

S

ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 662318

Proj. ECN

2. ECN Category (mark one) <input type="checkbox"/> Supplemental <input checked="" type="checkbox"/> Direct Revision <input type="checkbox"/> Change ECN <input type="checkbox"/> Temporary <input type="checkbox"/> Standby <input type="checkbox"/> Supersedure <input type="checkbox"/> Cancel/Void	3. Originator's Name, Organization, MSIN, and Telephone No. T. Nuxall, CVDF, R3-86, 372-3739	4. USQ Required? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Date 9/2/00	
	6. Project Title/No./Work Order No. SNF/W-441 Spent Nuclear Fuel Cold Vacuum Drying	7. Bldg./Sys./Fac. No. CVDF 142-K	8. Approval Designator S ^N Q	
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) SNF-4887, Rev. 1	10. Related ECN No(s). N/A	11. Related PO No. N/A	

12a. Modification Work <input type="checkbox"/> Yes (fill out Blk. 12b) <input checked="" type="checkbox"/> No (NA Blks. 12b, 12c, 12d)	12b. Work Package No. N/A	12c. Modification Work Complete N/A _____ Design Authority/Cog. Engineer Signature & Date	12d. Restored to Original Condition (Temp. or Standby ECN only) N/A _____ Design Authority/Cog. Engineer Signature & Date
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13a. Description of Change

13b. Design Baseline Document? Yes No

SCHe

Deletion of Valve Leakage Test from Critical Characteristics.

USQ Approval: CVD-00-1598 DEK 9-3-00

SC

14a. Justification (mark one)

Criteria Change <input type="checkbox"/>	Design Improvement <input checked="" type="checkbox"/>	Environmental <input type="checkbox"/>	Facility Deactivation <input type="checkbox"/>
As-Found <input type="checkbox"/>	Facilitate Const <input type="checkbox"/>	Const. Error/Omission <input type="checkbox"/>	Design Error/Omission <input type="checkbox"/>

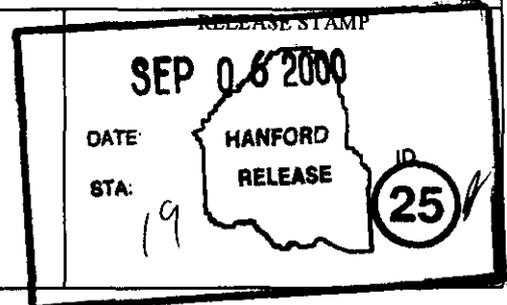
14b. Justification Details

Updated to reflect current requirements. Value leakage test is performed by the supplier, and is thus by inspection. The intent of the document is not to repeat this leakage test but to verify it was completed.

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 sheet.



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SNF-4887
Revision 2

SCHe Helium Supply Bottles and Associated Isolation Valves

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

SCHe Helium Supply Bottles and Associated Isolation Valves

Project No: W-441

Document Type: RPT

Division: SNF

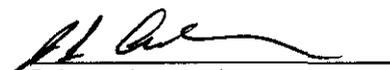
C Miska
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Date Published
September 2000

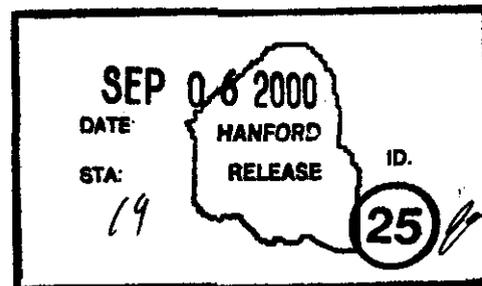
Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

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

9/6/2000
Date



Release Stamp

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Total Pages: 13

Commercial Grade Item Upgrade Dedication Form

SNF-4887, Rev. 2

ECN No. N/A CGI No. CGI-SNF-D-13-2-P5-050
 Title: SCHe Helium Supply Bottles and Associated Isolation Valves

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Section 1 Part Information

Item No.: N/A Manufacturer: N/A Supplier: N/A

Mfg. Part/Model No.: N/A Supplier's P/N: N/A

Part Description: N/A

End Use Description: N/A

Section 2a Component Information

Equipment No.: SCHe-TK-5*01 with SCHe-V-*114; SCHe-TK-5*02 with SCHe-V-*115; SCHe-TK-5*03 with SCHe-V-*116; SCHe-TK-5*04 with SCHe-V-*117

Specification No.: SNF-5304 (W-441-P5)

Manufacturer: Taylor-Wharton, Sherwood

Past P.O. No.: N/A

Manufacturer's Part/Model No.: Taylor-Wharton: HPS NPP51; Sherwood: TV68061-55

Equipment Supplier (if different from manufacturer): Norco and others to be determined

Equip. Supplier's Part No.: N/A

Component Description:

These gas bottles and associated valves provide the safety grade helium source for emergency MCO purge.

