

From: <james.gosnell@exeloncorp.com>
To: <jgc3@nrc.gov>
Date: 12/19/05 5:02PM
Subject: 1998 release data

John, attached is a spreadsheet of liquid release data I collected while investigating tritium in our groundwater. I added some notes to the spreadsheet to explain the calculations they perform. I can be reached at [REDACTED] and will call you to discuss any issues. This fulfills a request for information I received from Bob Rybak. Jim

<<1998 spill liquid release data.xls>>

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CC: <bob.rybak@exeloncorp.com>

John, attached is a spreadsheet of liquid release data I collected while investigating tritium in our groundwater. I added some notes to the spreadsheet to explain the calculations they perform. I can be reached at [REDACTED] and will call you to discuss any issues. This fulfils a request for information I received from Bob Rybak. Jim

<<1998 spill liquid release data.xls>>

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Liquid Release Package	Tank Tritium Concentration (uCi/ml)	Tank Tritium Concentration (pCi/l)	Date Release Started	Time Release Started	Release duration (minutes)	Blowdown line concentration (pCi/l)	Time weighted Blowdown line concentration (min pCi/l)
L-98-132	0.0893	89,300,000	10/06/98	2:53	315	470,779	148,295,449
L-98-133	0.1145	114,500,000	10/07/98	3:28	607	339,316	205,964,900
L-98-134	0.0457	45,700,000	10/09/98	20:24	127	600,245	76,231,114
L-98-135	0.0549	54,900,000	10/17/98	3:48	146	597,421	87,223,517
L-98-136	0.04378	43,780,000	10/21/98	4:04	81	844,429	68,398,750
L-98-137	0.03573	35,730,000	10/25/98	4:30	125	492,927	61,615,937
L-98-138	0.0284	28,400,000	10/26/98	1:50	278	168,899	46,953,811
L-98-139	0.1452	145,200,000	10/28/98	2:41	478	525,546	251,211,114
L-98-140	0.0941	94,100,000	10/31/98	1:35	127	444,515	56,453,445
L-98-141	0.0464	46,400,000	10/31/98	20:20	172	454,484	78,171,191
L-98-142	0.0706	70,600,000	11/02/98	2:19	109	387,386	42,225,086
L-98-143	0.02	20,000,000	11/02/98	22:37	80	315,432	25,234,523
L-98-146	0.0585	58,500,000	11/04/98	1:46	217	424,858	92,194,287
L-98-147	0.0141	14,100,000	11/04/98	13:29	111	195,982	21,753,995
L-98-148	0.0176	17,600,000	11/05/98	2:19	59	503,283	29,693,674
L-98-149	0.08441	84,410,000	11/06/98	3:32	398	362,516	144,281,514
L-98-150	0.02773	27,730,000	11/07/98	3:57	126	369,749	46,588,427
L-98-151	0.1957	195,700,000	11/08/98	1:53	611	576,606	352,306,128
L-98-152	0.00976	9,755,000	11/10/98	3:15	56	279,768	15,667,032
L-98-153	0.0708	70,800,000	11/11/98	4:44	306	385,598	117,993,022
L-98-154	0.145	145,000,000	11/12/98	3:59	571	438,656	250,472,606
L-98-155	0.02399	23,990,000	11/13/98	4:30	153	266,608	40,791,054
L-98-156	0.114	114,000,000	11/14/98	5:36	355	531,385	188,641,573
L-98-157	0.07645	76,450,000	11/15/98	3:57	285	451,289	128,617,264
L-98-158	0.03031	30,310,000	11/16/98	3:44	135	368,417	49,736,296
L-98-159	0.0862	86,200,000	11/17/98	6:40	507	293,110	148,606,987
L-98-160	0.0512	51,200,000	11/19/98	4:23	509	169,808	86,432,387
L-98-161	0.165	165,000,000	11/20/98	4:53	529	519,077	274,591,763
L-98-162	0.02087	20,870,000	11/22/98	2:59	149	233,051	34,724,534
L-98-163	0.148	148,000,000	11/23/98	3:18	458	488,484	223,725,799
L-98-164	0.0516	51,600,000	11/25/98	1:46	179	483,088	86,472,776
L-98-165	0.155	155,000,000	11/26/98	2:15	528	497,451	262,654,333
L-98-166	0.1012	101,200,000	11/27/98	3:10	260	632,042	164,330,837
L-98-167	0.244	244,000,000	11/29/98	7:32	343	1,191,625	408,727,431
L-98-168	0.101	101,000,000	11/30/98	4:14	233	690,911	160,982,157
L-98-169	0.2575	257,500,000	12/02/98	4:40	280	1,519,882	425,566,946

