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CALCULATION COVER SHEET

Project Title: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation **Job No. 14655**

Area: 100-F, 100-IU-2, and 100-IU-6

Discipline: Environmental *Calculation No: 0100X-CA-V0060

Subject: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation Distribution Coefficient Calculations

Computer Program: Excel Program No: Excel 2007

The attached calculations have been generated for a specific purpose and task. Use of the calculations by persons who do not have access to all pertinent facts may lead to incorrect conclusions and/or results. Before applying these calculations to your work, the underlying basis, rationale, and other pertinent information relevant to these calculations must be thoroughly reviewed with appropriate Washington Closure Hanford LLC (WCH) officials or other authorized personnel. WCH is not responsible for the use of a calculation not under its direct control.

Committed Calculation ☒ Preliminary ☐ Superseded ☐ Voided ☐

Rev.	Sheet Numbers	Originator	Checker	Reviewer	Approval	Date
0	Cover = 1 Sheets = 25 Total = 26	R. P. Wells	P. L. Benjamin	H. M. Sulloway	R. W. Ovink	11-8-2011

SUMMARY OF REVISION

	RECEIVED NOV 03 2014 EDMC

PURPOSE:

Provide documentation to support the calculation of the distribution coefficient (K_d) for soil and sediment samples that have undergone metals analysis followed by leaching and subsequent analysis of the resultant leachate solutions for the 100-F, 100-IU-2, and 100-IU-6 area remedial investigation.

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GIVEN/REFERENCES:

1) DOE-RL, 2009, *Sampling and Analysis Plan for the 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 Operable Units Remedial Investigation/Feasibility Study,* DOE/RL-2009-43, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

SOLUTION:

1) Use data obtained from remedial investigation vadose zone soil and aquifer sediment samples to perform the K_d calculations, as required.

METHODOLOGY:

Soil and sediment samples submitted for determination of the K_d are first submitted for quadruplicate analysis for total metals, including arsenic, barium, calcium, chromium, hexavalent chromium (Cr-VI), lead, silver, and selenium. The results are reported as the base sample identification number appended by a number (-1, -2, -3, and -4). For example, the third analysis of a soil sample may be designated as B26T23-3. Provided that all four results for a given metal are a detectable concentration (i.e., not flagged "U" by the laboratory as a non-detect), an average concentration for the metal is calculated. If any of the four results are flagged as a non-detect, the average is reported as N/A and the K_d calculation is not performed because the inherent variability in the concentration near the detection limit precludes a K_d determination that is reliable and the K_d results will be reported as N/A.

Soil samples are submitted for leaching at three ratios of soil to leachant (1:1, 1:2.5: and 1:5). One of the three ratios was randomly selected to be run as a duplicate analysis. The leachate results are reported as the base sample identification number appended by a letter (-A, -B, or -C) corresponding to the given ratio (1:1, 1:2.5, and 1:5), respectively. The letter is followed by a number designating whether it is the initial leach run (1) or a duplicate leach run (2). For example, the second run of the leachate resulting from the 1:2.5 ratio of sample B26T23 is designated as B26T23-B2. If a leachate result for a given metal is non-detect (i.e., flagged "U" by the laboratory), the K_d will be reported as a greater than (>) value.

The K_d is calculated as the ratio of contaminant sorbed to soil to the contaminant in solution by the following equation:

$$K_d = \frac{(C_S \times M_S) - (C_L \times V_L)}{M_S} \times \frac{1}{C_L} \times \frac{1000\ mL}{1\ L}$$

Where:

K_d = Distribution coefficient (mL/g)
C_S = Contaminant concentration in bulk soil matrix prior to leaching (μg/g)
M_S = Dry mass of soil used for leaching (g)
C_L = Contaminant concentration in leachate (μg/L)
V_L = Liquid volume used for leaching (L)

To supplement the distribution coefficient data, the percent leached has been calculated by the following equation:

$$\%\ Leached = \frac{C_L \times V_L}{C_S \times M_S} \times 100$$

Similar to reporting the K_d results, if any of the four soil analyses for a given metal is a non-detect, the percent leached will be reported as N/A. If the leachate concentration is reported as a non-detect, the percent leached will be reported as a less than (<) value provided that the four soil analyses were all detectable concentrations.

In accordance with Table 2-6 of the sampling and analysis plan, strontium-90 batch leach testing will be performed on samples containing more than 4.5 pCi/g of strontium-90. Quadruplicate analysis of the soil sample prior to leaching was not required, and a single value is used for the strontium-90 in the soil. Because only a single analysis is performed for strontium-90 on the soil samples, the sample identification scheme as outlined for the metals is not followed, but the sample number is the base number provided for the metals without being appended by a -1, -2, -3, or -4. The same leaching process is followed as outlined for the metals with results reported for three ratios and a duplicate ratio. For C_S, the contaminant concentration in the bulk soil matrix prior to leaching will be in units of pCi/g with C_L, contaminant concentration in leachate, being in units of pCi/L.

For percent leached, those results with both the soils and the leachate having detectable concentrations, the percent leached will be reported to three significant figures. For percent leached reported as a less

than value, it will be reported to two significant figures because it is an approximation. There are instances where the calculated percent leach may be greater than 100%. In those cases, if it is a calculated result with both the soils and the leachate having detectable concentrations, the percent leached will be reported as 100%. If the percent leached is reported as a less than value and the calculated result is greater than 100%, it will be reported as less than 100%.

A similar approach will be followed for K_d calculations when reporting although the greater than values for K_d may be reported either to two or three significant figures, any use of these data should be scrutinized. For those cases where the calculated K_d is a negative value, it will be reported either as zero or greater than zero depending on whether both the soils and the leachate have detectable concentrations.

RESULTS:

The results presented in the tables that follow include the summary of the results of the K_d calculations and are used to support modeling needs of the remedial investigation. Sheets 4 through 22 summarize the percent leached and K_d values from the calculations from which a value was determined.

Summary Cont. — Percent Leached and Estimated Kd Results

1	Borehole	Interval	Analyte	Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
2	C7790	I-001	**Ratio:**	**1:1**	**1:1**	**1:2.5**	**1:5**	**1:1**	**1:1**	**1:2.5**	**1:5**
3			Arsenic	<4.11	<4.11	<12.3	<24.7	>23	>23	>18	>15
4			Barium	0.229	0.154	0.512	0.878	435	649	485	565
5			Chromium	0.0140	<0.07	<0.21	<0.42	7150	>1430	>1190	>1190
6			Lead	<1.71	<1.71	<5.12	<10.2	>58	>58	>46	>44
7	C7790	I-002	**Ratio:**	**1:1**	**1:1**	**1:2.5**	**1:5**	**1:1**	**1:1**	**1:2.5**	**1:5**
8			Arsenic	<7.11	<3.55	<10.7	<21.3	>13	>27	>21	>18
9			Barium	0.803	0.476	0.740	0.753	124	209	336	659
10			Chromium	0.169	0.0899	0.185	0.159	590	1110	1350	3140
11			Lead	<4.24	<2.12	<6.36	<12.7	>23	>46	>37	>34
12	C7790	I-003	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
13			Arsenic	<2.60	<7.79	<6.49	<15.6	>38	>30	>36	>27
14			Barium	0.844	1.58	1.22	1.28	118	156	202	385
15			Chromium	0.243	0.581	0.480	0.455	411	428	518	1090
16			Lead	0.757	<5.68	<4.73	<11.4	131	>42	>50	>39
17	C7790	I-004	**Ratio:**	**1:1**	**1:2.5**	**1:5**	**1:5**	**1:1**	**1:2.5**	**1:5**	**1:5**
18			Arsenic	<4.44	<13.3	<26.7	<26.7	>22	>16	>14	>14
19			Barium	0.842	1.22	1.37	1.51	118	202	360	326
20			Chromium	0.159	0.242	0.363	0.381	627	1030	1370	1310
21			Lead	1.03	<8.56	<17.1	<17.1	96	>27	>24	>24
22	C7790	I-005	**Ratio:**	**1:1**	**1:2.5**	**1:5**	**1:5**	**1:1**	**1:2.5**	**1:5**	**1:5**
23			Arsenic	<5.20	<15.6	<31.2	<31.2	>18	>14	>11	>11
24			Barium	1.24	2.11	1.96	1.57	80	116	250	314
25			Cadmium	<17.4	<52.3	<100	<100	>5	>2	>0	>0
26			Chromium	0.493	0.734	0.786	0.577	202	338	631	862
27			Lead	0.763	<6.36	<12.7	<12.7	130	>37	>34	>34

