S

ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 661400

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. USQ Required?	5. Date
Supplemental [] Direct Revision [x] Change ECN [] Temporary [] Standby [] Supersedure [] Cancel/Void []	T. Nuxall, CVDF, R3-86, 372-3739	[x] Yes [] No	6/19/00
	6. Project Title/No./Work Order No.	7. Bldg./Sys./Fac. No.	8. Approval Designator
	SNF/W-441, Spent Nuclear Fuel Cold Vacuum Drying	CVDF 142-K	S^NQ
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) SNF-3921, Rev. 3, SNF-3927, Rev. 2 SNF-3928, Rev. 1, SNF-3932, Rev. 2, SNF-4627, Rev. 1, SNF-3926, Rev. 2	10. Related ECN No(s). N/A	11. Related PO No. N/A

12a. Modification Work	12b. Work Package No.	12c. Modification Work Complete	12d. Restored to Original Condition (Temp. or Standby ECN only)
[] Yes (fill out Blk. 12b) [X] No (NA Blks. 12b, 12c, 12d)	N/A	N/A Design Authority/Cog. Engineer Signature & Date	N/A Design Authority/Cog. Engineer Signature & Date

13a. Description of Change

13b. Design Baseline Document? [] Yes [x] No

SC

SCHe

SNF-3921, Rev. 3, SNF-3927, Rev. 2, SNF-3928, Rev. 1, SNF-3932, Rev. 2, SNF-4627, Rev. 1;
Revised to match previous modifications to SNF-5304.

SNF-3926;
This document has been cancelled it was previously merged with SNF-3929.

USQ Approval: CVD-00-1135 6/20/00

14a. Justification (mark one)

Criteria Change []	Design Improvement [x]	Environmental []	Facility Deactivation []
As-Found []	Facilitate Const []	Const. Error/Omission []	Design Error/Omission []

14b. Justification Details

Revised to match previous modifications to SNF-5304.

The design verification method for SS/SC components is by independent review in accordance with EN-6-027-01. Documentation of this review is accomplished by the independent review approval signature provided on page 2 of this ECN.

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

See Distribution

RELEASE STAMP

DATE: JUN 21 2000 STA: 4 HANFORD RELEASE ID: 2

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1): 661400

16. Design Verification Required	17. Cost Impact				18. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[X] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[] No	Savings	[] $	Savings	[] $	Delay	[]

19. 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 13. Enter the affected document number in Block 20.

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	[]	Tickler File	[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

20. 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
NA		

21. Approvals

	Signature	Date		Signature	Date
Design Authority	C. Miska	6-19-00	Design Agent		
Cog. Eng.	C. VanKatwijk	6-19-00	PE		
Cog. Mgr.	T. Choho	6-20-00	QA		
QA	~~H. Chafin~~ R. RAMSGATE	6/20/00	Safety		
Safety	J. Brehm	6/20/00	Design		
Independent Reviewer	B. PARKER	6/20/00	Environ.		
Other: *	C. Haller		Other		

* Approval authorized parallel preparation of USQ screen with implrementation of ECN per ~~NSDI-02~~. NS-4-001 6/20/00

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

SNF-3932
Revision 3

Whitey/Swagelok SCHe Ball Valves - Provide Isolation Between SCHe Purge Lines C and D and the Process Vent

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200
Fluor Hanford
P.O. Box 1000
Richland, Washington

SNF-3932
Revision 3

ECN 661400

Whitey/Swagelok SCHe Ball Valves - Provide Isolation Between SCHe Purge Lines C and D and the Process Vent

