S**ENGINEERING CHANGE NOTICE**Page 1 of 21. ECN **662314**Proj.
ECN

2. ECN Category (mark one) Supplemental ☐ Direct Revision ☒ Change ECN ☐ Temporary ☐ Standby ☐ Supersedeure ☐ Cancel/Void ☐	3. Originator's Name, Organization, MSIN, and Telephone No. T. Nuxall, CVDF, R3-86, 372-3739		4. USQ Required? ☐ Yes ☒ 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 Q
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) See block 13a		10. Related ECN No(s). N/A	11. Related PO No. N/A
12a. Modification Work ☐ Yes (fill out Blk. 12b) ☒ 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	
13a. Description of Change Hood SNF-3876, Rev. 2, SNF-3877, Rev. 2, SNF-3878, Rev. 1, SNF-3879, Rev. 3, SNF-3880, Rev. 1, SNF-3881, Rev. 2, SNF-3882, Rev. 2, SNF-3883, Rev. 3, SNF-3884, Rev. 2, SNF-3886, Rev. 2 , Rev. 1, SNF-4418, Rev. 1, SNF-3933, Rev. 1, SNF-3936, Rev. 2, SNF-5964, Rev. 0, SNF-5970, Rev. 1 ^{hmc} 9/2/00 SNF-4419, Rev. 1 ^{9/2/00} Updated document numbers and deleted revision numbers. USQ Approval: CX B.1 from AP-NS-4-001-15.				
13b. Design Baseline Document? ☐ Yes ☒ No				
14a. Justification (mark one) Criteria Change ☐ Design Improvement ☒ Environmental ☐ Facility Deactivation ☐ As-Found ☐ Facilitate Const ☐ Const. Error/Omission ☐ Design Error/Omission ☐				
14b. Justification Details Editorial changes for configuration control. 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.

[illegible]

Swagelok Quick Disconnect TW-QD- *132 Tempered Water to MCO Xfer Cask

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-5964
Revision 1

ECN 662314

Swagelok Quick Disconnect TW-QD- * 132 Tempered Water to MCO Xfer Cask

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Division: SNF

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Date Published
September 2000

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P.O. Box 1000
Richland, Washington

Release Approval

9/3/2000
Date

Release Stamp

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Commercial Grade Item Upgrade Dedication Form

SNF-5964, Rev. 1

ECN No. **N/A**

CGI No. **CGI-SNF-D-47-P4-059**

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Title: **Swagelok Quick Disconnect TW-QD- *132 Tempered Water to MCO Xfer Cask**

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.:

TW-QD-*132

Specification No.:

**SNF-5303
(W-441-P4)**

Manufacturer:

Swagelok

Past P.O. No.:

N/A

Procurement and/or

Model No.: **SS-QTM8-B-16PF**

Equipment Supplier (if different from manufacturer):

TBD

Equip. Supplier's Part No.:

N/A

Component Description: **Swagelok 1" quick disconnect for tempered water return from the MCO Transfer Cask.**

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): **N/A**

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)

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

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Title: **Swagelok Quick Disconnect TW-QD- *132 Tempered Water to MCO Xfer Cask**

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. Maintain Critical Function Before And After Seismic Event.			
2. Flow Path for Tempered Water Refill.			
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 Passive - Change of state is not required for the component to perform its safety function	
Safety Function #2: [] Active [X] Passive			
Safety Function #3: [] Active [] Passive			
C. Host Component Safety Function (if applicable): N/A			
1.			
D. Failure Mode(s) and the effects on component or system safety function (see Worksheet 1):			
1. Structural Failure of disconnect device.			
2. Disconnect failure to open results in loss of capability to refill the cask with tempered water.			
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-5303		Performance Category: PC-3	
No []		NPH Design Req'ts.: Seismic Condition A	
		Required Safety Functions: Provide System Integrity (Flow Path for Tempered Water Refill)	
Section 5 Component Functional Classification			
X	Safety Class (SC)	General Service	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: ASME B31.3			
Safety Analysis Report (SAR): HNF- 3553, Annex B			
Drawings: H-1-82161, HNF-SD-SNF-SEL-002			
Vendor Manual/Manufacturer/Supplier Information: Catalog Cut Sheets: Swagelok TFE Sealed Quick-Connects "QT" Series, QC-590-2, Dated May, 1990			

