMP B DISCHARGE	N	NA	21	--	17801	A160	A160	2	N	PRESS GAUGE	2
123358	03	3	YC-RWX-049	RAW WATER BOOSTER PUMP DISCHARGE VALVE	N	LP-500-001B	21	--	15540	A160	A160	2	N	LOGIC BLOCK	2
123358	03	3	YV-RWX-049	RAW WATER BOOSTER PUMP DISCHARGE VALVE	N	NA	21	--	17801	A160	A160	2	N	N/F BUTTERFLY VLV	2
123358	03	3	YY-RWX-049	RAW WATER BOOSTER PUMP DISCHARGE VALVE	N	NA	21	--	17801	A160	A160	2	N	SOL PILOT	2
123358	03	3	ZSH-RWX-049	RAW WATER BOOSTER PUMP DISCHARGE VALVE	N	NA	21	--	17801	A160	A160	2	N	VLV LIMIT SWITCH	2
123358	03	3	ZSL-RWX-049	RAW WATER BOOSTER PUMP DISCHARGE VALVE	N	NA	21	--	17801	A160	A160	2	N	VLV LIMIT SWITCH	2
123358	03	3	PSL-RWX-051	RAW WATER BOOSTER PUMP DISCHARGE HEADER	N	NA	21	--	17801	A160	A160	2	N	PRESS SWITCH	2
123361	07	3	LE-DRX-402	EFFLUENT DISCHARGE COLLECTION SUMP	N	NA	21	--	17801	A160	A160	2	N	CAP LEVEL PROBE	1
123361	07	3	LSH-DRX-402	EFFLUENT DISCHARGE COLLECTION SUMP	1	NA	21	--	17801	A160	A160	2	N	CAP LEVEL SWITCH	1
123361	07	3	LSHH-DRX-402	EFFLUENT DISCHARGE COLLECTION SUMP	1	NA	20	0	17801	A160	A160	2	N	CAP LEVEL SWITCH	1
123361	07	3	LSL-DRX-402	EFFLUENT DISCHARGE COLLECTION SUMP	1	NA	21	--	17801	A160	A160	2	N	CAP LEVEL SWITCH	1
123361	07	3	PI-DRX-404-1	EFFLUENT DISCHARGE COLLECTION SUMP	N	NA	21	--	17801	A160	A160	2	N	PRESS GAUGE	1
123361	07	3	PI-DRX-404-2	EFFLUENT DISCHARGE COLLECTION SUMP	N	NA	21	--	17801	A160	A160	2	N	PRESS GAUGE	1
123361	07	3	LE-DRX-501	EFFLUENT DISCHARGE COLLECTION SUMP	N	NA	20	0	17801	A160	A160	2	N	CAP LEVEL PROB	1
123361	07	3	LSH-DRX-501	EFFLUENT DISCHARGE COLLECTION SUMP	1	NA	20	0	17801	A160	A160	2	N	CAP LEVEL SWITCH	1
123361	07	3	LSL-DRX-501	EFFLUENT DISCHARGE COLLECTION SUMP	1	NA	20	--	17801	A160	A160	2	N	CAP LEVEL SWITCH	1
dBASE IV\A160\E_A160.FRM															
123357	01	3	FQI-SWX-002	SANITARY WATER SUPPLY	N	NA	21		17801	A160	A160	2	N	FLOW TOTALIZER	1
123359	01	3	FQI-SWX-013	SANITARY WATER SUPPLY	N	NA	23	--	17801	A160	A160	2	N	FLOW TOTALIZER	1

REV 1 CHANGE

DCN-0160 REV 1 PAGE 4

9513158.0243

Make the following additions/changes to Specification B-595-C-A160-17801, Table of Contents and renumber the balance of the Table accordingly.