Section 2b Commercial Availability of the Item

1. Is the Item available from a catalogue from a qualified NQA1 supplier or ISO 9000 supplier (coordinate with project CGI interface Engineer or BTR)? YES (go to #2 below) 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 w/ project CGI Interface Engineer or BTR) YES (go to #2 below, procedure step 6.3.2, dedicate Item) NO (procedure step 6.3.2, dedicate Item)

2. List of Candidate qualified suppliers or ISO 9000 suppliers N/A

3. Recommended Procurement Strategy (coordinate with project CGI interface Engineer or BTR): **The bottles and associated valves will be procured as commercial grade. A CGI Upgrade Dedication Form will be prepared. Bottle is steel and is size "1A". Bottles will be fabricated to requirements of DOT standards (49 CFR 178.37). Valves are furnished as part of the helium bottles. The Documentation supplied by the fabricator will include serial number identification for the bottles. The bottles are not individually seismically tested. The facility equipment rack/restraints holding them require seismic design and certification. Seismic testing of the assembled panel will be done with a "1A" bottle and connecting flex hose installed. The DOT fabrication report provided by the fabricator will include, but not limited to documentation for: date of fabrication, liquid penetrant certification report and hydrotest report.**

Section 2c CGI Determination

CGI Determination Questions:

#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) NO (continue)

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

NO (the item is not commercial grade) YES (continue)

#3: Is the Item ordered from manufacturer/supplier on the basis of specifications set forth in the manufacturer's catalog?

NO (the item is not commercial grade) YES (continue)

All three criteria have been satisfied. The Item meets the definition of commercial grade.

Section 2d Reason for Dedication

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Section 2d Reason for Dedication	
The above Commercial Grade (CG) described item is being Dedicated for use in the application cited for the following reason(s):	
X	Item is being purchased from a non-ESL manufacturer supplier as CG to be used in a Safety Class application.
	Item is being purchased from a non-ESL manufacturer supplier as CG to be used in a Safety Significant application.
	Item was purchased from a non-ESL manufacturer supplier as CG to be used in a Safety Class application.
	Item was purchased from a non-ESL manufacturer supplier as CG 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. SCHe Pressure Boundary Integrity-- Prevents helium leakage from the SCHe System.	
2. Maintain critical function before and after Seismic event.	
3. Supply Helium for MCO emergency helium purge.	
B. Part/Component Functional Mode:	
Safety Function #1: [] Active [X] Passive	Active - Mechanical or Electrical change of state is required to occur for the component to perform its safety function
Safety Function #2: [] Active [X] Passive	Passive - Change of state is not required for the component to perform its safety function
Safety Function #3: [] Active [X] Passive	
C. Host Component Safety Function (if applicable): N/A	
D. Failure Mode(s) and the effects on component or system safety function (see Worksheet 1):	
1. Fracture of the pressure boundary or of the piping connection resulting in loss of helium from the SCHe supply.	
2. Foreign matter introduced during bottle shipment and change out could block flow in the hose or in the regulator.	
Section 4 Environmental & Natural Phenomena Hazard Design	
Environmental Qualification Required:	If yes: Environmental Qualification Requirements
Yes []	Limiting Environmental Conditions:
No [X] Environmental Condition B	Required Safety Functions:
	Qualification Period:
Natural Phenomena Hazard (NPH) Design Required:	If yes: NPH Design Requirements
Yes [X] HNF-PRO-97, SNF-5304	Performance Category: PC-3
No []	NPH Design Req'ts.: Seismic Condition A
	Required Safety Functions: Pressure Boundary Integrity; Maintain critical function before and after Seismic Event.
Section 5 Component Functional Classification	
X Safety Class (SC)	General Service (GS)
	Safety Significant (SS)
If part/component classification is different from host component/system, document basis. N/A	
Sections 6 and 7 (Reserved)	
Section 8 References (for Functional Classification)	
National Codes/Standards: DOT 49 CFR 178.37	
Safety Analysis Report (SAR): HNF-3553, Annex B	
Drawings: H-1-82165, HNF-SD-SNF-SEL-002	
Vendor Manual/Manufacturer/Supplier Information: Taylor-Wharton, Sherwood Technical Information	