Summary Cont. — Percent Leached and Estimated Kd Results

1	Borehole	Interval	Analyte	Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
2	C7790	I-011	**Ratio:**	**1:1**	**1:2.5**	**1:5**	**1:5**	**1:1**	**1:2.5**	**1:5**	**1:5**
3			Arsenic	<3.47	<10.4	<20.8	<20.8	>28	>22	>19	>19
4			Barium	0.0845	0.188	0.272	0.244	1180	1330	1830	2040
5			Chromium	<0.12	<0.35	<0.69	<0.69	>868	>722	>719	>719
6			Lead	<1.62	<4.87	<9.74	<9.74	>61	>49	>46	>46
7	C7791	I-001	**Ratio:**	**1:1**	**1:2.5**	**1:5**	**1:5**	**1:1**	**1:2.5**	**1:5**	**1:5**
8			Arsenic	<3.72	<11.15	<22.3	<22.3	>26	>20	>17	>17
9			Barium	0.268	1.11	2.04	1.61	372	223	240	305
10			Cadmium	<19.2	<57.7	<100	<100	>4	>2	>0	>0
11			Chromium	0.0471	0.303	0.538	0.336	2120	824	925	1480
12			Lead	<2.07	2.38	<12.4	<12.4	>47	103	>35	>35
13	C7791	I-002	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
14			Arsenic	<5.51	<13.8	<13.8	<27.6	>17	>16	>16	>13
15			Barium	0.0226	0.0113	0.0226	<0.06	4420	22100	11000	>8830
16			Chromium	<0.20	<0.51	<0.51	<1.02	>490	>489	>489	>486
17			Lead	<2.16	<5.40	<5.40	<10.8	>45	>44	>44	>41
18	C7791	I-003	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
19			Arsenic	<4.89	<12.2	<12.2	<24.4	>19	>18	>18	>15
20			Barium	0.0203	0.0297	0.0424	0.0339	4910	8420	5900	14700
21			Cadmium	<14.0	<35.0	<35.0	<70.1	>6	>5	>5	>2
22			Chromium	<0.30	<0.76	<0.76	<1.52	>329	>327	>327	>325
23			Lead	<2.62	<6.54	<6.54	<13.1	>37	>36	>36	>33

Summary Cont. — Percent Leached and Estimated Kd Results

Borehole	Interval	Analyte	Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
C7791	I-004	**Ratio:**	**1:1**	**1:2.5**	**1:5**	**1:5**	**1:1**	**1:2.5**	**1:5**	**1:5**
		Arsenic	<1.51	<3.77	<7.53	<7.53	>65	>64	>61	>61
		Barium	0.0154	0.0178	0.0416	0.0416	6470	14000	12000	12000
		Cadmium	<14.0	<35.0	<69.9	<69.9	>6	>5	>2	>2
		Chromium	<0.06	<0.16	<0.32	<0.32	>1550	>1550	>1550	>1550
		Lead	<1.61	<4.04	<8.07	<8.07	>61	>59	>57	>57
C7791	I-005	**Ratio:**	**1:1**	**1:2.5**	**1:5**	**1:5**	**1:1**	**1:2.5**	**1:5**	**1:5**
		Arsenic	<5.94	<14.8	<29.7	<29.7	>16	>14	>12	>12
		Barium	0.0112	0.0140	0.00699	0.0140	8940	13900	71500	35700
		Chromium	<0.14	<0.34	<0.69	<0.69	>726	>725	>722	>722
		Lead	<1.93	<4.84	<9.67	<9.67	>51	>49	>47	>47
C7791	I-011	**Ratio:**	**1:1**	**1:1**	**1:2.5**	**1:5**	**1:1**	**1:1**	**1:2.5**	**1:5**
		Arsenic	<5.61	<5.61	<14.0	<28.0	>17	>17	>15	>13
		Barium	0.00887	0.0931	0.196	0.00739	11300	1070	1270	67600
		Chromium	<0.23	0.0657	0.540	<1.17	>425	1520	461	>421
		Lead	<2.06	<2.06	<5.16	<10.3	>47	>47	>46	>43
C7792	I-001	**Ratio:**	**1:1**	**1:1**	**1:2.5**	**1:5**	**1:1**	**1:1**	**1:2.5**	**1:5**
		Arsenic	<3.63	<3.63	<10.9	<21.8	>27	>27	>20	>18
		Barium	0.243	0.0945	0.590	0.954	410	1060	421	519
		Cadmium	<13.9	<13.9	<41.7	<83.3	>6	>6	>4	>1
		Chromium	0.0854	<0.19	<0.58	<1.17	1170	>514	>427	>424
		Lead	<2.13	<2.13	<6.38	<12.8	>46	>46	>37	>34

Summary Cont. — Percent Leached and Estimated Kd Results

1	Borehole	Interval	Analyte	Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
2	C7792	I-002	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
3			Arsenic	<3.33	<9.98	<9.98	<16.6	>29	>23	>23	>25
4			Barium	0.164	0.618	0.609	1.07	608	402	408	462
5			Cadmium	<17.8	<53.2	<53.2	<88.8	>5	>2	>2	>1
6			Chromium	0.0397	0.159	0.159	0.397	2520	1570	1570	1260
7			Lead	<2.14	<6.42	<6.42	<10.7	>46	>36	>36	>42
8	C7792	I-003	**Ratio:**	**1:1**	**1:1**	**1:2.5**	**1:5**	**1:1**	**1:1**	**1:2.5**	**1:5**
9			Arsenic	<4.55	<3.79	<9.48	<19.0	>21	>25	>24	>21
10			Barium	0.969	0.414	1.18	0.987	102	241	209	502
11			Cadmium	<20.3	<17.0	<42.4	<84.8	>4	>5	>3	>1
12			Chromium	0.0811	0.0374	0.133	<0.39	1230	2670	1880	>1280
13			Lead	<2.67	<2.22	<5.56	<11.1	>36	>44	>42	>40
14	C7792	I-004	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
15			Arsenic	<5.15	<10.7	<10.7	<21.5	>18	>21	>21	>18
16			Barium	0.517	1.29	1.24	0.614	192	192	198	809
17			Cadmium	<21.8	<45.4	<45.4	<90.9	>4	>3	>3	>1
18			Chromium	0.105	0.299	0.318	<0.93	954	833	784	>530
19			Lead	<2.56	<5.33	<5.33	<10.7	>38	>44	>44	>42
20	C7792	I-005	**Ratio:**	**1:1**	**1:1**	**1:2.5**	**1:5**	**1:1**	**1:1**	**1:2.5**	**1:5**
21			Arsenic	<4.33	<3.61	<9.01	<18.0	>22	>27	>25	>23
22			Barium	0.149	0.0572	0.230	1.25	670	1750	1090	396
23			Chromium	<0.20	<0.17	<0.42	0.439	>492	>591	>590	1130
24			Lead	<2.76	<2.30	<5.75	<11.5	>35	>42	>41	>38

