### ENGINEERING DATA TRANSMITTAL

#### Distribution
- **To:** (Receiving Organization)
- **From:** (Originating Organization)
- **Proj./Prog./Dept./Div.:** Spent Nuclear Fuel Project
- **Design Authority/ Design Agent/Cog. Engr.:** C. Van Katwijk
- **Originator Remarks:** N/A

#### Receiver Remarks:
- **11A. Design Baseline Document?** [X] No

#### DATA TRANSMITTED

<table>
<thead>
<tr>
<th>(A) Item No.</th>
<th>(B) Document/Drawing No.</th>
<th>(C) Sheet No.</th>
<th>(D) Rev. No.</th>
<th>(E) Title or Description of Data Transmitted</th>
<th>Approval Designator</th>
<th>Reason for Transmittal</th>
<th>Originator Disposition</th>
<th>Receiver Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SNF-3891</td>
<td>0</td>
<td></td>
<td>Fabricated – MCO Inlet/Outlet Valves VPS-V-010 and 019</td>
<td>Q</td>
<td>2</td>
<td>1</td>
<td>N/A</td>
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</tbody>
</table>

#### KEY

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

#### SIGNATURE/DISTRIBUTION

- **Designated Engineer C. Van Katwijk**
- **Design Authority J. J. Irwin**
- **QA T. D. Hays**

---

**Signature of EDT Originator**

**Date**

**Authorized Representative**

**Date**

**Design Authority/ Cognizant Manager**

**Date**

**DOE APPROVAL (if required)**

**Date**

**Approved**

**Date**

**Approved w/comments**

**Date**

**Disapproved w/comments**
Fabricated – MCO Inlet / Outlet Valves

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

EDT/ECN: 626264  UC: 620
Org Code: 2G300  Charge Code: 105559/A000
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Key Words: Isolation Valves - MCO

Abstract: Fabricated – MCO Inlet/Outlet Valves VPS-V-010 and 019
CGI-SNF-D-46-1-P4-016

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Approved for Public Release

A-6400-073 (01/97) GEF321
### Section 1: Part Information

<table>
<thead>
<tr>
<th>Item No.:</th>
<th>NA</th>
<th>Manufacturer:</th>
<th>Supplier:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mfg. Part/Model No.:</td>
<td></td>
<td>Supplier's P/N:</td>
<td></td>
</tr>
<tr>
<td>Part Description:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>End Use Description:</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

### Section 2a: Component Information

<table>
<thead>
<tr>
<th>Equipment No.:</th>
<th>VPS-V-010 AND VPS-V-019</th>
<th>Specification No.:</th>
<th>W-441-P4, Rev. 2</th>
<th>Manufacturer:</th>
<th>(Fabricated*)</th>
<th>Past P.O. No.:</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer's Part/Model No.:</td>
<td>NA</td>
<td>Equipment Supplier (if different from manufacturer):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*This is an engineered component manufactured to drawing H-1-82366 and H-1-82368.*

**Component Description:** This is an engineered component valve installed on the MCO to provide isolation/confinement.

### Section 2b: Qualified Vendor/Supplier Survey

1. Is the Item available from a catalog from a qualified NOA1 or ISO 9000 supplier (coordinate with project CGI interface Engineer or BTR)?
   - [ ] 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:

   - Cold Vacuum Drying Facility Single Valve Operator
   - Drawing Numbers H-1-82366 And H-1-82368

3. Recommended Procurement Strategy (coordinate with project CGI interface Engineer or BTR). W-441-P4, Rev. 2, Appendix L, pages (TBD), provide a seismic testing plan for these components at a (TBD) seismic spectra.
**Commercial Grade Item Upgrade Dedication Form**

**Title:** FABRICATED - MCO INLET/OUTLET VALVES VPS-V-010 AND VPS-V-019

**Section 2a: CGI Determination**

1. **Question #1:** Is the Item subject to design or specification requirements that are unique to nuclear facilities or activities?
   - [X] YES (the Item is not commercial grade)
   - [ ] NO (continue)

2. **Question #2:** Is the Item used in applications other than nuclear facilities or activities?
   - [X] NO (the Item is not commercial grade)
   - [ ] YES (continue)

3. **Question #3:** Is the Item ordered from manufacturer/supplier on the basis or specifications set forth in the manufacturer's catalog?
   - [X] NO (the Item is not commercial grade)
   - [ ] YES (continue)

**Section 2b: 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.
- [ ] 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. 
   2. 
   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
   - [ ] 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.
   - [ ] Passive - Change of state is not required for the component to perform its safety function.

**Rev. No. 0**

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VPS-V-010/019

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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.
2.
3.

D. Failure Mechanisms(s) and the effects on component or system safety function (see worksheet 1):
1.
2.
3.
4.

Environmental Qualification Required:

- [ ] Yes
- [ ] No

If yes: Environmental Qualification Requirements

Environmental Qualification Requirements:

Limiting Environmental Conditions:

Required Safety Functions:

Section 5: Component Functional Classification

- [ ] 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]

National Codes/Standards:

Safety Analysis Report (SAR):

Drawings:

Vendor Manuals/Manufacturer/Supplier Information:

Other:
### Section 9: Critical Characteristics

<table>
<thead>
<tr>
<th>Critical Characteristics</th>
<th>Acceptance Criteria/Tolerances</th>
<th>Acceptance Method</th>
<th>ID</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Item Identification Critical Characteristics (necessary for reasonable assurance that the item delivered is the item specified)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Physical Critical Characteristics (necessary for reasonable assurance that the item delivered is the item specified)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Performance Critical Characteristics (necessary &amp; sufficient for reasonable assurance that the item will perform its intended safety function(s))</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Notes and Legend:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>This item not a catalog component or vendor supplied item. It is a specific use engineered component. It does not require CGI procurement dedication.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Section 10: Initial reviews and Approvals

- **Designated Engineer:** [Signature] 12/21/98
- **Design Authority:** [Signature] 12/21/98
- **QA Engineer:** [Signature] 12/21/98

---

**ECN No.:** NA  
**CGI No.:** CGI-SNF-D-07-P4-016  
**Title:** FABRICATED - MCO INLET/OUTLET VALVES VPS-V-*010 AND *019  
**Page 4 of 6**
### Typical Failure Mechanisms

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

### Section 2: Additional Failure Modes Applicable to the Component Under Evaluation

1. 
2. 
3. 
4. 

VPS-V-010/019 12/18/98
## 1. SUMMARY OF VERIFIED CRITICAL CHARACTERISTICS, THEIR VERIFICATION METHODS, AND RESULTS

### ITEM DESCRIPTION:

<table>
<thead>
<tr>
<th>Critical Characteristic</th>
<th>Acceptance Criteria/Tolerances</th>
<th>ID</th>
<th>Function</th>
<th>Method</th>
<th>Procedure or RR#</th>
<th>Checklist ID</th>
<th>Number Tested</th>
<th>Number Failed</th>
<th>Verifying Organization</th>
<th>Printed Name Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>This item is not a catalog component or vendor supplied item. It is a specific use engineered component. It does not require CGI procurement dedication.</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### 2. DISPOSITION OF UNVERIFIED OR FAILED CRITICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Critical Characteristic</th>
<th>Disposition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Testing Agency Approval:</th>
<th>Date</th>
<th>Design Authority:</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing Agency QA Engineer:</td>
<td>Date</td>
<td>QA Engineer:</td>
<td>Date</td>
</tr>
</tbody>
</table>

**BUYER VERIFICATION**

<p>| | | |</p>
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12/18/98