APR 2 1999
Sta.4

ENGINEERING DATA TRANSMITTAL

1. EDT 626262

2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
Distribution	SNF Project	N/A
5. Proj./Prog./Dept./Div.:	6. Design Authority/ Design Agent/Cog. Engr.:	7. Purchase Order No.:
Spent Nuclear Fuel Project	C. Van Katwijk	N/A
8. Originator Remarks: N/A		9. Equip./Component No.: N/A
		10. System/Bldg./Facility: Spent Nuclear Facility
11. Receiver Remarks: 11A. Design Baseline Document? [] Yes [X] No		12. Major Assm. Dwg. No.: N/A
		13. Permit/Permit Application No.: N/A
		14. Required Response Date: N/A

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Desig-nator	(G) Reason for Trans-mittal	(H) Origi-nator Dispo-sition	(I) Receiv-er Dispo-sition
1	SNF-3889		0	Rosemount Indicator/Transmitter – Helium Supply Pressure to the MCO	Q	2	1	N/A

16. KEY

Approval Designator (F)	Reason for Transmittal (G)		Disposition (H) & (I)	
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval	4. Review	1. Approved	4. Reviewed no/comment
	2. Release	5. Post-Review	2. Approved w/comment	5. Reviewed w/comment
	3. Information	6. Dist. (Receipt Acknow. Required)	3. Disapproved w/comment	6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION
(See Approval Designator for required signatures)

(G) Rea-son	(H) Disp.	(J) Name (K) Signature (L) Date (M) MSIN	(G) Rea-Son	(H) Disp.	(J) Name (K) Signature (L) Date (M) MSIN
2	1	Designated Engineer C. Van Katwijk			
2	1	Design Authority R. Whitehurst 3/30/99			
2	1	QA T. D. Hays 3/30/99			

18.	19.	20.	21. DOE APPROVAL (if required)
C. Van Katwijk 2-9-99	T. Choho 3/30/99	R. Whitehurst 3/30/99	Ctrl. No.
Signature of EDT Originator Date	Authorized Representative for Receiving Organization Date	Design Authority/ Cognizant Manager Date	[] Approved [] Approved w/comments [] Disapproved w/comments

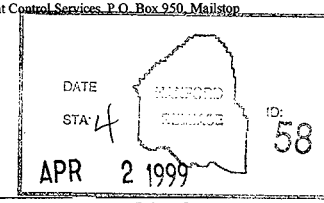
Rosemount Indicator / Transmitter – Helium Supply Pressure to the MCO

Carl Van Katwijk
Numatec Hanford Co, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-96RL13200

EDT/ECN: 626262 UC: 620
Org Code: 2G300 Charge Code: 105559/A00
B&R Code: 39EW40400 Total Pages: 14

Key Words: Pressure Indicator / Transmitter - MCO

Abstract: Rosemount Indicator / Transmitter – Helium supply Pressure to the MCO
CGI-SNF-D-13-P4-013



3/31/99

Release Approval Date Release Stamp

Approved for Public Release

Commercial Grade Item Upgrade Dedication Form

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ECN No. **NA** CGI No. **CGI-SNF-D-13-P4-013**

Title: **ROSEMOUNT INDICATOR/TRANSMITTER - HELIUM SUPPLY PRESSURE TO THE MCO**

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.: **He-PT-1*34**	Specification No.: **W-441-P4, Rev. 2**	Manufacturer: **Rosemount**	Past P.O. No.: **NA**
Manufacturer's Part/ Model No.: **1153GB5PB**	Equipment Supplier (if different from manufacturer): **TBD**		Equip. Supplier's Part No.: **NA**

Component Description: **Pressure indicator/transmitter, measure and transmit signal of MCO helium purge pressure. Electronic output signal is NON-SAFETY (GS).**

Section 2b Qualified Vendor/Supplier Survey

1. Is the Item available from a catalog from a qualified NQA ~~or ISO 9000~~ supplier (coordinate with project CGI interface Engineer or BTR)? 12/21/98 12/21/98
   [ ] YES (go to #2 below)
   [X] NO (go to procedure step 5.3.2, proceed to dedicate item.)
2. List of Candidate qualified suppliers ~~or ISO suppliers~~. 12/21/98
   company name and type contact name 12/21/98 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)

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3. Question #3: Is the Item ordered from manufacturer/supplier on the basis or specifications set forth in the manufacturers 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):

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

[ ] 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. **Pressure Boundary Integrity, Confinement**
2. **Maintain Pressure Boundary After Seismic Event**
3.