Project No: W-441 Document Type: RPT Division: SNF

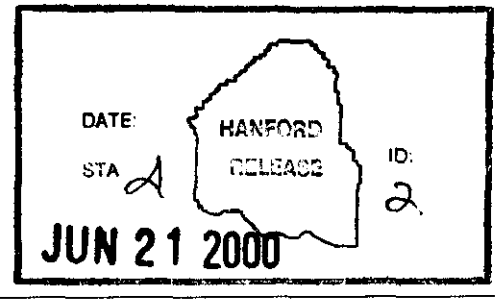
C Van Katwijk
FH

Date Published
June 2000

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

Fluor Hanford
P.O. Box 1000
Richland, Washington



Release Approval Date 6/21/00 Release Stamp

Approved for public release; further dissemination unlimited

Total Pages: 13

SNF-3932, rw3

RECORD OF REVISION

(1) Document Number: SNF-3932

(2) Title: WHITEY/SWAGELOK SCHe BALL VALVES - PROVIDE ISOLATION BETWEEN SCHe PURGE LINES C AND D AND THE PROCESS VENT

Change Control Record

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release	
		(5) Cog. Engr.	(6) Cog. Mgr. Date
0	(7) EDT 626281, INITIALLY RELEASED	C. Miska	T. Choho
1	ECN 653776 REVISION TO MEET SEL REV. 6	C. Miska	T. Choho
2	ECN 654034, CLARIFICATION OF VALVE MANUFACTURER	C. Miska	T. Choho
3 RS	ECN 661400, REVISION TO MATCH PREVIOUS ECNS TO SPEC	6/19/00	6-20-00

Commercial Grade Item Upgrade Dedication Form	SNF-3932, Rev. 3
ECN No. **NA** CGI No. **CGI-SNF-D-30-P5-036** Title: **WHITEY/SWAGELOK SCHe BALL VALVES – PROVIDE ISOLATION BETWEEN SCHe PURGE LINES C AND D AND THE PROCESS VENT**	Page 1 of 10

Section 1 Part Information		
Item No.: **NA**	Manufacturer:	Supplier:
Mfg. Part/Model No.:	Supplier's P/N:	
Part Description:		
End Use Description:		

Section 2a Component Information			
Equipment No.: **PV-V-*079, -*080**	Specification No.: **SNF-5304, Rev. 0 (W-441-P5, Rev. 2)**	Manufacturer: **Whitey Co./Swagelok**	Past P.O. No.: **NA**
Procurement and/or Model No.: **SS-43VC04-5452-TR w/ NY-5K-43LL**	Equipment Supplier (if different from manufacturer): **TBD**		Equip. Supplier's Part No.: **NA**
Component Description: **These valves are ¼" ball valves fabricated of 316 stainless steel. Packing is TFE (standard). *They provide an isolation function between SCHe Purge Line C, (PV-V-*079), and* Purge Line D, (PV-V-*080), and the Process Vent.**			

Section 2b Commercial Availability of the Item

1. Is the Item available from a catalogue of a qualified NQA1 supplier? (coordinate with project CGI interface Engineer or BTR)

   [ ] YES (go to #2 below)

   [X] NO (go to procedure step 6.3.2, proceed to dedicate Item.)

   If not available from a qualified NQA1 supplier, is it available from an ISO 9000 supplier? (coordinate with project CGI interface Engineer or BTR)

   [ ] YES (go to #2 below, then go to procedure step 6.3.2, proceed to dedicate Item)

   [X] NO (go to procedure step 6.3.2, proceed to dedicate Item.)

2. List of Candidate qualified suppliers or ISO 9000 suppliers

   company name & type contact name phone

   NA

3. Recommended Procurement Strategy(coordinate with project CGI interface Engineer or BTR): **NA**

Section 2c CGI Determination

1. Question #1: Is the Item subject to design or specification requirements that are unique to nuclear facilities or activities?

   [ ] YES (the Item is not commercial grade)

   [X] NO (continue)

2. Question #2: Is the Item used in applications other than nuclear facilities or activities?

[ ] NO (the item is not commercial grade)

[X] YES (continue)

3. Question #3: Is the Item ordered from manufacturer/supplier on the basis or specifications set forth in the Published product information (e.g., manufacturer's catalog)?

[ ] NO (the Item is not commercial grade)

[X] YES (continue)

[X] **All three criteria have been satisfied. The Item meets the definition of commercial grade.**

Section 2d Reason for Dedication

The above described Item is being Dedicated for use in the application cited for the following reason(s):

[ ] Item is being purchased from a non ESL manufacturer supplier as commercial grade to be used in a Safety Class application.

[X] Item is being purchased from a non ESL manufacturer supplier as commercial grade to be used in a Safety Significant application.

[ ] Item was purchased from a non ESL manufacturer supplier as commercial grade to be used in a Safety Class application.

[ ] Item was purchased from a non ESL manufacturer supplier as commercial grade to be used in a Safety Significant application.