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Title: Swagelok Quick Disconnect TW-QD- *132 Tempered Water to MCO Xfer Cask

Section 9 Critical Characteristics

Critical Characteristics	Acceptance Criteria/Tolerances	Acceptance Method	ID	Function
Critical Characteristics Verification Document: : Catalog Cut Sheets: Swagelok TFE Sealed Quick-Connects "QT" Series, QC-590-2, Dated May, 1990				
1. Item Identification Critical Characteristics (necessary for reasonable assurance that the Item delivered is the Item specified)				
Manufacturer	Swagelok	1, IN	X	
Model Number	SS-QTM8-B-16PF	1, IN	X	
2. Physical Critical Characteristics (for reasonable assurance that the Item delivered is the Item specified)				
Body Length	Nominal 4.59"	1, IN, 1, T	X	
Process Connection	1" Female NPT End Connection	1, IN	X	
3. Performance Critical Characteristics (for reasonable assurance that the Item will perform its intended safety function(s))				
Pressure Boundary and Valve Seat Integrity	Pressure Test at 165 psig for >10 minutes; Reduce pressure to 100%, perform snoop test (No Leakage-No Bubbles) Note 3	1, T		X
Pressure Boundary and Valve Seat Leakage	ASME Section V, Article10 - Sensitive Leak Test - Pressure Test to 15 psig (No Leakage-No Bubbles)	1, T		X
Environmental	Note 1			
Seismic Condition A	Note 2	1, T		X
4. Notes and Legend:		Acceptance Method:		
1. This disconnect has TFE Seals, Packings, and Back-up Rings. These materials are not subject to degradation at 40°F and 60% RH or 115°F and 22% RH and are suitable for Condition B Application.		1. Special Test and Inspection		
2. Maintain critical function before and after Seismic event. SNF-5303, Appendix L, Page L- (later) provides a seismic testing plan for these safety class, Seismic Condition A valves at a Seismic Spectra SNF-4896. Equipment that has been shaker-table tested should not be installed in a plant (Ref. IEEE Standard 344-1984, Section 7). Consequently, the seismic test constitutes a destructive test. The industry sampling practice for destructive test is to test only one item.		1, IN for Inspection		
2. Pressure test at 110% of design accident condition pressure of 150 psig.		1, T for Test		
Rev. 1: Updated reference documentation.		1, A for Analysis		
		2. Commercial Grade Survey		
		3. Source Verification		
		4. Vendor/Item History		

Section 10 Initial Review and Approval

Approvals:

Designated Engineer: Carl Van der Weide 9/2/00

Design Authority: [Signature] 9/2/00

QA Engineer: Hank M. Chafin 9/2/00

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Title: **Swagelok Quick Disconnect TW-QD- *132 Tempered Water to MCO Xfer Cask**

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.		
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.		
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. Structural Failure of disconnect			

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Title: **Swagelok Quick Disconnect TW-QD- *132 Tempered Water to MCO Xfer Cask**