Release flow rate (gpm)	Blowdown flow rate (gpm)	Gallons released	Dilution factor (gpm/gpm)
76	14,400	24040	188.68552
43	14,400	25980	336.44342
192	14,400	24340	75.13558
158	14,400	23130	90.89494
283	14,400	22940	50.84568
201	14,400	25180	71.48531
86	14,400	23950	167.14823
52	14,400	25004	275.28395
68	14,400	8680	210.69124
142	14,400	24500	101.09388
79	14,400	8660	181.24711
231	14,400	18460	62.40520
105	14,400	22860	136.69291
203	14,400	22530	70.94541
424	14,400	25010	33.97041
62	14,400	24720	231.84466
195	14,400	24520	73.99674
43	14,400	26000	338.4
425	14,400	23810	33.86812
79	14,400	24130	182.61086
44	14,400	24950	329.55511
162	14,400	24760	88.98223
67	14,400	23940	213.53383
86	14,400	24370	168.40378
177	14,400	23920	81.27090
49	14,400	24910	293.08711
48	14,400	24390	300.51661
45	14,400	24040	316.87188
163	14,400	24230	88.55138
48	14,400	21840	301.97802
136	14,400	24,360	105.81281
46	14,400	24480	310.58824
91	14,400	23530	159.11602
71	14,400	24240	203.76238
99	14,400	23110	145.18390
86	14,400	23940	168.42105

Liquid Release Package	Tank Tritium Concentration (uCi/ml)	Tank Tritium Concentration (pCi/l)	Date Release Started	Time Release Started	Release duration (minutes)	Blowdown line concentration during release (pCi/l)	Time weighted Blowdown line concentration (min pCi/l)
L-98-146	0.0585	58,500,000	11/04/98	1:46	217	425,057	92,237,372
L-98-147	0.0141	14,100,000	11/04/98	13:29	111	196,179	21,775,886
L-98-148	0.0176	17,600,000	11/05/98	2:19	59	503,477	29,705,136
L-98-149	0.08441	84,410,000	11/06/98	3:32	398	362,716	144,360,772
L-98-150	0.02773	27,730,000	11/07/98	3:57	126	369,947	46,613,291
L-98-151	0.1957	195,700,000	11/08/98	1:53	611	576,805	352,427,968
L-98-152	0.00976	9,755,000	11/10/98	3:15	56	279,963	15,677,911
L-98-153	0.0708	70,800,000	11/11/98	4:44	306	385,797	118,053,889
L-98-154	0.145	145,000,000	11/12/98	3:59	571	438,855	250,586,461
L-98-155	0.02399	23,990,000	11/13/98	4:30	153	266,806	40,821,314
L-98-156	0.114	114,000,000	11/14/98	5:36	355	531,584	188,712,242
L-98-157	0.07645	76,450,000	11/15/98	3:57	285	451,487	128,673,927
L-98-158	0.03031	30,310,000	11/16/98	3:44	135	368,615	49,762,968
L-98-159	0.0862	86,200,000	11/17/98	6:40	507	293,310	148,708,043
L-98-160	0.0512	51,200,000	11/19/98	4:23	509	170,008	86,533,850
L-98-161	0.165	165,000,000	11/20/98	4:53	529	519,276	274,697,230
L-98-162	0.02087	20,870,000	11/22/98	2:59	149	233,248	34,754,001
L-98-163	0.148	148,000,000	11/23/98	3:18	458	488,684	223,817,097
L-98-164	0.0516	51,600,000	11/25/98	1:46	179	483,286	86,508,241
L-98-165	0.155	155,000,000	11/26/98	2:15	528	497,651	262,759,594
L-98-166	0.1012	101,200,000	11/27/98	3:10	260	632,240	164,382,513
L-98-167	0.244	244,000,000	11/29/98	7:32	343	1,191,824	408,795,696
L-98-168	0.101	101,000,000	11/30/98	4:14	233	691,109	161,028,438
L-98-169	0.2575	257,500,000	12/02/98	4:40	280	1,520,081	425,622,616