Summary Cont. — Percent Leached and Estimated Kd Results

1	Borehole	Interval	Analyte	Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
2	C7792	I-006	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
3			Arsenic	<4.07	<10.2	<10.2	<20.3	>24	>22	>22	>20
4			Barium	0.0801	0.485	0.360	0.934	1250	513	691	530
5			Chromium	0.0396	0.165	0.165	0.198	2520	1510	1510	2520
6			Lead	<2.55	2.04	<6.38	<12.8	>38	120	>37	>34
7	C7792	I-007	**Ratio:**	**1:1**	**1:2.5**	**1:5**	**1:5**	**1:1**	**1:2.5**	**1:5**	**1:5**
8			Arsenic	<4.38	<11.0	<21.9	<21.9	>22	>20	>18	>18
9			Barium	0.121	0.704	2.00	1.93	826	353	245	255
10			Chromium	0.0462	0.212	0.962	0.808	2170	1180	515	614
11			Lead	<2.24	<5.61	<11.2	<11.2	>44	>42	>40	>40
12	C7792	I-008	**Ratio:**	**1:1**	**1:2.5**	**1:5**	**1:5**	**1:1**	**1:2.5**	**1:5**	**1:5**
13			Arsenic	<4.30	<10.7	<21.5	<21.5	>22	>21	>18	>18
14			Barium	0.0710	0.157	0.574	0.369	1410	1590	866	1350
15			Cadmium	<20.2	<50.5	<100	<100	>4	>2	>0	>0
16			Chromium	<0.23	<0.59	<1.17	<1.17	>425	>423	>421	>421
17			Lead	<2.31	<5.78	<11.6	<11.6	>42	>41	>38	>38
18	C7970	I-001	**Ratio:**	**1:1**	**1:1**	**1:2.5**	**1:5**	**1:1**	**1:1**	**1:2.5**	**1:5**
19			Arsenic	<6.84	<6.84	<3.42	<6.84	>14	>14	>71	>68
20			Barium	<0.04	0.0159	0.0239	0.0399	>2510	6270	10500	12500
21			Chromium	<0.11	<0.11	<0.05	<0.11	>947	>947	>4740	>4740
22			Lead	<4.47	<4.47	<2.24	<4.47	>21	>21	>109	>107

Summary Cont. — Percent Leached and Estimated Kd Results

1	Borehole	Interval	Analyte	Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
2	C7970	I-002	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
3			Arsenic	<8.14	<4.07	<4.07	<8.14	>11	>59	>59	>56
4			Barium	0.0460	0.141	0.145	0.341	2170	1780	1720	1460
5			Cadmium	<1.69	0.564	0.282	<1.69	>58	441	884	>290
6			Chromium	<0.02	<0.01	<0.01	<0.02	>6490	>32400	>32400	>32400
7			Lead	<1.90	<0.95	<0.95	<1.90	>52	>261	>261	>258
8			Sr-90	9.50	10.9	10.0	12.4	9.53	20.4	22.4	35.4
9	C7970	I-003	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
10			Arsenic	<11.5	<5.77	<5.77	<11.5	>8	>41	>41	>38
11			Barium	0.0425	0.131	0.127	0.319	2350	1910	1970	1560
12			Cadmium	<3.80	<1.90	<1.90	<3.80	>25	>129	>129	>127
13			Chromium	<0.02	<0.01	<0.01	<0.02	>4710	>23600	>23600	>23600
14			Lead	<6.04	<3.02	<3.02	<6.04	>16	>80	>80	>78
15			Sr-90	9.78	11.7	7.62	24.4	9.23	18.9	30.3	15.5
16	C7970	I-004	**Ratio:**	**1:1**	**1:2.5**	**1:5**	**1:5**	**1:1**	**1:2.5**	**1:5**	**1:5**
17			Arsenic	<10.9	<5.45	<10.9	<10.9	>8	>43	>41	>41
18			Barium	0.0410	0.126	0.292	0.292	2440	1980	1710	1710
19			Chromium	<0.06	<0.03	<0.06	<0.06	>1740	>8690	>8690	>8690
20			Lead	<5.72	<2.86	<5.72	<5.72	>16	>85	>82	>82
21			Sr-90	8.21	11.3	14.5	13.5	11.2	19.7	29.5	32.1
22	C7970	I-005	**Ratio:**	**1:1**	**1:1**	**1:2.5**	**1:5**	**1:1**	**1:1**	**1:2.5**	**1:5**
23			Arsenic	<11.4	<11.4	<5.68	<11.4	>8	>8	>42	>39
24			Barium	0.0666	0.0746	0.212	0.393	1500	1340	1180	1270
25			Chromium	<0.09	<0.09	<0.04	<0.09	>1120	>1120	>5590	>5590
26			Lead	<6.16	<6.16	<3.08	<6.16	>15	>15	>79	>76
27			Sr-90	4.46	5.18	8.10	10.3	21.4	18.3	28.4	43.4

Summary Cont. — Percent Leached and Estimated Kd Results

1	Borehole	Interval	Analyte	Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
2	C7970	I-006	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
3			Arsenic	<7.97	<3.98	<3.98	<7.97	>12	>60	>60	>58
4			Barium	0.0501	0.121	0.117	0.145	2000	2060	2130	3440
5			Chromium	<0.08	<0.04	<0.04	<0.08	>1250	>6230	>6230	>6230
6			Cr-VI	<8.51	<21.3	<21.3	<42.6	>11	>9	>9	>7
7			Lead	<6.76	<3.38	<3.38	<6.76	>14	>72	>72	>69
8			Sr-90	2.30	4.25	4.64	5.17	42.6	56.3	51.4	92
9	C7970	I-007	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
10			Arsenic	<8.55	<4.27	<4.27	<8.55	>11	>56	>56	>54
11			Barium	0.0423	0.0784	0.0784	0.0954	2360	3190	3190	5230
12			Chromium	<0.07	<0.03	<0.03	<0.07	>1530	>7670	>7670	>7670
13			Lead	<6.15	<3.08	<3.08	<6.15	>15	>79	>79	>76
14			Sr-90	1.38	2.10	2.14	2.11	71.4	116	114	232
15	C7970	I-014	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
16			Arsenic	<6.49	<3.25	<3.25	<6.49	>14	>75	>75	>72
17			Barium	0.0359	0.0640	0.0640	0.0683	2790	3900	3900	7320
18			Chromium	<0.10	<0.05	<0.05	<0.10	>999	>5000	>5000	>5000
19			Lead	<7.88	<3.94	<3.94	<7.88	>12	>61	>61	>58
20			Sr-90	0.820	1.15	1.29	1.74	121	214	191	282
21	C7971	I-001	**Ratio:**	**1:1**	**1:1**	**1:2.5**	**1:5**	**1:1**	**1:1**	**1:2.5**	**1:5**
22			Arsenic	<9.54	<9.54	<4.77	<9.54	>9	>9	>50	>47
23			Barium	0.0182	0.0182	0.0244	0.0349	5500	5500	10200	14300
24			Chromium	<0.02	<0.02	0.00628	<0.02	>5310	>5310	39800	>26600
25			Lead	<7.68	<7.68	<3.84	<7.68	>12	>12	>63	>60