2.29 MATERIALS AND EQUIPMENT - FLOW TOTALIZERS 33
2.30 OPERATING AND DESIGN CONDITIONS - FLOW TOTALIZERS 33
2.32 ~~INSPECTION AND SHOP TESTING~~FACTORY ACCEPTANCE TEST 33

FLUOR DANIEL	U.S. DEPARTMENT OF ENERGY HANFORD WASTE VITRIFICATION PLANT	DESIGN CHANGE NOTICE
DESCRIPTION OF CHANGE Specification Clarification		BASE DOC. NO. B-595-C-A160-17801 SHT/PG. ii REV. 2 DISCIPLINE: Control Sys.
PREPARED BY: M. Weimer	DATE: 01/28/94	REV 1 / PAGE 5
DISCIPLINE ENGINEER: J. Bunning	DATE: 01/28/94	DCN - 0160

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1.5.8 A comprehensive inspection/test procedure in accordance with Paragraph ~~2.32.3.10~~2.32.1.

1.5.9 Inspection/Test Report in accordance with Paragraph ~~2.32.3.12~~2.32.3.

RELEASED HOLD NO. HWVP-FD-436 DCN-0136

ADDED HOLD NO. HWVP-FD-451 DCN-0160

REV 1 CHANGE

TAG NUMBER	RANGE	OPERATING PRESSURE	CONNECTION TYPE - LOCATION
PI-RWX-044-1	0 - 200 psig	130 psig	1/2 inch Male NPT - bottom
PI-RWX-044-2	0 - 200 psig	130 psig	1/2 inch Male NPT - bottom
PI-RWX-008	0 - 200 psig	130 psig	1/2 inch Male NPT - bottom
PI-RWX-039	0 - 160 psig	70 psig	1/2 inch Male NPT - bottom
PI-FWX-384	0 - 160 psig	105 psig	1/2 inch Male NPT - bottom
PI-FWX-364	0 - 60 psig	25 psig	1/2 inch Male NPT - bottom
PI-FWX-015-1	0 - 200 psig	130 psig	1/2 inch Male NPT - bottom
PI-LPW-005-2	0 - 160 psig	85 psig	1/2 inch Male NPT - bottom
PI-FWX-020	0 - 200 psig	130 psig	1/2 inch Male NPT - bottom
PI-FWX-015-2	0 - 200 psig	130 psig	1/2 inch Male NPT - bottom
PI-LPW-005-1	0 - 160 psig	85 psig	1/2 inch Male NPT - bottom
PI-DRX-404-1	0 - 60 psig	25 psig	1/2 inch Male NPT - bottom
PI-DRX-404-2	0 - 60 psig	25 psig	1/2 inch Male NPT - bottom
PI-DRX-603	0 - 60 psig	25 psig	1/2 inch Male NPT - bottom
PI-DRX-503	0 - 60 psig	25 psig	1/2 inch Male NPT - bottom

2.5.1.2 Pressure gauges shall be tested and calibrated at manufacturer's shop to the ranges given. The pressure gauges shown in the table in Paragraph 2.5.1.1 shall be Ashcroft Model Number 1279S or equal.

2.5.1.3 Threaded connections shall be in accordance with ANSI/ ASME B1.20.1.

2.5.1.4 When two or more components of the same specifications are required, the components shall be identical (same manufacturer and catalog number).

2.6 **OPERATING AND DESIGN CONDITIONS - PRESSURE GAUGES**

2.6.1 Pressure gauges case sizes shall be:

Insert to 2.7.1.4

REV 1 CHANGE

PROCESS CONDITIONS	TAG NUMBER	
	FE-SWX-711	FO-LPW-022
Fluid	Water	Water
Flow Units	GPM	GPM
Normal Flow	200	15
Max. Meter Flow	300	20
Flow Temperature, Deg. F	60	60
Flowing Pressure, psia	90	122
Pipe Diameter	4.026	3.068

2.7.1.5 The following information shall be stamped on the plate handle (visible after installation):

Inlet side of plate -

TAG NUMBER
INLET
ORIF. I.D. _____ IN.
FLG. SIZE _____ IN.
PRESS. RATING _____ PSIG

Outlet side of plate -

DIFF. _____ IN.
CAP. _____ GPM
PIPE I.D. _____ IN.