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):

1. **NA**
2.
3.

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

1. **PI process connection break/PI body break - inleakage of air/ release of MCO contents through the pressure boundary.**
2.
3.
4.
5.

Section 4 Environmental & Natural Phenomena Hazard Design

Environmental Qualification Required: Yes [ ] No [X] **Environmental Condition B**	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. 0** **W-441-P4, Rev. 2**	If yes: NPH Design Requirements Performance Category: **PC-3** NPH Design Req'ts.: **Seismic Condition B** Required Safety Functions: **Pressure Boundary Integrity, Confinement**

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.

Section 6 [reserved]

Section 7 [reserved]

Section 8 References (for Functional Classification)

National Codes/Standards: **IEEE 344, ISA-S5.1, S5.4, S18.1, S20**	Safety Analysis Report (SAR): **HNF-SD-SNF-SAR-002, Rev. 4A**	Drawings: **H-1-82161, Rev. 2** **HNF-SD-SNF-SEL-002, Rev. 4**

Vendor Manuals/Manufacturer/Supplier Information: **Rosemount Pressure Transmitter Model 1153**

Other:

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Section 9 Critical Characteristics				
Critical Characteristics Verification Document: VENDOR SPECIFICATIONS. HNF-SD-SNF-SEL-002, Rev. 4	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 Data	Per Vendor Manual	1,IN	X	
Model Number	1153GB5PB	1,IN	X	
Enclosure Class	NEMA-4X	1,IN	X	
Manufacturer	Rosemount	1,IN	X	
Process Connection	1/4-18 NPT	1,IN	X	
2. Physical Critical Characteristics (necessary for reasonable assurance that the Item delivered is the Item specified)				
Material, Body	Stainless Steel	1,T	X	
Material, Process Connection	Stainless Steel	1,T	X	
Indicator, LCD Display	0-100%	1,IN	X	
Bracket	Panel Mount	1,IN	X	
3. Performance Critical Characteristics (necessary & sufficient for reasonable assurance that the Item will perform its intended safety function(s))				
Pressure Boundary Integrity	No Leakage at Test Pressure of 165 Psig. Note 2.	1,T		X
Insulation Resistance	NA			
Operating Range	NA			
Repeatability	NA			
Environmental	Note 1			
Seismic Condition B	Note 3	1,T		X
Operating Range	NA			

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4. Notes and Legend:

1. **The pressure indicator is 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. **Pressure test at 110% of design accident condition pressure of 150 psig. Exposure to this pressure may seriously degrade the reading function. This test is considered to be a destructive test.**
3. **Maintain pressure boundary after Seismic event. W-441-P4, Rev. 2, Appendix L, page L-14, provides a seismic testing plan for these components at a (TBD) seismic spectra. "Confinement" leakage acceptance criteria is $< 10^{-4}$ scc/sec.**

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: [signature] 12/21/98

Design Authority: [signature] 12/21/98

QA Engineer: [signature] 12/22/98

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Title: ROSEMOUNT INDICATOR/TRANSMITTER - HELIUM SUPPLY PRESSURE TO THE MCO

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. **Gauge Movement Mechanism Failure**
2. **Process Connection/Body Break**

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CHECKLIST 1
ACCEPTANCE METHOD 1
SPECIAL TEST/INSPECTION VERIFICATION

SECTION 1	
Item Description: **Pressure Indicator/ Transmitter – Helium Supply Pressure to the MCO** System #: **13**	Equip #: **He-PT-1*34** Model #: **1153GB5PB**
Manufacturer (Address/Phone): **Rosemount** P.O. #	Supplier (Address/Phone):

SECTION 2 CRITICAL CHARACTERISTICS TO BE VERIFIED BY METHOD 1			
Insp	Test	Post-Test	
[X]	[ ]	[ ]	1. Nameplate Data
[X]	[ ]	[ ]	2. Model Number
[X]	[ ]	[ ]	3. Enclosure Class
[X]	[ ]	[ ]	4. Manufacturer
[X]	[ ]	[ ]	5. Process Connection
[ ]	[X]	[ ]	6. Material, Body
[X]	[X]	[ ]	7. Material, Process Connection
[X]	[ ]	[ ]	8. Indicator, LCD Display
[X]	[ ]	[ ]	9. Bracket
[ ]	[X]	[ ]	10. Pressure Boundary Integrity
[ ]	[ ]	[ ]	11. Insulation Resistance
[ ]	[ ]	[ ]	12. Operating Range
[ ]	[ ]	[ ]	13. Repeatability
[ ]	[X]	[ ]	14. Seismic Condition B
[ ]	[ ]	[ ]	15. Operating Range