Summary Cont. — Percent Leached and Estimated Kd Results

Borehole	Interval	Analyte	Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
C7971	I-002	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
		Arsenic	<9.42	<4.71	<4.71	<9.42	>10	>51	>51	>48
		Barium	<0.05	0.0188	0.0235	0.0375	>2130	13300	10700	13300
		Chromium	<0.15	<0.08	<0.08	<0.15	>649	>3240	>3240	>3240
		Cr-VI	<3.62	<9.05	<9.05	<18.1	>27	>25	>25	>23
		Lead	<6.68	<3.34	<3.34	<6.68	>14	>72	>72	>70
C7971	I-003	**Ratio:**	**1:1**	**1:2.5**	**1:5**	**1:5**	**1:1**	**1:2.5**	**1:5**	**1:5**
		Arsenic	<9.45	<4.72	<9.45	<9.45	>10	>50	>48	>48
		Barium	<0.05	0.0188	0.0281	0.0281	>2130	13300	17800	17800
		Chromium	<0.19	<0.09	<0.19	<0.19	>539	>2700	>2690	>2690
		Lead	<6.15	<3.07	<6.15	<6.15	>15	>79	>76	>76
C7971	I-012	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
		Arsenic	<9.60	<4.80	<4.80	<9.60	>9	>50	>50	>47
		Barium	0.0449	0.0357	0.0357	0.0612	2230	7000	7000	8170
		Chromium	<0.19	<0.09	<0.09	<0.19	>531	>2660	>2660	>2660
		Lead	<7.79	<3.90	<3.90	<7.79	>12	>62	>62	>59
C7972	I-001	**Ratio:**	**1:1**	**1:1**	**1:2.5**	**1:5**	**1:1**	**1:1**	**1:2.5**	**1:5**
		Arsenic	<6.00	<6.00	<3.00	<6.00	>16	>16	>81	>78
		Barium	0.0297	0.0297	0.0403	0.0743	3360	3360	6210	6720
		Chromium	0.0605	0.0432	0.0432	<0.13	1650	2310	5780	>3850
		Lead	<2.91	<2.91	<1.46	<2.91	>33	>33	>169	>167
C7972	I-002	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
		Arsenic	<8.09	<4.04	<4.04	<8.09	>11	>59	>59	>57
		Barium	0.0285	0.0375	0.0375	0.0600	3510	6660	6660	8330
		Chromium	<0.09	<0.04	<0.04	<0.09	>1140	>5710	>5710	>5710
		Lead	<6.71	<3.36	<3.36	<6.71	>14	>72	>72	>70

Summary Cont. — Percent Leached and Estimated Kd Results

Borehole	Interval	Analyte	Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
C7972	I-003	**Ratio:**	**1:1**	**1:2.5**	**1:5**	**1:5**	**1:1**	**1:2.5**	**1:5**	**1:5**
		Arsenic	<8.57	<4.29	<8.57	<8.57	>11	>56	>53	>53
		Barium	0.0182	0.0324	0.0454	0.0454	5500	7700	11000	11000
		Chromium	<0.04	<0.02	<0.04	<0.04	>2780	>13900	>13900	>13900
		Cr-VI	<1.50	<3.74	<7.48	<7.48	>66	>64	>62	>62
		Lead	<7.12	<3.56	<7.12	<7.12	>13	>68	>65	>65
C7972	I-004	**Ratio:**	**1:1**	**1:1**	**1:2.5**	**1:5**	**1:1**	**1:1**	**1:2.5**	**1:5**
		Arsenic	<8.03	<8.03	<4.02	<8.03	>11	>11	>60	>57
		Barium	0.0326	0.0342	0.0448	0.0571	3060	2920	5570	8760
		Chromium	<0.03	<0.03	<0.01	<0.03	>3920	>3920	>19600	>19600
		Cr-VI	<4.62	<4.62	<11.6	<23.1	>21	>21	>19	>17
		Lead	<5.38	<5.38	<2.69	<5.38	>18	>18	>90	>88
C7972	I-005	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
		Arsenic	<7.59	<3.79	<3.79	<7.59	>12	>63	>63	>61
		Barium	<0.05	0.0329	0.0329	0.385	>2130	7600	7600	1290
		Chromium	<0.13	<0.06	<0.06	<0.13	>776	>3880	>3880	>3880
		Lead	<5.47	<2.73	<2.73	<5.47	>17	>89	>89	>86
C7972	I-006	**Ratio:**	**1:1**	**1:2.5**	**1:5**	**1:5**	**1:1**	**1:2.5**	**1:5**	**1:5**
		Arsenic	<9.54	<4.77	<9.54	<9.54	>9	>50	>47	>47
		Barium	<0.05	0.0279	0.0465	0.0465	>2150	8960	10800	10800
		Chromium	<0.08	<0.04	<0.08	<0.08	>1270	>6370	>6370	>6370
		Lead	<3.40	<1.70	<3.40	<3.40	>28	>145	>142	>142
C7972	I-008	**Ratio:**	**1:1**	**1:2.5**	**1:2.5**	**1:5**	**1:1**	**1:2.5**	**1:2.5**	**1:5**
		Arsenic	<8.29	<4.14	<20.7	<8.29	>11	>58	>10	>55
		Barium	0.0540	0.170	0.148	0.331	1850	1470	1690	1510
		Chromium	<0.17	<0.08	<0.42	<0.17	>599	>3000	>598	>3000
		Lead	<6.07	<3.03	<15.2	<6.07	>15	>80	>14	>77

Well #C7790, Interval I-001

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26T19-A1		B26T19-A2		B26T19-B1		B26T19-C1									
	B26T19-1	Q	B26T19-2	Q	B26T19-3	Q	B26T19-4	Q	Avg	1:1	Q	1:1	Q	1:2.5	Q	1:5	Q	1:1	1:1	1:2.5	1:5	1:1	1:1	1:2.5	1:5
Arsenic	1.81		1.85		2.06		1.58		1.83	0.0750	U	0.0750	U	0.0900	U	0.0900	U	<4.11	<4.11	<12.3	<24.7	>23	>23	>18	>15
Barium	80.5		81.9		73.9		75.9		78.1	0.179		0.120		0.160		0.137		0.229	0.154	0.512	0.878	435	649	485	565
Cadmium	0.214	U	0.222	U	0.222	U	0.214	U	N/A	0.0150	U	0.0150	U	0.0180	U	0.0180	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	27.8		21.6		19.3		74.3		35.8	0.00500	B	0.0250	U	0.0300	U	0.0300	U	0.0140	<0.07	<0.21	<0.42	7150	>1430	>1190	>1190
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.89		2.90		3.11		2.83		2.93	0.0500	U	0.0500	U	0.0600	U	0.0600	U	<1.71	<1.71	<5.12	<10.2	>58	>58	>46	>44
Selenium	0.857	U	0.887	U	0.887	U	0.857	U	N/A	0.100	U	0.100	U	0.120	U	0.120	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.857	U	0.887	U	0.887	U	0.857	U	N/A	0.0300	U	0.0300	U	0.0360	U	0.0360	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7790, Interval I-002