[ ] Other ('like-for-like', similar, substitution, replacement evaluation)

Section 3 Failure Effects Evaluation

A. Part/Component Safety Function:

1. **Prevent H_2 Explosion, by not restricting flow.**

2. **Provide Seismic 3/1 protection for adjacent SC and SS SSCs.**

B. Part/Component Functional Mode:

Safety Function #1:

[ ] Active – Mechanical or Electrical change of state is required to occur for the component to perform its safety function

[X] Passive – Change of state is not required for the component to perform its safety function

Safety Function #2:

[ ] Active – Mechanical or Electrical change of state is required to occur for the component to perform its safety function.

[X] Passive – Change of state is not required for the component to perform its safety function

Safety Function #3:

[ ] Active – Mechanical or Electrical change of state is required to occur for the component to perform its safety function.

[ ] Passive – Change of state is not required for the component to perform its safety function

C. Host Component Safety Function (if applicable): **NA**

1.

D. Failure Mode(s) and the effects on component or system safety function (see Worksheet 1):

1. **Valve Body Break. Could cause release of helium into the local environment instead of going to the process vent.**

Section 4 Environmental & Natural Phenomena Hazard Design

Environmental Qualification Required: Yes [ ] No [X] **Environmental Condition A**	If yes: Environmental Qualification Requirements *Limiting Environmental Conditions:* Required Safety Functions: *Qualification Period:*
Natural Phenomena Hazard (NPH) Design Required: Yes [X] No [ ] **HNF-PRO-97, Rev. O** **W-441-P5, Rev. 2**	If yes: NPH Design Requirements *Performance Category:* **PC-2** NPH Design Req'ts.: **Seismic Condition 3/1.** *Required Safety Functions:* **Prevent H_2 explosion, by not restricting flow. Provide Seismic 3/1 protection for adjacent SS and SC SSCs.**

Section 5 Component Functional Classification

[ ] *Safety Class (SC)* [ ] *General Service* [X] *Safety Significant (SS)*

If part/component classification is different from host component/system, document basis. **NA**

Section 6 (Reserved)

Section 7 (Reserved)

Section 8 References (for Functional Classification)

National Codes/Standards:	Safety Analysis Report (SAR):	Drawings: **H-1-82165, Rev. 2**
ASME B31.3	**HNF-3553, Rev. 0a, Annex B**	**HNF-SD-SNF-SEL-002, Rev. 6A**

Vendor Manual/Manufacturer/Supplier Information: **Whitey Co. Whitey "40" Series Ball Valves, W-1288, July, 1992.**

Other: **NA**

Section 9 Critical Characteristics

Critical Characteristics Verification Document: **Vendor's Manual; HNF-SD-SNF-SEL-002, Rev. 6A**	Acceptance Criteria/Tolerances	Acceptance Method	ID	Function
1. Item Identification Critical Characteristics (necessary for reasonable assurance that the Item delivered is the Item specified)				
Nameplate - Manufacturer	**Whitey Co. / Swgelok (Note 5)**	**1, IN**	**X**	
Valve-Component Number- **Procurement and/or Model** ***Number***	**SS-43VCO-5452-TR w/ NY-5K-43LL, (Per Procurement Package W-441-P5, Rev. 2, *Section H, Design Data Sheet*)**	**1, IN**	**X**	
"A" Dimension, Length	**Nominal 2.12 Inches**	**1, IN**	**X**	
2. Physical Critical Characteristics (for reasonable assurance that the Item delivered is the Item specified)				
Valve Body Material	**Stainless Steel (Note 4)**	**1, IN** **1, T**	**X**	
3. *Performance Critical Characteristics (for reasonable assurance that the Item will perform its intended safety function(s))*				
Pressure Boundary Integrity	**Pressure Test at 165 psig (No Bubbles) Note 3**	**1, T**		**X**
Valve Seat Leakage	**<0.1 SCC/min N2 @ 150 psig**	**1, T**		**X**
Environmental	**Note 1**			
Seismic Condition 3/1 Event	**Note 2**			

4. Notes and Legend:

1. **The ball valve Teflon packing is not subject to degradation from the 60°F and 40% RH or 75°F and 25% RH condition and is suitable for Environmental Condition A application.**
2. **Seismic 3/1 Event is not a critical characteristic for dedication of the component.**
3. ***Pressure test at 110% of 150 psig system design pressure.***
4. **Material verification acceptance method may be by either *inspection or test*.**
5. **Either Whitey or Swagelok is acceptable.**

Acceptance Method:

1. Special Test and Inspection
   1, IN for Inspection
   1,T for Test
2. *Commercial Grade Survey*
3. Source Verification
4. Vendor/Item History