2.8.1 Orifice plates and restriction orifices shall be sharp edged concentric type. The inlet edge of the orifice bore shall be sharp and square and shall not reflect light when viewed without magnification.

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Insert to 2.9.1.1

REV 1 CHANGE

TAG NUMBER	DESCRIPTION	SET POINT	FLUID
LE-FWX-006	Probe (4 in., 150 lbs., R.F. Flange Conn.)	-	Water
LSL-FWX-006A	Control Unit (Relay Contact)	247'-6"	-
LSL-FWX-006B	Control Unit (Relay Contact)	247'-6"	-
LSH-FWX-006	Control Unit (Relay Contact)	31'	-
LE-DRX-402	Probe (4 in., 150 lbs., R.F. Flange Conn.)	-	Water
LSL-DRX-402	Control Unit (Relay Contact)	0'-11"	-
LSH-DRX-402	Control Unit (Relay Contact)	4'-1"	-
LSHH-DRX-402	Control Unit (Relay Contact	4'-6"	-
LE-DRX-501	Probe (4 in., 150 lbs., R.F. Flange Conn.)	-	Water
LSH-DRX-501	Control Unit (Relay Contact)	1'-8"	-
LSL-DRX-501	Control Unit (Relay Contact)	0'-4"	-
LE-DRX-601	Probe (4 in., 150 lbs., R.F. Flange Conn.)	-	Water
LSH-DRX-601	Control Unit (Relay Contact)	1'-8"	-
LSL-DRX-601	Control Unit (Relay Contact)	0'-4"	-

PROBE	PROBE LENGTH	PROBE CABLE LENGTH
LE-FWX-006	10 feet long	100 feet long
LE-DRX-402	7 feet long	25 feet long
LE-DRX-501	4 feet ~~104~~ in	25 feet long
LE-DRX-601	4 feet 10 in	25 feet long

FLUOR DANIEL	U.S. DEPARTMENT OF ENERGY HANFORD WASTE VITRIFICATION PLANT	DESIGN CHANGE NOTICE
DESCRIPTION OF CHANGE Specification Clarification		BASE DOC. NO. B-595-C-A160-17801 SHT/PG. 13 REV. 2 DISCIPLINE: Control Sys.
PREPARED BY: M. Weimer	DATE: 01/28/94	REV 1 / PAGE 9
DISCIPLINE ENGINEER: J. Bunning	DATE: 01/28/94	DCN – 0160

FORM REV. 09/23/93
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Insert to 2.13.1.3

PROCESS CONDITIONS		TAG NUMBER	
		YV-RWX-049	PV-RWX-005
Temp °F	Normal	60	60
	Maximum	85	85
	Minimum	40	40
Press (psig) Max. in		95	130
ΔP Max. (shut off)		95	130
Fluid Type		Water	Water
Phase		Liquid	Liquid
Flow Rate (gpm)		1500	1500

FLUOR DANIEL	U.S. DEPARTMENT OF ENERGY HANFORD WASTE VITRIFICATION PLANT	DESIGN CHANGE NOTICE		
DESCRIPTION OF CHANGE Specification Clarification		BASE DOC. NO. B-595-C-A160-17801 SHT/PG. 15 REV. 2		
		DISCIPLINE: Control Sys.		
PREPARED BY: M. Weimer	DATE: 01/28/94		REV	PAGE
DISCIPLINE ENGINEER: J. Bunning	DATE: 01/28/94	DCN - 0160	1	10