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26T21-A1		B26T21-A2		B26T21-B1		B26T21-C1									
	B26T21-1	Q	B26T21-2	Q	B26T21-3	Q	B26T21-4	Q	Avg	1:1	Q	1:1	Q	1:2.5	Q	1:5	Q	1:1	1:1	1:2.5	1:5	1:1	1:1	1:2.5	1:5
Arsenic	1.87		2.70		2.03		1.84		2.11	0.150	U	0.0750	U	0.0900	U	0.0900	U	<7.11	<3.55	<10.7	<21.3	>13	>27	>21	>18
Barium	58.3		57.7		54.1		61.1		57.8	0.464		0.275		0.171		0.0870		0.803	0.476	0.740	0.753	124	209	336	659
Cadmium	0.205	U	0.169	U	0.172	U	0.174	U	N/A	0.0300	U	0.0150	U	0.0180	U	0.0180	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	16.7		17.4		15.5		26.0		18.9	0.0320	B	0.0170	B	0.0140	B	0.00600	B	0.169	0.0899	0.185	0.159	590	1110	1350	3140
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.35		2.46		2.37		2.25		2.36	0.100	U	0.0500	U	0.0600	U	0.0600	U	<4.24	<2.12	<6.36	<12.7	>23	>46	>37	>34
Selenium	0.819	U	0.677	U	0.686	U	0.696	U	N/A	0.200	U	0.100	U	0.120	U	0.120	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.819	U	0.677	U	0.686	U	0.696	U	N/A	0.0600	U	0.0300	U	0.0360	U	0.0360	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7790, Interval I-003

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26T23-A1		B26T23-B1		B26T23-B2		B26T23-C1									
	B26T23-1	Q	B26T23-2	Q	B26T23-3	Q	B26T23-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	2.69		3.74		2.47		2.66		2.89	0.0750	U	0.0900	U	0.0750	U	0.0900	U	<2.60	<7.79	<6.49	<15.6	>38	>30	>36	>27
Barium	66.2		66.7		67.3		65.3		66.4	0.560		0.419		0.325		0.170		0.844	1.58	1.22	1.28	118	156	202	385
Cadmium	0.192	U	0.172	U	0.195	U	0.198	U	N/A	0.0150	U	0.0180	U	0.0150	U	0.0180	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	10.1		9.45		8.61		11.4		9.89	0.0240	B	0.0230	B	0.0190	B	0.00900	B	0.243	0.581	0.480	0.455	411	428	518	1090
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.54		2.63		2.88		2.52		2.64	0.0200	B	0.0600	U	0.0500	U	0.0600	U	0.757	<5.68	<4.73	<11.4	131	>42	>50	>39
Selenium	0.770	U	0.687	U	0.782	U	0.794	U	N/A	0.100	U	0.120	U	0.100	U	0.120	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.770	U	0.687	U	0.782	U	0.794	U	N/A	0.0300	U	0.0360	U	0.0300	U	0.0360	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Avg = average

B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit

K_d = distribution coefficient

N/A = not applicable

Q = laboratory qualifier

U = undetected

Originator: R. P. Wells RPW
Project: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation
Subject: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation Distribution Coefficient Calculations

Date: 10/24/11
Job No.: 14655

Calc. No.: 0100X-CA-V0060
Checked: P. L. Benjamin PB

Rev. No.: 0
Date: 10-25-11
Sheet No.: 14 of 25

Well #C7790, Interval I-004

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26T31-A1		B26T31-B1		B26T31-C1		B26T31-C2									
	B26T31-1	Q	B26T31-2	Q	B26T31-3	Q	B26T31-4	Q	Avg	1:1	Q	1:2.5	Q	1:5	Q	1:5	Q	1:1	1:2.5	1:5	1:5	1:1	1:2.5	1:5	1:5
Arsenic	1.73		1.59		1.67		1.76		1.69	0.0750	U	0.0900	U	0.0900	U	0.0900	U	<4.44	<13.3	<26.7	<26.7	>22	>16	>14	>14
Barium	73.9		77.5		77.7		71.3		75.1	0.632		0.367		0.206		0.227		0.842	1.22	1.37	1.51	118	202	360	326
Cadmium	0.175	U	0.196	U	0.250	U	0.182	U	N/A	0.0150	U	0.0180	U	0.0180	U	0.0300		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	14.9		69.3		18.2		13.2		28.9	0.0460		0.0280	B	0.0210	B	0.0220	B	0.159	0.242	0.363	0.381	627	1030	1370	1310
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.030		0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	1.70		1.66		1.85		1.80		1.75	0.0180	B	0.0600	U	0.0600	U	0.0600	U	1.03	<8.56	<17.1	<17.1	96	>27	>24	>24
Selenium	0.699	U	0.785	U	1.00	U	0.729	U	N/A	0.100	U	0.120	U	0.120	U	0.120	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.699	U	0.785	U	1.00	U	0.729	U	N/A	0.0300	U	0.0360	U	0.0360	U	0.0360	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7790, Interval I-005

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26T33-A1		B26T33-B1		B26T33-C1		B26T33-C2									
	B26T33-1	Q	B26T33-2	Q	B26T33-3	Q	B26T33-4	Q	Avg	1:1	Q	1:2.5	Q	1:5	Q	1:5	Q	1:1	1:2.5	1:5	1:5	1:1	1:2.5	1:5	1:5
Arsenic	1.68		1.49		1.33		1.27		1.44	0.0750	U	0.0900	U	0.0900	U	0.0900	U	<5.20	<15.6	<31.2	<31.2	>18	>14	>11	>11
Barium	49.2		49.3		47.6		45.0		47.8	0.591		0.404		0.187		0.150		1.24	2.11	1.96	1.57	80	116	250	314
Cadmium	0.0920	B	0.0910	B	0.0750	B	0.0860	B	0.0860	0.0150	U	0.0180	U	0.0180	U	0.0180	U	<17.4	<52.3	<100	<100	>5	>2	>0	>0
Chromium	9.16		10.2		8.69		10.1		9.54	0.0470		0.0280	B	0.0150	B	0.0110	B	0.493	0.734	0.786	0.577	202	338	631	862
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.46		2.42		2.27		2.29		2.36	0.0180	B	0.0600	U	0.0600	U	0.0600	U	0.763	<6.36	<12.7	<12.7	130	>37	>34	>34
Selenium	0.351	B	0.816	U	0.685	U	0.244	B	N/A	0.100	U	0.120	U	0.120	U	0.120	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.778	U	0.816	U	0.685	U	0.685	U	N/A	0.0300	U	0.0360	U	0.0360	U	0.0360	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7790, Interval I-011

