

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 2014) ^e	
			Minimum Detected Baseline	Maximum Baseline	Spring 2014	Fall 2014	Minimum Baseline	Maximum Baseline
Upriver Apatite Permeable Reactive Barrier								
			04/06/10		06/04-05/2014	09/09-10/2014		
199-N-96A	56	8	1.54 ^a	37.9 ^a	1.1 (U)	0.8 (U)	48	98
199-N-347	1	1	7 ^b	7 ^b	3.9	6.3	10	10
199-N-348	1	0	1,800	1,800	10	60	97	97
199-N-349	2	0	220	230	45.5	129	42	44
Central (Original) Apatite Permeable Reactive Barrier								
(See footnote c)			(See footnote d)		06/04-05/2014	09/11/2014		
199-N-122	10	0	657	4,630	388	886	-35	81
199-N-146	4	0	318	985	151	256	20	74
199-N-147	3	0	522	1,842	231	209	60	89
199-N-123	6	0	689	1,180	61.7	120	83	90
Downriver Apatite Permeable Reactive Barrier								
			07/28/10 and 07/29/10		06/05/2014	09/10/2014		
199-N-350	1	0	240	240	13.2	40.3	83	83
199-N-351	1	0	350	350	30.9	160	54	54
199-N-352	1	0	580	580	21.6	63.2	89	89
199-N-353	1	0	83	83	3.8	4.3	95	95

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			Minimum Detected Baseline	Maximum Baseline	Spring 2014	Fall 2014	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. Based on samples data from April 1995 through January 2011.

b. Strontium-90 is a beta emitter. Gross-beta concentrations are approximately two times the strontium-90 concentrations. The strontium-90 concentration was a. 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.

c. 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*.

d. 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*.

e. The percent reduction in strontium-90 concentration is calculated as $([\text{baseline value}] - [\text{fall 2014 value}] / [\text{baseline value}]) \times 100$. For Well 199-N-96A, the minimum baseline value used in the calculation was the lowest detected value.

U = analyzed for but not detected