Total time released: 7358 minutes

Total time (30 days) 43200 minutes

Non-release time: 35842 minutes

Non-release tritium 200 pCi/l

weighted release concentration 3,757,016,454 min pCi/l

non-release concentration 7,168,400 min pCi/l

"Composite" concentration 87,134 pCi/l

Release flow rate (gpm)	Blowdown flow rate (gpm)	Gallons released	Dilution factor (gpm/gpm)
105	14,400	22860	136.69291
203	14,400	22530	70.94541
424	14,400	25010	33.97041
62	14,400	24720	231.84466
195	14,400	24520	73.99674
43	14,400	26000	338.4
425	14,400	23810	33.86812
79	14,400	24130	182.61086
44	14,400	24950	329.55511
162	14,400	24760	88.98223
67	14,400	23940	213.53383
86	14,400	24370	168.40378
177	14,400	23920	81.27090
49	14,400	24910	293.08711
48	14,400	24390	300.51661
45	14,400	24040	316.87188
163	14,400	24230	88.55138
48	14,400	21840	301.97802
136	14,400	24,360	105.81281
46	14,400	24480	310.58824
91	14,400	23530	159.11602
71	14,400	24240	203.76238
99	14,400	23110	145.18390
86	14,400	23940	168.42105

Liquid Release Package	Tank Tritium Concentration (uCi/ml)	Tank Tritium Concentration (pCi/l)	Date Release Started	Time Release Started	Release duration (minutes)	Blowdown line concentration during release (pCi/l)	Time weighted Blowdown line concentration (min pCi/l)
L-98-160	0.0512	51,200,000	11/19/98	4:23	509	170,008	86,533,850
L-98-161	0.165	165,000,000	11/20/98	4:53	529	519,276	274,697,230
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L-98-168	0.101	101,000,000	11/30/98	4:14	233	691,109	161,028,438
L-98-169	0.2575	257,500,000	12/02/98	4:40	280	1,520,081	425,622,616

Total time released: 3468 minutes

Total time (15 days) 21600 minutes

Non-release time: 18132 minutes

Non-release tritium 200 pCi/l

weighted release concentration 2,128,899,274 min pCi/l

non-release concentration 3,626,400 min pCi/l

"Composite" concentration 98,728 pCi/l

Release flow rate (gpm)	Blowdown flow rate (gpm)	Gallons released	Dilution factor (gpm/gpm)
48	14,400	24390	300.51661
45	14,400	24040	316.87188
163	14,400	24230	88.55138
48	14,400	21840	301.97802
136	14,400	24,360	105.81281
46	14,400	24480	310.58824
91	14,400	23530	159.11602
71	14,400	24240	203.76238
99	14,400	23110	145.18390
86	14,400	23940	168.42105

Liquid Release Package	Tank Tritium Concentration (uCi/ml)	Tank Tritium Concentration (pCi/l)	Date Release Started	Time Release Started	Release duration (minutes)	Blowdown line concentration during release (pCi/l)	Time weighted Blowdown line concentration (min pCi/l)
L-98-166	0.1012	101,200,000	11/27/98	3:10	260	632,240	164,382,513
L-98-167	0.244	244,000,000	11/29/98	7:32	343	1,191,824	408,795,696
L-98-168	0.101	101,000,000	11/30/98	4:14	233	691,109	161,028,438
L-98-169	0.2575	257,500,000	12/02/98	4:40	280	1,520,081	425,622,616

Total time released: 1116 minutes

Total time (5 days) 7200 minutes

Non-release time: 6084 minutes

Non-release tritium 200 pCi/l

weighted release concentration 1,159,829,262 min pCi/l

non-release concentration 1,216,800 min pCi/l

"Composite" concentration 161,256 pCi/l

Release flow rate (gpm)	Blowdown flow rate (gpm)	Gallons released	Dilution factor (gpm/gpm)
91	14,400	23530	159.11602
71	14,400	24240	203.76238
99	14,400	23110	145.18390
86	14,400	23940	168.42105