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26T45-A1		B26T45-B1		B26T45-C1		B26T45-C2									
	B26T45-1	Q	B26T45-2	Q	B26T45-3	Q	B26T45-4	Q	Avg	1:1	Q	1:2.5	Q	1:5	Q	1:5	Q	1:1	1:2.5	1:5	1:5	1:1	1:2.5	1:5	1:5
Arsenic	2.29		2.12		2.14		2.09		2.16	0.0750	U	0.0900	U	0.0900	U	0.0900	U	<3.47	<10.4	<20.8	<20.8	>28	>22	>19	>19
Barium	57.3		53.1		54.9		47.6		53.2	0.0450		0.0400		0.0290		0.0260		0.0845	0.188	0.272	0.244	1180	1330	1830	2040
Cadmium	0.289	U	0.289	U	0.274	U	0.279	U	N/A	0.0150	U	0.0180	U	0.0180	U	0.0180	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	14.6		12.6		20.6		39.1		21.7	0.0250	U	0.0300	U	0.0300	U	0.0300	U	<0.12	<0.35	<0.69	<0.69	>868	>722	>719	>719
Cr-VI	0.64	U	0.64	U	0.64	U	0.64	U	N/A	0.010	B	0.020	U	0.020	U	0.020	B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	3.00		2.81		3.33		3.18		3.08	0.0500	U	0.0600	U	0.0600	U	0.0600	U	<1.62	<4.87	<9.74	<9.74	>61	>49	>46	>46
Selenium	1.16	U	1.16	U	1.10	U	1.11	U	N/A	0.100	U	0.120	U	0.120	U	0.120	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	1.16	U	1.16	U	1.10	U	1.11	U	N/A	0.0300	U	0.0360	U	0.0360	U	0.0360	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Avg = average
B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit

K_d = distribution coefficient
N/A = not applicable

Q = laboratory qualifier
U = undetected

Well #C7791, Interval I-001

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B27356-A1		B27356-B1		B27356-C1		B27356-C2									
	B27356-1	Q	B27356-2	Q	B27356-3	Q	B27356-4	Q	Avg	1:1	Q	1:2.5	Q	1:5	Q	1:5	Q	1:1	1:2.5	1:5	1:5	1:1	1:2.5	1:5	1:5
Arsenic	1.99		1.85		2.05		2.18		2.02	0.0750	U	0.0900	U	0.0900	U	0.0900	U	<3.72	<11.15	<22.3	<22.3	>26	>20	>17	>17
Barium	56.9		57.2		66.3		60.0		60.1	0.161		0.267		0.245		0.194		0.268	1.11	2.04	1.61	372	223	240	305
Cadmium	0.0730	B	0.0750	B	0.0830	B	0.0810	B	0.0780	0.0150	U	0.0180	U	0.0180	U	0.0180	U	<19.2	<57.7	<100	<100	>4	>2	>0	>0
Chromium	17.8		14.8		13.6		13.3		14.9	0.00700	B	0.0180	B	0.0160	B	0.0100	B	0.0471	0.303	0.538	0.336	2120	824	925	1480
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.31		2.27		2.40		2.69		2.42	0.0500	U	0.0230	B	0.0600	U	0.0600	U	<2.07	2.38	<12.4	<12.4	>47	103	>35	>35
Selenium	0.723	U	0.703	U	0.987	U	0.870	U	N/A	0.100	U	0.120	U	0.120	U	0.120	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.723	U	0.703	U	0.987	U	0.870	U	N/A	0.0300	U	0.0360	U	0.0360	U	0.0360	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7791, Interval I-002

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B27357-A1		B27357-B1		B27357-B2		B27357-C1									
	B27357-1	Q	B27357-2	Q	B27357-3	Q	B27357-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	1.41		1.21		1.46		1.36		1.36	0.0750	U	0.0750	U	0.0750	U	0.0750	U	<5.51	<13.8	<13.8	<27.6	>17	>16	>16	>13
Barium	42.8		44.5		46.2		43.2		44.2	0.0100		0.00200	B	0.00400	B	0.00500	U	0.0226	0.0113	0.0226	<0.06	4420	22100	11000	>8830
Cadmium	0.182	U	0.219	U	0.187	U	0.208	U	N/A	0.0150	U	0.0150	U	0.0150	U	0.0150	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	13.2		10.5		14.1		11.3		12.3	0.0250	U	0.0250	U	0.0250	U	0.0250	U	<0.20	<0.51	<0.51	<1.02	>490	>489	>489	>486
Cr-VI	0.52	U	0.52	U	0.52	U	0.52	U	N/A	0.010	B	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.27		2.20		2.48		2.31		2.32	0.0500	U	0.0500	U	0.0500	U	0.0500	U	<2.16	<5.40	<5.40	<10.8	>45	>44	>44	>41
Selenium	0.727	U	0.875	U	0.748	U	0.832	U	N/A	0.100	U	0.100	U	0.100	U	0.100	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.727	U	0.875	U	0.748	U	0.832	U	N/A	0.0300	U	0.0300	U	0.0300	U	0.0300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7791, Interval I-003

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B27359-A1		B27359-B1		B27359-B2		B27359-C1									
	B27359-1	Q	B27359-2	Q	B27359-3	Q	B27359-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	1.70		1.62		1.32		1.50		1.54	0.0750	U	0.0750	U	0.0750	U	0.0750	U	<4.89	<12.2	<12.2	<24.4	>19	>18	>18	>15
Barium	61.9		58.5		57.5		58.0		59.0	0.0120		0.00700		0.0100		0.00400	B	0.0203	0.0297	0.0424	0.0339	4910	8420	5900	14700
Cadmium	0.113	B	0.103	B	0.102	B	0.110	B	0.107	0.0150	U	0.0150	U	0.0150	U	0.0150	U	<14.0	<35.0	<35.0	<70.1	>6	>5	>5	>2
Chromium	7.36		7.98		10.2		7.43		8.24	0.0250	U	0.0250	U	0.0250	U	0.0250	U	<0.30	<0.76	<0.76	<1.52	>329	>327	>327	>325
Cr-VI	0.52	U	0.52	U	0.52	U	0.52	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	1.98		1.81		1.96		1.89		1.91	0.0500	U	0.0500	U	0.0500	U	0.0500	U	<2.62	<6.54	<6.54	<13.1	>37	>36	>36	>33
Selenium	0.847	U	0.671	U	0.861	U	0.876	U	N/A	0.100	U	0.100	U	0.100	U	0.100	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.847	U	0.671	U	0.861	U	0.876	U	N/A	0.0300	U	0.0300	U	0.0300	U	0.0300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Avg = average
B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit

K_d = distribution coefficient
N/A = not applicable

Q = laboratory qualifier
U = undetected

Washington Closure Hanford

Originator: R. P. Wells RPW
Project: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation
Subject: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation Distribution Coefficient Calculations

Date: 10/24/11
Job No.: 14655

Calc. No.: 0100X-CA-V0060
Checked: P. L. Benjamin PB

Rev. No.: 0
Date: 10-25-11
Sheet No.: 16 of 25

Well #C7791, Interval I-004

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B27361-A1		B27361-B1		B27361-C1		B27361-C2									
	B27361-1	Q	B27361-2	Q	B27361-3	Q	B27361-4	Q	Avg	1:1	Q	1:2.5	Q	1:5	Q	1:5	Q	1:1	1:2.5	1:5	1:5	1:1	1:2.5	1:5	1:5
Arsenic	1.77		2.23		1.92		14.0		4.98	0.0750	U	0.0750	U	0.0750	U	0.0750	U	<1.51	<3.77	<7.53	<7.53	>65	>64	>61	>61
Barium	83.8		83.2		85.2		84.5		84.2	0.0130		0.00600		0.00700		0.00700		0.0154	0.0178	0.0416	0.0416	6470	14000	12000	12000
Cadmium	0.102	B	0.107	B	0.109	B	0.111	B	0.107	0.0150	U	0.0150	U	0.0150	U	0.0150	U	<14.0	<35.0	<69.9	<69.9	>6	>5	>2	>2
Chromium	36.2		46.3		28.9		43.8		38.8	0.0250	U	0.0250	U	0.0250	U	0.0250	U	<0.06	<0.16	<0.32	<0.32	>1550	>1550	>1550	>1550
Cr-VI	0.52	U	0.52	U	0.52	U	0.52	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	3.04		3.11		3.24		3.00		3.10	0.0500	U	0.0500	U	0.0500	U	0.0500	U	<1.61	<4.04	<8.07	<8.07	>61	>59	>57	>57
Selenium	0.695	U	0.814	U	0.947	U	0.914	U	N/A	0.100	U	0.100	U	0.100	U	0.100	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.695	U	0.814	U	0.947	U	0.914	U	N/A	0.0300	U	0.0300	U	0.0300	U	0.0300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7791, Interval I-005

