

## Survey Unit Release Record

<b>Design #</b>	EP-1.11 & 1.12 Sheath	<b>Revision #</b>	Original	<b>Page 1 of 3</b>
<b>Survey Unit #(s)</b>	1.11 & 1.12 Sheath			
<b>Description</b>	<p>1) Embedded Pipe (EP) Survey Unit 1.11 &amp; 1.12 Sheath meets the definition of embedded pipe for Plum Brook Reactor Facility (PBRF).</p> <p>2) EP 1.11 &amp; 1.12 Sheath is a Class 1, Group 1 survey unit as per the PBRF Final Status Survey Plan (FSSP) and Technical Basis Document (TBD)-06-004.</p> <p>3) This pipe is the exterior sheath encasing the primary coolant supply and return piping. This is a closed system. Historical assessments indicate that this system was not subjected to radioactive contaminated liquids during plant operations or anytime since shutdown or during decommissioning activities. The only piping which interfaces with this sheath is the sheath drain, EP 1.15. Pipe EP 1.15 is the only access to this sheath as well as the low point for the system. This pipes operational purpose would be to provide positive indication of a primary to sheath leak during operations and to allow for pressure monitoring and drainage of such an event were a primary to sheath leak to have occurred. It is reasonable to assume that if any radioactive liquid was present in this pipe, it would have accumulated at this point. EP 1.15 was demonstrated to be compliant with the 1mrem/yr dose criteria for embedded piping in its release record titled "EP 1.15". Subsequently, the final survey of EP 1.15 is appropriate to demonstrate the radiological condition of the EP 1.11 &amp; 1.12 Sheath and the suitability of the sheath for unrestricted release.</p>			
<b>Approval Signatures</b>			<b>Date:</b>	
FSS/Characterization Engineer			3/17/08	
FSS/Characterization Manager	 <small>R. Case</small>		3/18/08	

## Survey Unit: 1.11 &amp; 1.12 Sheath

**1.0 History/Description**

- 1.1 The subject pipe system is a sheath surrounding the 1.11 and 1.12 hot and cold Primary Cooling water pipes which runs from the 0' elevation of the Primary Pump House to the -30' elevation where it connects to a concrete extension from the Reactor Building foundations. There is no direct access to this sheath. The sheath is surrounded by a concrete encasement 2 feet thick for its entire length from the PPH 0' to the RB foundation extension at -30'.
- 1.2 The EP 1.11 & 1.12 Sheath is approximately 66 feet in length.

**2.0 Survey Design Information**

- 2.1 The EP 1.11 & 1.12 Sheath is inaccessible to survey, it is completely seal welded to the 1.11 and 1.2 pipes at the PPH 0' elevation. The -30' elevation has a tattletale drain opening of 2" diameter to the 1.15 pipe. The 1.15 pipe runs for 60' from the tattletale drain opening in the 1.11 & 1.12 Sheath at the -30' elevation to the Sub Pile Room near the -39' elevation.
- 2.2 Surface area for the sheath is 1.1 m<sup>2</sup> for each linear foot of sheathing, corresponding to a total surface area 72.6 m<sup>2</sup> for the entire length (approximately 66') of sheathing.

**3.0 Survey Unit Measurement Locations/Data**

- 3.1 No surfaces of this sheath were accessible for surveys.

**4.0 Survey Unit Investigations/Results**

- 4.1 None

**5.0 Data Assessment Results**

- 5.1 Only EP 1.15 piping which drains this sheath was accessible for final survey. EP 1.15 is the low point for the sheath system. It is reasonable to assume that if any radioactive liquid was present in this sheath, it would have accumulated in EP 1.15.
- 5.2 All measurement results from EP 1.15 are less than the Derived Concentration Guideline Level (DCGL) for radionuclide specific EP that corresponds to the 1 mrem/yr dose goal established in Table 3-3 of the FSSP.
- 5.3 Background was not subtracted from the survey measurements and the Elevated Measurement Comparison (EMC) was not employed for the survey unit EP 1.15.
- 5.4 Based upon the results of the release record for EP 1.15 combined with historical evidence that no primary to sheath leakage occurred during plant operations, it is reasonable to conclude that the Survey Unit EP 1.11 & 1.12 Sheath demonstrates compliance with the DCGL values, as presented in Sections 3.3, 7.5 and Attachment C of the PBRF FSSP.