Section 10 Initial Review and Approval

Approvals:
Designated Engineer: 6-19-00
Design Authority: 6-19-00
QA Engineer: 6/20/00

WORKSHEET 1
DETERMINATION OF FAILURE MECHANISMS/MODES

SECTION 1

Typical Failure Mechanisms	Definition	Applicable to Component under Evaluation
Fracture	Separation of a solid accompanied by little or no macroscopic plastic deformation.	Yes [ ] No [X]; If Yes, indicate failure Mode _____
Corrosion	The gradual deterioration of a material due to chemical or electrochemical reactions, such as oxidation, between the material and its environment.	Yes [ ] No [X]; If Yes, indicate failure Mode _____
Erosion	Destruction of materials by the abrasive action of moving fluids, usually accelerated by the presence of solid particles carried with the fluid.	Yes [ ] No [X]; If Yes, indicate failure Mode _____
Open Circuit	An electrical circuit that is unintentionally broken so that there is no complete path for current flow.	Yes [ ] No [X]; If Yes, indicate failure Mode _____
Short Circuit	An abnormal connection by which an electrical current is connected to ground, or to some conducting body, resulting in excessive current flow.	Yes [ ] No [X]; If Yes, indicate failure Mode _____
Blockage	Clogging of a filtering medium resulting in the inability to perform its purification function or blockage of flow.	Yes [ ] No [X]; If Yes, indicate failure Mode _____
Seizure	Binding of a normally moving item through excessive pressure, temperature, friction, jamming.	Yes [ ] No [X]; If Yes, indicate failure Mode _____
Unacceptable Vibration	Mechanical oscillations produced are beyond the defined permissible limits due to unbalancing, poor support, or rotation at critical speeds.	Yes [ ] No [X]; If Yes, indicate failure Mode _____
Loss of Properties	A loss of mechanical and physical properties of a material due to exposure to high temperatures, radiation exposure.	Yes [ ] No [X]; If Yes, indicate failure Mode _____
Excess Strain	Under the action of excessive external forces the material of the part has been deformed or distorted.	Yes [ ] No [X]; If Yes, indicate failure Mode _____
Mechanical Creep	From prolonged exposure to high temperature and stress, the object will show a slow change in its physical (shape and dimension) and mechanical characteristics.	Yes [ ] No [X]; If Yes, indicate failure Mode _____
Ductile Fracture	Fracture characterized by tearing of metal accompanied by appreciable gross plastic deformation.	Yes [ ] No [X]; If Yes, indicate failure Mode _____

Section 2 Additional Failure Modes Applicable to the Component Under Evaluation

1. **Valve Body Break**

CHECKLIST 1
ACCEPTANCE METHOD 1
SPECIAL TEST/INSPECTION VERIFICATION

SECTION 1

Item Description: **Whitey/Swagelok Ball Valve** System #: **30**	*Equip #:* **PV-V-*079, -*080** Procurement and/or Model #: **SS-43VCO4-5452-TR w/ NY-5K-43LL**
Manufacturer (Address/Phone): **Whitey Co.** **318 Bishop Road** **Highland Heights, OH 44143** P.O. #	Supplier (Address/Phone):

SECTION 2 CRITICAL CHARACTERISTICS TO BE VERIFIED BY METHOD 1.

Insp	Test	Post-Test	
[X]	[ ]	[ ]	1. **Nameplate - Manufacturer**
[X]	[ ]	[ ]	2. **Valve-Component Number-Procurement and/or Model Number**
[X]	[ ]	[ ]	3. **"A" Dimension, Length**
[X]	[X]	[ ]	4. **Valve Body Material (Verification may be by either inspection or test)**
[ ]	[X]	[ ]	5. **Pressure Boundary Integrity**
[ ]	[X]	[ ]	6. **Valve Seat Leakage**

SECTION 3 BY INSPECTION

* See Attachment H of Desk Instruction for Sampling Size

Characteristic: **Nameplate - Manufacturer**

Sample Size*: **All Items**

Acceptance Criteria: **Whitey Co / Swagelok (Either Whitey or Swagelok is acceptable).**

Receipt Inspection Plan / Report #: _____

References (see Section 8): _____

Characteristic: **Valve-Component Number-Procurement and/or Model Number**

Sample Size*: **All Items**

Acceptance Criteria: **SS-43VCO4-5452-TR w/ NY-5K-43LL, (Per Procurement Package W-441-P5, Rev. 2, Section H, Design Data Sheet)**