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SECTION 3 BY INSPECTION
* See Attachment G of Desk Instruction for Sampling Size
Characteristic: **Nameplate Data** Sample Size*: **All Items** Acceptance Criteria: **Per Vendor Manual** Receipt Inspection Plan / Report #: _____ References (see Section 7): _____
Characteristic: **Model Number** Sample Size*: **All Items** Acceptance Criteria: **1153GB5PB** Receipt Inspection Plan / Report #: _____ References (see Section 7): _____
Characteristic: **Enclosure Class** Sample Size*: **All Items** Acceptance Criteria: **NEMA-4X** Receipt Inspection Plan / Report #: _____ References (see Section 7): _____
Characteristic: **Manufacturer** Sample Size*: **All Items** Acceptance Criteria: **Rosemount** Receipt Inspection Plan / Report #: _____ References (see Section 7): _____
Characteristic: **Process Connection** Sample Size*: **All Items** Acceptance Criteria: **1/4-18 NPT** Receipt Inspection Plan / Report #: _____ References (see Section 7): _____
Characteristic: **Indicator, LCD Display** Sample Size*: **All Items** Acceptance Criteria: **0-100%** Receipt Inspection Plan / Report #: _____ References (see Section 7): _____

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Characteristic: **Bracket**

Sample Size*: **All Items**

Acceptance Criteria: **PANEL MOUNT**

Receipt Inspection Plan / Report #: _____

References (see Section 7): _____

SECTION 4 BY SPECIAL TEST

* See Attachment G 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: **Material, Body**

Acceptance Criteria: **Stainless Steel**

Sample Size*: **Normal Sampling Size**

Actual Test Value:

Test Plan and Report #: _____ References (see Section 7): _____

Characteristic for Test: **Material, Process Connection**

Acceptance Criteria: **Stainless Steel**

Sample Size*: **Normal Sampling Size**

Actual Test Value:

Test Plan and Report #: _____ References (see Section 7): _____

Characteristic for Test: **Pressure Boundary Integrity**

Acceptance Criteria: **No Leakage at Test Pressure of 165 Psig**

Sample Size*: **Destructively Test Only One Item**

Actual Test Value:

Test Plan and Report #: _____ References (see Section 7): _____

Characteristic for Test: **Seismic Condition B**

Acceptance Criteria: **Maintain Pressure Boundary During and After Seismic Event. W-441-P4, Rev. 2, Appendix L, page L-14, provides a seismic testing plan for these components at a (TBD) seismic spectra. "Confinement" leakage acceptance criteria is $< 10^{-4}$ scc/sec.**

Sample Size*: **Normal Sampling Size**

Actual Test Value:

Test Plan and Report #: _____ References (see Section 7): _____

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Characteristic for Test: Acceptance Criteria: Sample Size*: Actual Test Value: Test Plan and Report #: _____ References (see Section 7):_____
Characteristic for Test Acceptance Criteria: Sample Size*: Actual Test Value: Test Plan and Report #: _____ References (see Section 7):_____
Characteristic for Test: Acceptance Criteria: . Sample Size*: Actual Test Value: Test Plan and Report #: _____ References (see Section 7):_____

**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
Nameplate Data	Per Vendor Manual	X									
Model Number	1153GB5PB	X									
Manufacturer	Rosemount Instruments	X									
Enclosure Class	NEMA-4X	X									
Process Connection	1/4-18 NPT	X									
Material, Body	Stainless Steel	X									
Material, Process Connection	Stainless Steel	X									
Indicator, LCD Display	0-100%	X									
Bracket	Panel Mount	X									
Pressure Boundary Integrity	No Leakage at Test Pressure of 165 Psig.		X								
Insulation Resistance	NA										
Operating Range	NA										
Repeatability	NA										
Environmental	NA										
Seismic Condition B	Maintain Pressure Boundary		X								
Operating Range	NA										

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_____

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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:	