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Section 9 Critical Characteristics				
Critical Characteristics	Acceptance Criteria/Tolerances	Acc Meth	ID	Function
Bottle				
1. Item Identification Critical Characteristics (necessary for reasonable assurance that the Item delivered is the Item specified)				
Construction Documentation for: DOT 49 CFR 178.37 DOT-3AA3600 & TC-3AAM154BAR	Fabrication Report information including: serial numbers, date of fabrication, liquid penetrant certification report, verification of leak test (stem, seat, and rupture disc) of the isolation valves, and hydrotest report. All items acceptable.	1, IN	X	
Nameplate - Manufacturer	Taylor-Wharton	1, IN	X	
Bottle Size	Nominal 9" Diameter X 51" Height	1, IN	X	
Procurement and/or Model No.	Bottle: Taylor-Wharton	1, IN	X	
2. Physical Critical Characteristics (for reasonable assurance that the Item delivered is the Item specified)				
Material, Bottle	Steel (Note 3)	1, IN; 1, T	X	
Valve				
1. Item Identification Critical Characteristics (necessary for reasonable assurance that the Item delivered is the Item specified)				
Nameplate - Manufacturer	Sherwood	1, IN	X	
Procurement and/or Model No.	TV 68061-55	1, IN	X	
2. Physical Critical Characteristics (for reasonable assurance that the Item delivered is the Item specified)				
Material, Valve Body	Brass (Note 3)	1, IN; 1, T	X	
Size	Inlet: 3/4"-14 NGT - Tapered; Outlet: CGA 680	1, IN	X	
Bottle & Valve:				
3 Performance Critical Characteristics (for reasonable assurance that the Item will perform its intended safety function(s))				
Environmental	Note 1			
Seismic Condition A Event	Note 2	1, T		X
4. Notes and Legend: Rev. 1: Rev'd bottle mfr. to Taylor-Wharton, Isol. Valve to Sherwood. Rev. 2: Deleted Valve Leakage Test under performance CCs. 1. The helium bottle and valve are not subject to degradation at ambient conditions of 40°F and 60% RH or 115°F and 22% RH and is suitable for Environmental Condition B application. 2. Maintain critical function before and after Seismic event. SNF-5304, provides a seismic testing plan for these components at a seismic spectra defined in SNF-4895. Equipment that has been shaker-table tested should not be installed in a plant (Ref. IEEE Standard 344-1987, Section 7). Consequently, the seismic test constitutes a destructive test. 3. Material verification acceptance method may be by either inspection or test.			Acceptance Method (Acc Meth): 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: <i>see above</i> Designated Engineer: <i>Carl Van Kesterwijk 9/2/00</i> Design Authority: <i>[Signature] 9-2-00</i> QA Engineer: <i>Hank M. Chelgin 9/2/00</i>				

WORKSHEET 1 DETERMINATION OF FAILURE MECHANISMS			
Section 1			
Typical Failure Mechanisms	Definition	X = Applicable to Component under Evaluation	
		X?	Indicate Failure Mode
Fracture	Separation of a solid accompanied by little or no macroscopic plastic deformation.	X	Fracture of the bottle or the connection would fail the pressure boundary and stop the supply of emergency helium to that purge path.
Corrosion	The gradual deterioration of a material due to chemical or electrochemical reactions, such as oxidation, between the material and its environment.		
Erosion	Destruction of materials by the abrasive action of moving fluids, usually accelerated by the presence of solid particles carried with the fluid.		
Open Circuit	An electrical circuit that is unintentionally broken so that there is no complete path for current flow.		
Short Circuit	An abnormal connection by which an electrical current is connected to ground, or to some conducting body, resulting in excessive current flow.		
Blockage	Clogging of a filtering medium resulting in the inability to perform its purification function or blockage of flow.	X	Foreign matter introduced during bottle changeout could block flow in the valve.
Seizure	Binding of a normally moving item through excessive pressure, temperature, friction, jamming.		
Unacceptable Vibration	Mechanical oscillations produced are beyond the defined permissible limits due to unbalancing, poor support, or rotation at critical speeds.		
Loss of Properties	A loss of mechanical and physical properties of a material due to exposure to high temperatures, radiation exposure.		
Excess Strain	Under the action of excessive external forces the material of the part has been deformed or distorted.		
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.		
Ductile Fracture	Fracture characterized by tearing of metal accompanied by appreciable gross plastic deformation.		
Section 2 Additional Failure Modes Applicable to the Component Under Evaluation			
1. Foreign matter introduced inside the hose during bottle change out could block flow in the hose or in the regulator.			