Receipt Inspection Plan / Report #: _____

References (see Section 8):): **Whitey Co. – Whitey "40" Series Ball Valves, W-1288, July, 1992**

_____

Characteristic: **"A" Dimension, Length**

Sample Size*: **All Items**

Acceptance Criteria: **Nominal 2.12 Inches**

Receipt Inspection Plan / Report #: _____

References (see Section 8): _____

Characteristic: **Valve Body Material**

Sample Size*: ***Normal Sampling Size***

Acceptance Criteria: **Stainless Steel**

Receipt Inspection Plan / Report #: _____

References (see Section 8): _____

SECTION 4 BY SPECIAL TEST

* See Attachment H of Desk Instruction for Sampling Size

Test To Be Performed by:	Number of Items to be Tested:
[ ] Purchaser [ ] Supplier/Manufacturer** [ ] Other	Test/Inspection Location:

Characteristic for Test: **Pressure Boundary Integrity**

Acceptance Criteria: ***Pressure Test at 165 psig (No Bubbles)***

Sample Size*: **Normal Sampling Size**

Actual Test Value:

Test Plan and Report #: _____ References (see Section 8): _____

Characteristic for Test: **Valve Seat Leakage**

Acceptance Criteria: **<0.1 SCC/min N2 @ 150 psig**

Sample Size*: **Normal Sampling Size**

Actual Test Value:

Test Plan and Report #: _____ References (see Section 8): _____

**If Supplier/Manufacturer or Other, Refer to CGI Checklist-2 for Support Information

Section 5 Test / Inspection Summary (Acceptance Method 1)

1. SUMMARY OF VERIFIED CRITICAL CHARACTERISTICS , THEIR VERIFICATION METHODS, AND RESULTS

ITEM DESCRIPTION:

Critical Characteristics				Verification Results							
Critical Characteristics	*Acceptance Criteria/Tolerances*	ID	Function	Method T/IN	Procedure or RR#	Check-list ID	Number Tested	Number Failed	Verifying Organization	Printed Name Signature	Date
Namplate - Manufacturer	**Whitey Co. / Swagelok (Either Whitey or Swagelok is acceptable).**	X									
Valve-Component Number-Procurement and/or Model Number	**SS-43VCO4-5452-TR w/ NY-5K-43LL, (Per Procurement Package W-441-P5, Rev. 2, Section H, Design Data Sheet)**	X									
"A" Dimension, Length	**Nominal 2.12 Inches**	X									
Valve Body Material	***Stainless Steel***	X									
Pressure Boundary Integrity	**Pressure Test at 165 psig (No Bubbles)**		X								
Valve Seat Leakage	**<0.1 SCC/min N2 @ 150 psig**		X								

2. DISPOSITION OF UNVERIFIED OR FAILED CRITICAL CHARACTERISTICS	
Critical Characteristic	***Disposition***

3. SIGNATURE INDICATES ALL CRITICAL CHARACTERISTICS VERIFIED SATISFACTORY OR ACCEPTABLY DISPOSITIONED AND COMMERCIAL GRADE DEDICATION IS SATISFACTORY AND COMPLETE.

	BUYER VERIFICATION
Testing Agency Approval:_____ Date_____	Design Authority:_____ Date_____
Testing Agency QA Engineer:_____ Date_____	QA Engineer:_____ Date_____

Section 6 Contacts/Phone Numbers	
Name	Phone
Design Authority	( )
QA	( )
QC	( )
Cog - Engineer	( )
CGI Engineer	( )
Procurement Engineer	( )
Other	( )

Section 7 Supporting Documentation for this Checklist	
Initial Procurement Documents	**For Critical Characteristics**
[ ] Drawings:	
[ ] Manuals (specify type & number):	
[ ] Design Calculations	
[ ] Installation Instructions	
[ ] Operation Instructions	
[ ] Calibration Instructions	
[ ] Manufacturer's Recommended Spare Parts List	
[ ] Other:	
Procurement Documents	
[ ] Certificate of Conformance/Compliance	
[ ] Seismic Qualification Certificate	
[ ] Environmental Qualification Certificate	
[ ] Test Report (s):	
[ ] Inspection Report (s):	
[ ] CMTRs for ASME Pressure Retaining Materials	
[ ] Valve Seat Leakage Report	
[ ] Weld Records	
[ ] Material Traceability Record	
[ ] Other:	