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B27362-A1		B27362-B1		B27362-C1		B27362-C2									
	B27362-1	Q	B27362-2	Q	B27362-3	Q	B27362-4	Q	Avg	1:1	Q	1:2.5	Q	1:5	Q	1:5	Q	1:1	1:2.5	1:5	1:5	1:1	1:2.5	1:5	1:5
Arsenic	1.35		1.45		1.30		0.950		1.26	0.0750	U	0.0750	U	0.0750	U	0.0750	U	<5.94	<14.8	<29.7	<29.7	>16	>14	>12	>12
Barium	64.4		85.3		65.9		70.4		71.5	0.00800		0.00400	B	0.00100	B	0.00200	B	0.0112	0.0140	0.00699	0.0140	8940	13900	71500	35700
Cadmium	0.218	U	0.322	U	0.224	U	0.0490	B	N/A	0.0150	U	0.0150	U	0.0150	U	0.0150	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	20.4		22.4		19.0		10.9		18.2	0.0250	U	0.0250	U	0.0250	U	0.0250	U	<0.14	<0.34	<0.69	<0.69	>726	>725	>722	>722
Cr-VI	0.64	U	0.64	U	0.64	U	0.64	U	N/A	0.010	B	0.010	B	0.010	B	0.010	B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.62		3.32		2.28		2.12		2.59	0.0500	U	0.0500	U	0.0500	U	0.0500	U	<1.93	<4.84	<9.67	<9.67	>51	>49	>47	>47
Selenium	0.871	U	1.29	U	0.896	U	0.896	U	N/A	0.100	U	0.100	U	0.100	U	0.100	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.871	U	1.29	U	0.896	U	0.896	U	N/A	0.0300	U	0.0300	U	0.0300	U	0.0300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7791, Interval I-011

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B27368-A1		B27368-A2		B27368-B1		B27368-C1									
	B27368-1	Q	B27368-2	Q	B27368-3	Q	B27368-4	Q	Avg	1:1	Q	1:1	Q	1:2.5	Q	1:5	Q	1:1	1:1	1:2.5	1:5	1:1	1:1	1:2.5	1:5
Arsenic	1.27		1.46		1.34		1.28		1.34	0.0750	U	0.0750	U	0.0750	U	0.0750	U	<5.61	<5.61	<14.0	<28.0	>17	>17	>15	>13
Barium	52.0		102		63.8		52.8		67.7	0.00600		0.0630		0.0530		0.00100	B	0.00887	0.0931	0.196	0.00739	11300	1070	1270	67600
Cadmium	0.253	U	0.279	U	0.129	B	0.231	U	N/A	0.0150	U	0.0150	U	0.0150	U	0.0150	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	9.48		13.7		9.52		9.93		10.7	0.0250	U	0.00700	B	0.0230	B	0.0250	U	<0.23	0.0657	0.540	<1.17	>425	1520	461	>421
Cr-VI	0.65	U	0.65	U	0.65	U	0.65	U	N/A	0.010	B	0.050		0.040		0.010	B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.13		2.90		2.48		2.18		2.42	0.0500	U	0.0500	U	0.0500	U	0.0500	U	<2.06	<2.06	<5.16	<10.3	>47	>47	>46	>43
Selenium	1.01	U	1.11	U	0.965	U	0.923	U	N/A	0.100	U	0.100	U	0.100	U	0.100	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	1.01	U	1.11	U	0.965	U	0.923	U	N/A	0.0300	U	0.0300	U	0.0300	U	0.0300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Avg = average
B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit

K_d = distribution coefficient
N/A = not applicable

Q = laboratory qualifier
U = undetected

Well #C7792, Interval I-001

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26Y86-A1		B26Y86-A2		B26Y86-B1		B26Y86-C1									
	B26Y86-1	Q	B26Y86-2	Q	B26Y86-3	Q	B26Y86-4	Q	Avg	1:1	Q	1:1	Q	1:2.5	Q	1:5	Q	1:1	1:1	1:2.5	1:5	1:1	1:1	1:2.5	1:5
Arsenic	1.94		2.09		2.03		2.21		2.07	0.0750	U	0.0750	U	0.0900	U	0.0900	U	<3.63	<3.63	<10.9	<21.8	>27	>27	>20	>18
Barium	56.9		53.9		53.4		56.0		55.1	0.134		0.0520		0.130		0.105		0.243	0.0945	0.590	0.954	410	1060	421	519
Cadmium	0.105	B	0.134	B	0.103	B	0.0900	B	0.108	0.0150	U	0.0150	U	0.0180	U	0.0180	U	<13.9	<13.9	<41.7	<83.3	>6	>6	>4	>1
Chromium	12.2		15.7		12.2		11.4		12.9	0.0110	B	0.0250	U	0.0300	U	0.0300	U	0.0854	<0.19	<0.58	<1.17	1170	>514	>427	>424
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.23		2.57		2.25		2.35		2.35	0.0500	U	0.0500	U	0.0600	U	0.0600	U	<2.13	<2.13	<6.38	<12.8	>46	>46	>37	>34
Selenium	0.941	U	0.298	B	0.908	U	0.678	U	N/A	0.100	U	0.100	U	0.120	U	0.120	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.941	U	0.959	U	0.908	U	0.678	U	N/A	0.0300	U	0.0300	U	0.0360	U	0.0360	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7792, Interval I-002

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26Y88-A1		B26Y88-B1		B26Y88-B2		B26Y88-C1									
	B26Y88-1	Q	B26Y88-2	Q	B26Y88-3	Q	B26Y88-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	2.06		2.40		2.26		2.30		2.26	0.0750	U	0.0900	U	0.0900	U	0.0750	U	<3.33	<9.98	<9.98	<16.6	>29	>23	>23	>25
Barium	55.1		54.3		58.0		64.1		57.9	0.0950		0.143		0.141		0.124		0.164	0.618	0.609	1.07	608	402	408	462
Cadmium	0.0790	B	0.0850	B	0.0910	B	0.0830	B	0.0845	0.0150	U	0.0180	U	0.0180	U	0.0150	U	<17.8	<53.2	<53.2	<88.8	>5	>2	>2	>1
Chromium	11.4		11.4		11.8		15.8		12.6	0.00500	B	0.00800	B	0.00800	B	0.0100	B	0.0397	0.159	0.159	0.397	2520	1570	1570	1260
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.050		0.010	B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.24		2.32		2.47		2.31		2.34	0.0500	U	0.0600	U	0.0600	U	0.0500	U	<2.14	<6.42	<6.42	<10.7	>46	>36	>36	>42
Selenium	0.653	U	0.925	U	0.863	U	0.863	U	N/A	0.100	U	0.120	U	0.120	U	0.100	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.653	U	0.925	U	0.863	U	0.863	U	N/A	0.0300	U	0.0360	U	0.0360	U	0.0300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7792, Interval I-003