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

SECTION 1			
Item Description: Tempered Water Manual MCO Transfer Cask Quick Disconnect		Equip #: TW-QD-*132	
System #: 47		Procurement and/or Model #: SS-QTM8-B-16PF	
Manufacturer (Address/Phone): Swagelok Quick-Connect Co. Hudson, Ohio 44236		Supplier (Address/Phone): TBD	
SECTION 2 CRITICAL CHARACTERISTICS TO BE VERIFIED BY METHOD 1.			
Insp	Test	Post-Test	
X			1. Manufacturer
X			2. Component Number-Procurement and/or Model Number
X			3. Body Length
X			4. Process Connection
	X		5. Pressure Boundary and Valve Seat Integrity
	X		6. Pressure Boundary and Valve Seat Leakage
	X		7. Seismic Condition A
SECTION 3 BY INSPECTION * See Attachment H, Table H-1 of Desk Instruction for Sampling Size; References (See Section 7)			
Characteristic: Manufacturer			Sample Size*: 100%
Acceptance Criteria: Swagelok			
Receipt Inspection Plan / Report #:			
Characteristic: Component Number-Procurement and/or Model Number			Sample Size*: 100%
Acceptance Criteria: SS-QTM8-B-16PF			
Receipt Inspection Plan / Report #:			
Characteristic: Body Length			Sample Size*: 100%
Acceptance Criteria: Nominal 4.59"			
Receipt Inspection Plan / Report #:			
Characteristic: Process Connection			Sample Size*: 100%
Acceptance Criteria: 1" Female NPT			
Receipt Inspection Plan / Report #:			

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Section 4 By Special Test * See Attachment H, Table H-1 of Desk Instruction for Sampling Size; References (See Section 7)	
Characteristic for Test: Pressure Boundary Integrity	Sample Size*: ☒ Normal ☐ Reduced ☐ Tightened
Acceptance Criteria: Pressure Test at 165 psig for >10 minutes; Reduce pressure to 100%, perform snoop test(No Leakage-No Bubbles)	
Actual Test Value:	Test Plan and Report #:
Characteristic for Test: Seat Leakage	Sample Size*: ☒ Normal ☐ Reduced ☐ Tightened
Acceptance Criteria: ASME Section V, Article10 - Sensitive Leak Test - Pressure Test to 15 psig (No Leakage-No Bubbles)	
Actual Test Value:	Test Plan and Report #:
Characteristic for Test: Seismic Condition A	Sample Size*: Destructively Test Only One Item
Acceptance Criteria: Maintain Critical Function Before and After Seismic Event.	
Disconnect must be operable, have flow path through it, when open after seismic event	
Actual Test Value:	Test Plan and Report #:

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

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Title: Swagelok Quick Disconnect TW-QD- *132 Tempered Water to MCO Xfer Cask

Section 5 Test / Inspection Summary (Acceptance Method 1)											
1. SUMMARY OF VERIFIED CRITICAL CHARACTERISTICS , THEIR VERIFICATION METHODS, AND RESULTS											
ITEM DESCRIPTION: Quick Disconnect											
Critical Characteristics					Verification Results						
Critical Characteristics	Acceptance Criteria/Tolerances	ID	Function	Method T/I/N	Procedure or RR#	Check- list ID	Number Tested	Number Failed	Verifying Organization	Printed Name Signature	Date
Manufacturer	Swagelok	X		1, IN							
Component Number- Procurement and/or Model Number	SS-QTM8-B-16PF	X		1, IN							
Body Length	Nominal 4.59"	X		1, IN							
Process Connection	1" Female NPT	X		1, IN							
Pressure Boundary and Valve Seat Integrity	Pressure Test at 165 psig for >10 minutes; Reduce pressure to 100%, perform snoop test(No Leakage-No Bubbles)		X	1, T							
Pressure Boundary and Valve Seat Leakage	ASME Section V, Article10 - Sensitive Leak Test - Pressure Test to 15 psig (No Leakage-No Bubbles)		X	1, T							
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: _____					Design Authority: _____						
Testing Agency QA Engineer: _____					QA Engineer: _____						
Date: _____					Date: _____						
Date: _____					Date: _____						

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Title: **Swagelok Quick Disconnect TW-QD- *132 Tempered Water to MCO Xfer Cask****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
☐	Drawings:	
☐	Manuals (specify type & number):	
☐	Design Calculations	
☐	Installation Instructions	
☐	Operation Instructions	
☐	Calibration Instructions	
☐	Manufacturer's Recommended Spare Parts List	
X	Other: : Catalog Cut Sheets: Swagelok TFE Sealed Quick-Connects "QT" Series, QC-590-2, Dated May, 1990	All
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:	