DCN-0160 REV 1 PAGE 11

RELEASED HOLD NO. HWVP-FD-436 DCN-0136

ADDED HOLD NO. HWVP-FD-451 DCN-0160

REV 1 CHANGE

TAG NUMBER	DESCRIPTION	VALVE HANDWHEEL	APPLICATION	BODY SIZE
YV-RWX- 049	On-Off Control Valve	No	Water	10 in., 150 lbs. F.F. Flange
YY-RWX- 049	Solenoid Valve (Pilot Valve)	-	IAS	-
ZSL-RWX- 049	Limit Switch (Low) - DPDT	-	-	-
ZSH-RWX- 049	Limit Switch (High) - DPDT	-	-	-
PV-RWX- 005	On-Off Control Valve	Yes	Water	10 in., 150 lbs. F.F. Flange
PY-RWX- 005	Solenoid Valve (Pilot Valve)	-	IAS	-
ZSL-RWX- 005	Limit Switch (Low)- DPDT	-	-	-
ZSH-RWX- 005	Limit Switch (High) - DPDT	-	-	-
YV-SWX-714	On-Off Control Valve	No	Water	4 in., 150 lbs. F.F. Flange
YY-SWX-714	Solenoid Valve (Pilot Valve)	-	IAS	

2.13.1.2 The unregulated instrument air supply pressure to the control valve is a minimum of 60 psig and a maximum of 150 psig, with a dewpoint of -20°F as a maximum. The instrument air is supplied by the Buyer.

2.13.1.3 The Seller shall size all valves and valve actuators for the service conditions given to verify suitable valve performance over the range of flows and pressures. The control valves shall be Posi-Seal/Fisher, Model A31 or equal. This information is to be submitted to the Buyer.

2.13.1.4 The Seller shall calculate anticipated noise level for all control valves at normal and maximum flow. This information is to be submitted to the Buyer. Noise greater than 90 dB, measured three feet from the piping and three feet downstream of the valve, is not permissible.

2.14.4.2.6 All filter-regulator airsets shall be sized to stroke the associated valve in a maximum of five seconds with 80 psig inlet pressure to regulator.

2.14.4.3 Solenoid Valves

2.14.4.3.1 Solenoid valves shall be mounted and piped to the control valve.

2.14.4.3.2 The solenoid valves shall be UL listed or FM approved 3-way switching valves, direct acting, and shall have an electrical rating of 120 Vac, 60 Hz. Solenoid valves shall be ported to provide, in the deenergized state, the valve failure action as shown below:

REV 1 CHANGE

RELEASED
HOLD NO.
HWVP-FD-436
DCN-0136
ADDED HOLD NO.
HWVP-FD-451

VALVE TAG NUMBER	SOLENOID TAG NUMBER	VALVE FAIL POSITION
YV-RWX-049	YY-RWX-049	Fail Open
PV-RWX-005	PY-RWX-005	Fail Closed
YV-SWX-714	YY-SWX-714	Fail Closed

REV 1 CHANGE

2.14.4.3.3 Solenoid coils shall be molded type Class H insulation (as defined in UL 429) and designed for continuous operation at 110°F ambient air temperatures.

2.14.4.3.4 Solenoid coil enclosures shall be NEMA 4 (steel or aluminum construction) per NEMA 250.

2.14.4.3.5 Instrument port connections shall be 1/4 inch NPT.

2.14.4.3.6 All solenoids shall be piped in accordance with Paragraph 2.14.4.1.1 above.

2.14.4.3.7 Electrical conduit connection shall be 1/2 inch NPT.

2.14.4.3.8 All threaded connections shall be tapered and in accordance with ANSI/ASME B1.20.1.

2.14.4.3.9 Solenoid valves in on/off service shall be rated for an instrument air supply pressure of 150 psig maximum.

2.14.4.4 Limit Switches

2.14.4.4.1 Limit switches shall be mounted to the control valves and tagged as shown below:

DCN-0160 REV 1 PAGE 13

REV 1 CHANGE

RELEASED HOLD NO. HWVP-FD-436 DCN-0136

ADDED HOLD NO. HWVP-FD-451 DCN-0160

VALVE TAG NUMBER	LIMIT SWITCH TAG NUMBER
YV-RWX-049	ZSL-RWX-049
YV-RWX-049	ZSH-RWX-049
PV-RWX-005	ZSL-RWX-005
PV-RWX-005	ZSH-RWX-005

2.14.4.4.2 The limit switches shall be a separate double pole, double throw, snap acting switch for fully open and for fully closed positions. Seller shall ensure that switch rating is compatible with the associated load.