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Checklist 1 - Acceptance Method 1 - Special Test/Inspection Verification

SECTION 1			
Item Description: SCHe Helium Supply Bottles and Associated Valves System #: 13-2 Model #: Taylor-Wharton: HPS NPP51		Equip #: SCHe-TK-5*01 with SCHe-V-*114 SCHe-TK-5*02 with SCHe-V-*115 SCHe-TK-5*03 with SCHe-V-*116 SCHe-TK-5*04 with SCHe-V-*117	
Manufacturer (Address/Phone): Taylor - Wharton 521 Green Cove Rd Huntsville, AL 35803 (256)650-9100; P.O.: 11638-3		Sherwood 2111 Liberty Drive, Niagara Falls, NY 14304	Supplier: NorLab (Address/Phone): 1121 W. Amity, Boise, ID 83705 (208)336-1643
SECTION 2 CRITICAL CHARACTERISTICS TO BE VERIFIED BY METHOD 1.			
Insp	Test	Post-Test	
X			Construction Documentation
X			Nameplate - Manufacturer
X			Bottle Size
X			Procurement and/or Model No. (Bottle and Valve)
X	X		Material, Bottle (Verification may be by either inspection or test)
X	X		Material, Valve (Verification may be by either inspection or test)
X			Size, Valve
	X		Seismic Condition A
SECTION 3 BY INSPECTION * See Attachment H, Table H-1 of Desk Instruction for Sampling Size, References (See Section 7)			
Bottle			
Characteristic: Construction Documentation		Sample Size*: 100%	
Acceptance Criteria: Fabrication report including: serial numbers, date of fabrication, liquid penetrant certification, verification of leak test (stem, seat, and rupture disc) of the isolation valves, and hydrotest certification. All items acceptable.			
Receipt Inspection Plan / Report #:			
Characteristic: Nameplate - Manufacturer		Sample Size*: 100%	
Acceptance Criteria: Taylor-Wharton			
Receipt Inspection Plan / Report #:			
Characteristic: Bottle Size		Sample Size*: 100%	
Acceptance Criteria: Nominal 9" Diameter X 51" Height			
Receipt Inspection Plan / Report #:			
Characteristic: Procurement and/or Model No.		Sample Size*: 100%	
Acceptance Criteria: Bottle: Taylor-Wharton			
Receipt Inspection Plan / Report #:			
Characteristic: Material, Bottle		Sample Size*: 100%	
Acceptance Criteria: Steel			
Receipt Inspection Plan / Report #:			

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Title: **SCHe Helium Supply Bottles and Associated Isolation Valves**

Valve

Characteristic: **Nameplate - Manufacturer**

Sample Size*: **100%**

Acceptance Criteria: **Sherwood**

Receipt Inspection Plan / Report #:

Characteristic: **Model No.**

Sample Size*: **100%**

Acceptance Criteria: **TV 68061-55**

Receipt Inspection Plan / Report #:

Characteristic: **Material, Valve Body**

Sample Size*: **100%**

Acceptance Criteria: **Brass**

Receipt Inspection Plan / Report #:

Characteristic: **Size**

Sample Size*: **100%**

Acceptance Criteria: **Inlet: 3/4"-14 NGT - Tapered; Outlet: CGA 680**

Receipt Inspection Plan / Report #:

Section 4 By Special Test* See Attachment H, Table H-1 of Desk Instruction for Sampling Size, References (See Section 7)

Characteristic for Test: **Seismic Condition A**

Samp Size*: [Normal] [Reduced] [Tightened]

Acceptance Criteria: **Maintain Critical Function Before and After Seismic Event. SNF-5304, provides a seismic testing plan for these components at a seismic spectra defined in SNF-4895.**