Survey Unit: 1.11 & 1.12 Sheath

**6.0** Documentation of evaluations pertaining to compliance with the unrestricted use limit of 25 mrem/yr and dose contributions from Embedded Pipe and radionuclides contributing 10% in aggregate of the total dose for both structural scenarios and soils.

6.1 A review of the survey results for EP 1.15 has shown that the extrapolated dose contribution for EP 1.11 & 1.12 Sheath to be less than 1 mrem/yr. The dose contribution is determined to be < 1mrem/yr based on the average of the actual gross counts for EP 1.15.

**7.0** Attachments

Attachment 1 – DQA Worksheet

Attachment 2 –Disc containing RR for EP 1.11 & 1.12 Sheath

**SECTION 7  
ATTACHMENT 1  
1 PAGE**

### DQA Check Sheet

Design #	EP 1.11 & 1.12 SHEATH	Revision #	Original	
Survey Unit #	EP 1.11 & 1.12 SHEATH			

#### Preliminary Data Review

Answers to the following questions should be fully documented in the Survey Unit Release Record	Yes	No	N/A
1. Have surveys been performed in accordance with survey instructions in the Survey Design?			X
2. Is the instrumentation MDC for structure static measurements below the DCGL <sub>W</sub> for Class 1 and 2 survey units, or below 0.5 DCGL <sub>W</sub> for Class 3 survey units?			X
3. Is the instrumentation MDC for embedded/buried piping static measurements below the DCGL <sub>W</sub> ?			X
4. Was the instrumentation MDC for structure scan measurements, soil scan measurements, and embedded/buried piping scan measurements below the DCGL <sub>W</sub> , or, if not, was the need for additional static measurements or soil samples addressed in the survey design?			X
5. Was the instrumentation MDC for volumetric measurements and smear analysis < 10% DCGL <sub>W</sub> ?			X
6. Were the MDCs and assumptions used to develop them appropriate for the instruments and techniques used to perform the survey?			X
7. Were the survey methods used to collect data proper for the types of radiation involved and for the media being surveyed?			X
8. Were "Special Methods" for data collection properly applied for the survey unit under review?			X
9. Is the data set comprised of qualified measurement results collected in accordance with the survey design, which accurately reflects the radiological status of the facility?			X

#### Graphical Data Review

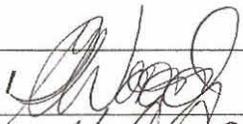
1. Has a posting plot been created?			X
2. Has a histogram (or other frequency plot) been created?			X
3. Have other graphical data tools been created to assist in analyzing the data?			X

#### Data Analysis

1. Are all sample measurements below the DCGL <sub>W</sub> (Class 1 & 2), or 0.5 DCGL <sub>W</sub> (Class 3)?			X
2. Is the mean of the sample data < DCGL <sub>W</sub> ?			X
3. If elevated areas have been identified by scans and/or sampling, is the average activity in each elevated area < DCGL <sub>EMC</sub> (Class 1), < DCGL <sub>W</sub> (Class 2), or < 0.5 DCGL <sub>W</sub> (Class 3)?			X
4. Is the result of the Elevated Measurements Test < 1.0?			X
5. Is the result of the statistical test ( <b>S+</b> for Sign Test or <b>W</b> , for WRS Test) ≥ the critical value?			X

Comments:

See Survey Unit Release Record for this survey unit.

FSS/Characterization Engineer (print/sign)	GL Wood / 	Date	3/17/08
FSS/ Characterization Manager (print/sign)	R. Case / 	Date	3/18/08

Form  
CS-09/2  
Rev 0

**SECTION 7  
ATTACHMENT 2  
1 DISC**