

Table 4-4. Performance Monitoring at the Apatite PRB, 100-NR-2 OU

Well Name	Number of Baseline Samples	Number of Baseline Nondetects	Strontium-90 Concentration (pCi/L)				Percent Reduction in Strontium-90 (Baseline to Fall 2013) ^g	
			Minimum Detected Baseline	Maximum Baseline	Spring 2013	Fall 2013	Minimum Baseline	Maximum Baseline
Upriver Apatite Permeable Reactive Barrier								
			04/06/10		05/06/13	09/06/13		
199-N-96A	56	8	1.54 ^a	37.9 ^a	2.3	5.9	-283	84
199-N-347	1	1	7 ^b	7 ^b	8.5	5.8	17	17
199-N-348	1	0	1,800	1,800	28	41	98	98
199-N-349	2	0	220	230	27	66	70	71
Central (Original) Apatite Permeable Reactive Barrier								
(See footnote e)			(See footnote f)		05/06/13	09/06/13		
199-N-122	10	0	657	4,630	390; 390	550; 560 ^c	16	88
199-N-146	4	0	318	985	180	270	15	73
199-N-147	3	0	522	1,842	150	120 ^d	77	93
199-N-123	6	0	689	1,180	110	140 ^c	80	88
Downriver Apatite Permeable Reactive Barrier								
			07/28/10 and 07/29/10		05/06/13	09/06/13		
199-N-350	1	0	240	240	13	29	88	88
199-N-351	1	0	350	350	32	46	87	87
199-N-352	1	0	580	580	26	31	95	95
199-N-353	1	0	83	83	3.5	2.8	97	97

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			Minimum Detected Baseline	Maximum Baseline	Spring 2013	Fall 2013	Minimum Baseline	Maximum Baseline

Note: Between 1995 and 2011, the maximum baseline was measured on December 6, 1995; the minimum detected baseline was measured on June 13, 2006, and June 22, 2007.

a. Strontium-90 is a beta emitter. Gross-beta concentrations are approximately two times the strontium-90 concentrations. The strontium-90 concentration was 1.1 pCi/L (U). The gross beta concentration, 14 pCi/L, was divided by two to approximate the strontium-90 concentration of 7 pCi/L.

b. Sampled on November 11, 2013.

c. Sampled on November 13, 2013.

d. From Table 8.1 in PNNL-17429, *Interim Report: 100-NR-2 Apatite Treatability Test: Low-Concentration Calcium-Citrate-Phosphate Solution Injection for In Situ Strontium-90 Immobilization*.

e. From Table 4.1 in PNNL-19572, *100-NR-2 Apatite Treatability Test: High-Concentration Calcium-Citrate-Phosphate Solution Injection for In Situ Strontium-90 Immobilization*.

f. The percent reduction in strontium-90 concentration is calculated as $([\text{baseline value}] - [\text{fall 2013 value}] / [\text{baseline value}] \times 100$. For well 199-N-96A, the minimum baseline value used in the calculation was the lowest detected value.

U = analyzed for but not detected