Sample Size: **SNF-5304, provides the seismic testing plan for these components. The seismic testing is conducted for one complete panel with the components assembled on the panel and tested as a complete assembly. The Test seismically qualifies the entire assembly, including mountings, piping, and components. The number of components tested is dictated by the panel assembly design.**

Actual Test Value:

Test Plan and Report #:

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SECTION 5 TEST / INSPECTION SUMMARY (Acceptance Method 1)

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

ITEM DESCRIPTION: Supply Bottle

Critical Characteristics		Verification Results									
Critical Characteristics	Acceptance Criteria/Tolerances	ID	Function	Method T/IN	Procedure or R/#	Check-List ID	Number Tested	Number Failed	Verifying Organization	Printed Name Signature	Date
Construction Documentation	Fabrication Report information including: serial numbers, date of fabrication, liquid penetrant certification report, verification of leak test (stem, seat, and rupture disc) of the isolation valves, and hydrotest report. All items acceptable.	X		1, IN							
Nameplate - Manufacturer	Taylor-Wharton	X		1, IN							
Bottle Size	Nominal 9" Diameter X 51" Height	X		1, IN							
Procurement and/or Model No.	Bottle: Taylor-Wharton	X		1, IN							
Material, Bottle	Steel	X		1, IN							
Seismic Condition A	Maintain critical function before and after Seismic Event	X	1, T								

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.

Testing Agency Approval: _____ Date _____

Testing Agency QA Engineer: _____ Date _____

Design Authority: _____ Date _____

QA Engineer: _____ Date _____

BUYER VERIFICATION

Commercial Grade Item Upgrade Dedication Form

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Title: SCHe Helium Supply Bottles and Associated Isolation Valves

SECTION 5 TEST / INSPECTION SUMMARY (Acceptance Method 1)

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

ITEM DESCRIPTION: Valve

Critical Characteristics	Acceptance Criteria/Tolerances	ID	Function	Method T/IN	Procedure or R/R#	Check- Ist ID	Number Tested	Number Failed	Verification Results			
									Verifying Organization	Printed Name Signature	Date	
Nameplate - Manufacturer	Sherwood	X		1, IN								
Procurement and/or Model No.	TV68061-55	X		1, IN								
Material, Valve Body	Brass	X		1, IN								
Size	Inlet: 3/4" - 14 NGT - Tapered; Outlet: CGA 680	X		1, IN								
Seismic Condition A	Maintain critical function before and after Seismic Event	X	1, T									

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.

Testing Agency Approval: _____ Date _____

Testing Agency QA Engineer: _____ Date _____

Design Authority: _____ Date _____

QA Engineer: _____ Date _____

BUYER VERIFICATION

Commercial Grade Item Upgrade Dedication Form

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9/6/05

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Section 6: Contacts / Phone Numbers		
Title	Name	Phone
Design Authority		
QA		
QC		
Cog - Engineer		
CGI Engineer	Larry Price	372-8770
Procurement Engineer		
Other		
Section 7: Supporting Documentation for This Checklist		
Initial Procurement Documents		For Critical Characteristics
<input type="checkbox"/>	Drawings:	
<input type="checkbox"/>	Manuals (specify type & number):	
<input type="checkbox"/>	Design Calculations	
<input type="checkbox"/>	Installation Instructions	
<input type="checkbox"/>	Operation Instructions	
<input type="checkbox"/>	Calibration Instructions	
<input type="checkbox"/>	Manufacturer's Recommended Spare Parts List	
<input checked="" type="checkbox"/>	Other: Taylor-Wharton, Sherwood Technical Information	
Procurement Documents		
<input type="checkbox"/>	Certificate of Conformance/Compliance	
<input type="checkbox"/>	Seismic Qualification Certificate	
<input type="checkbox"/>	Environmental Qualification Certificate	
<input checked="" type="checkbox"/>	Test Report (s): PSI-425-00001	Cylinders
<input type="checkbox"/>	Inspection Report (s):	
<input type="checkbox"/>	CMTRs for ASME Pressure Retaining Materials	
<input type="checkbox"/>	Valve Seat Leakage Report	
<input type="checkbox"/>	Weld Records	
<input type="checkbox"/>	Material Traceability Record	
<input type="checkbox"/>	Other:	