2.14.4.4.3 Limit switch enclosures shall be NEMA 4 (steel or aluminum construction) per NEMA 250. Valve limit switches field wiring connections shall be 1/2 inch conduit connection. Wiring shall terminate on screw type terminals.

2.14.4.4.4 All threaded connections shall be tapered and in accordance with ANSI/ASME B1.20.1.

2.14.4.4.5 ZSH and ZSL limit switches shall be marked such that the contact which is closed in valve position mid travel is marked "NC" and the common connection is marked "C."

2.14.4.5 Lubricators

2.14.4.5.1 Lubricators and isolating valves shall be furnished with all valves requiring stem lubrication.

2.14.4.5.2 One year's supply of lubricant shall be furnished with each valve requiring lubrication.

2.15 MATERIALS AND EQUIPMENT - PRESSURE RELIEF VALVES

2.15.1 General Requirements

2.15.1.1 The following pressure relief valves shall be assembled, furnished, and installed:

TAG NUMBER	FLUID	TYPE	SET PRESSURE	SIZING BASIS	BODY SIZE
PSV-FWX-370	Water	Pressure Relief	100 psig	Thermal Expansion	3/4 in. MNPT x 1 in. FNPT
PSV-FWX-014-1	Water	Pressure Relief	150 psig	Blocked Discharge	3/4 in. MNPT x 1 in. FNPT
PSV-FWX-014-2	Water	Pressure Relief	150 psig	Blocked Discharge	3/4 in. MNPT x 1 in. FNPT

REV 1 CHANGE

RELEASED HOLD NO. HWVP-FD-436 DCN-0136 ADDED HOLD NO. HWVP-FD-451 DCN-0160

TAG NUMBER	FLUID	RANGE	TRIP POINT	SWITCH
PSL-RWX-051	Water	20 - 200 psig	90 psig	2 SPDT
PSL-RWX-007	Water	20 - 200 psig	95 psig	2 SPDT
PSL-FWX-388	Water	20 - 200 psig	95 psig	2 SPDT
PSL-FWX-018	Water	20 - 200 psig	85 psig	2 SPDT
PSL-FWX-019	Water	20 - 200 psig	85 psig	2 SPDT
PSH-FWX-387	Water	20 - 200 psig	110 psig	2 SPDT

2.19.1.2 When two or more components of the same specifications are required, the components shall be identical (same manufacturer and catalog number).

2.19.1.3 The pressure switches shall be United Electric 115-Series or equal.

2.19.1.4 Switches shall be set to open on increasing signal for high, open on decreasing signal for low prior to installation. Provide switches with fixed deadband less than 3% of switch range.

2.20 **OPERATING AND DESIGN CONDITIONS - PRESSURE SWITCHES**

2.20.1 Switch housings shall be designed for NEMA 4 in accordance with NEMA 250.

2.20.2 Process connection shall be 1/2 FNPT and electrical conduit connection shall be 3/4 inch FNPT hub.

2.20.3 Setpoint shall be adjustable by means of an internal screw.

2.20.3.1 All switches shall be set to the actuation point prior to installation.

2.20.3.2 All switches shall have field setpoint adjustment capability over the full range of the switch.

2.20.4 Switch shall be snap acting type. Seller shall ensure that switch rating is compatible with the associated load.

2.20.5 Setpoint repeatability shall be within ±1 percent of full scale throughout entire setpoint range.

2.20.6 Setpoint differential (dead band) shall be fixed and shall not be more than 3 percent of the switch setting.

2.20.7 Proof pressure shall be at least 150 percent of the switch range.

Make the following addition to Specification B-595-C-A160-17801, Part 2 PRODUCTS on Page 33 immediately following Paragraph 2.28.11 and renumber Paragraphs 2.29 through 2.34 to Paragraph 2.30 through 2.35, respectively.

2.29 MATERIALS AND EQUIPMENT - FLOW TOTALIZERS

2.29.1 General Requirements

2.29.1.1 Provide raised face flanges where specified in accordance with ANSI B16.5.

2.29.1.2 Provide threaded connections where specified in accordance with ANSI B1.20.1.

2.29.1.3 Instrument housings shall be NEMA 4X per NEMA 250.

2.29.1.4 Test and calibrate the instruments at manufacturer's shop prior to shipment to the ranges and performance specified below.

2.29.1.5 When two or more components of the same specifications are required, the components shall be identical (same manufacturer and catalog number), unless specifically approved by the Buyer.

2.29.1.6 Use Brooks Instruments, Inc. Model 3352 or equal.

FLUOR DANIEL	U.S. DEPARTMENT OF ENERGY HANFORD WASTE VITRIFICATION PLANT	DESIGN CHANGE NOTICE
DESCRIPTION OF CHANGE Add Flow Totalizer		BASE DOC. NO. B-595-C-A160-17801 SHT/PG. 32 REV. 2
		DISCIPLINE: Control Sys.
PREPARED BY: M. Weimer	DATE: 01/28/94	DCN - 0160 REV 1 PAGE 15
DISCIPLINE ENGINEER: J. Bunning	DATE: 01/28/94	

Add to Specification B-595-C-A160-17801, Part 2 PRODUCTS (continued)

PROCESS CONDITIONS		INSTRUMENT TAG NUMBER	
		FQI-SWX-002	FQI-SWX-013
FLUID		Water	Water
TEMPERATURE (DEGREES F)	NORMAL	55	55
	MINIMUM	40	40
	MAXIMUM	70	70
PRESSURE (PSIG)	NORMAL	70	80
	MINIMUM	60	70
	MAXIMUM	100	110
FLOW RATE (GPM)	NORMAL	700	700
	MINIMUM	100	100
	MAXIMUM	1500	1500
CONNECTION	TYPE	150 lb Raised Face Flng	150 lb Raised Face Flng
	SIZE	10 inches	10 inches
MATERIALS OF CONSTRUCTION	BODY	Cast Iron	Cast Iron
	FASTENERS	Stainless Steel	Stainless Steel

2.30 OPERATING AND DESIGN CONDITIONS - FLOW TOTALIZERS

2.30.1 The flow totalizer counter shall count directly proportional to the flow rate. Indicators shall be in direct reading units scaled for the totalization function only. Variations in fluid pressure, density or viscosity at the flow totalizer shall not affect the measurement accuracy.

2.30.2 Provide instruments with accuracy better than ± 1.5 percent of flowrate.

2.30.3 The pressure loss for liquid service flow totalizers shall not exceed 5 psi at maximum flow rate.

2.32 ~~INSPECTION AND SHOP TESTING~~FACTORY ACCEPTANCE TESTS

2.32.1 ~~Instruments shall be inspected in accordance with the requirements of Paragraphs 2.1 through 2.28.~~ The Seller shall prepare a Factory Acceptance Test (FAT) procedure and submit it to the Buyer for approval. The following shall be included:

Inspections/tests to demonstrate that the design, fabrication, and assembly of the materials and equipment meet the requirements of the design drawings and specifications.

2.32.2 ~~Instruments shall be tested and calibrated for the range and to the performance requirements of Paragraphs 2.1 through 2.28.~~The instrument installations shall be inspected and tested according to the Buyer approved FAT procedure.

2.32.3 A report confirming that the FAT procedure has been completed shall be submitted. The report shall include the following:

A. Item tested

B. Date of test

C. Test equipment and calibrations

D. Tester or data recorder

E. Type of observation

F. Results and acceptability

G. Action taken in connection with any deviations noted

H. Person evaluating test results