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26Y89-A1		B26Y89-A2		B26Y89-B1		B26Y89-C1									
	B26Y89-1	Q	B26Y89-2	Q	B26Y89-3	Q	B26Y89-4	Q	Avg	1:1	Q	1:1	Q	1:2.5	Q	1:5	Q	1:1	1:1	1:2.5	1:5	1:1	1:1	1:2.5	1:5
Arsenic	1.91		2.16		1.88		1.96		1.98	0.0900	U	0.0750	U	0.0750	U	0.0750	U	<4.55	<3.79	<9.48	<19.0	>21	>25	>24	>21
Barium	54.0		58.8		57.3		61.0		57.8	0.560		0.239		0.273		0.114		0.969	0.414	1.18	0.987	102	241	209	502
Cadmium	0.0870	B	0.0900	B	0.0860	B	0.0910	B	0.0885	0.0180	U	0.0150	U	0.0150	U	0.0150	U	<20.3	<17.0	<42.4	<84.8	>4	>5	>3	>1
Chromium	40.2		31.5		28.2		28.3		32.1	0.0260	B	0.0120	B	0.0170	B	0.0250	U	0.0811	0.0374	0.133	<0.39	1230	2670	1880	>1280
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.010	B	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.25		2.25		2.21		2.28		2.25	0.0600	U	0.0500	U	0.0500	U	0.0500	U	<2.67	<2.22	<5.56	<11.1	>36	>44	>42	>40
Selenium	0.889	U	0.724	U	0.735	U	0.735	U	N/A	0.120	U	0.100	U	0.100	U	0.100	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.889	U	0.724	U	0.735	U	0.735	U	N/A	0.0360	U	0.0300	U	0.0300	U	0.0300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Avg = average
B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit

K_d = distribution coefficient
N/A = not applicable

Q = laboratory qualifier
U = undetected

Well #C7792, Interval I-004

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26Y90-A1		B26Y90-B1		B26Y90-B2		B26Y90-C1									
	B26Y90-1	Q	B26Y90-2	Q	B26Y90-3	Q	B26Y90-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	1.62		1.68		1.88		1.81		1.75	0.0900	U	0.0750	U	0.0750	U	0.0750	U	<5.15	<10.7	<10.7	<21.5	>18	>21	>21	>18
Barium	51.0		52.1		49.7		49.0		50.5	0.261		0.260		0.251		0.0620		0.517	1.29	1.24	0.614	192	192	198	809
Cadmium	0.0990	B	0.0700	B	0.0820	B	0.0790	B	0.0825	0.0180	U	0.0150	U	0.0150	U	0.0150	U	<21.8	<45.4	<45.4	<90.9	>4	>3	>3	>1
Chromium	8.55		9.82		27.4		7.73		13.4	0.0140	B	0.0160	B	0.0170	B	0.0250	U	0.105	0.299	0.318	<0.93	954	833	784	>530
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.13		2.03		3.26		1.96		2.35	0.0600	U	0.0500	U	0.0500	U	0.0500	U	<2.56	<5.33	<5.33	<10.7	>38	>44	>44	>42
Selenium	0.783	U	0.670	U	0.979	U	0.644	U	N/A	0.120	U	0.100	U	0.100	U	0.100	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.783	U	0.670	U	0.979	U	0.644	U	N/A	0.0360	U	0.0300	U	0.0300	U	0.0300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7792, Interval I-005

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26Y91-A1		B26Y91-A2		B26Y91-B1		B26Y91-C1									
	B26Y91-1	Q	B26Y91-2	Q	B26Y91-3	Q	B26Y91-4	Q	Avg	1:1	Q	1:1	Q	1:2.5	Q	1:5	Q	1:1	1:1	1:2.5	1:5	1:1	1:1	1:2.5	1:5
Arsenic	1.95		1.82		2.09		2.46		2.08	0.0900	U	0.0750	U	0.0750	U	0.0750	U	<4.33	<3.61	<9.01	<18.0	>22	>27	>25	>23
Barium	52.1		44.2		48.9		50.7		49.0	0.0730		0.0280		0.0450		0.122		0.149	0.0572	0.230	1.25	670	1750	1090	396
Cadmium	0.0400	B	0.0440	B	0.219	U	0.0470	B	N/A	0.0180	U	0.0150	U	0.0150	U	0.0150	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	16.1		14.0		13.9		15.2		14.8	0.0300	U	0.0250	U	0.0250	U	0.0130	B	<0.20	<0.17	<0.42	0.439	>492	>591	>590	1130
Cr-VI	0.52	U	0.52	U	0.52	U	0.21		N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.14		2.03		2.25		2.27		2.17	0.0600	U	0.0500	U	0.0500	U	0.0500	U	<2.76	<2.30	<5.75	<11.5	>35	>42	>41	>38
Selenium	0.781	U	0.697	U	0.874	U	0.921	U	N/A	0.120	U	0.100	U	0.100	U	0.100	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.781	U	0.697	U	0.874	U	0.921	U	N/A	0.0360	U	0.0300	U	0.0300	U	0.0300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7792, Interval I-006

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26Y93-A1		B26Y93-B1		B26Y93-B2		B26Y93-C1									
	B26Y93-1	Q	B26Y93-2	Q	B26Y93-3	Q	B26Y93-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	1.88		1.96		1.73		1.81		1.85	0.0750	U	0.0750	U	0.0750	U	0.0750	U	<4.07	<10.2	<10.2	<20.3	>24	>22	>22	>20
Barium	60.6		52.7		59.5		52.0		56.2	0.0450		0.109		0.0810		0.105		0.0801	0.485	0.360	0.934	1250	513	691	530
Cadmium	0.0460	B	0.0480	B	0.210	U	0.213	U	N/A	0.0150	U	0.0150	U	0.0150	U	0.0150	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	14.2		15.0		14.3		17.1		15.2	0.00600	B	0.0100	B	0.0100	B	0.00600	B	0.0396	0.165	0.165	0.198	2520	1510	1510	2520
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.00		1.92		1.92		2.00		1.96	0.0500	U	0.0160	B	0.0500	U	0.0500	U	<2.55	2.04	<6.38	<12.8	>38	120	>37	>34
Selenium	0.899	U	0.788	U	0.840	U	0.854	U	N/A	0.100	U	0.100	U	0.100	U	0.100	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.899	U	0.788	U	0.840	U	0.854	U	N/A	0.0300	U	0.0300	U	0.0300	U	0.0300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Avg = average
B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit

K_d = distribution coefficient
N/A = not applicable

Q = laboratory qualifier
U = undetected

Originator: R. P. Wells RPW
Project: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation
Subject: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation Distribution Coefficient Calculations

Date: 10/24/11
Job No.: 14655

Calc. No.: 0100X-CA-V0060
Checked: P. L. Benjamin PB

Rev. No.: 0
Date: 10-25-11
Sheet No.: 19 of 25

Well #C7792, Interval I-007

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26Y94-A1		B26Y94-B1		B26Y94-C1		B26Y94-C2									
	B26Y94-1	Q	B26Y94-2	Q	B26Y94-3	Q	B26Y94-4	Q	Avg	1:1	Q	1:2.5	Q	1:5	Q	1:5	Q	1:1	1:2.5	1:5	1:5	1:1	1:2.5	1:5	1:5
Arsenic	1.79		1.77		1.78		1.51		1.71	0.0750	U	0.0750	U	0.0750	U	0.0750	U	<4.38	<11.0	<21.9	<21.9	>22	>20	>18	>18
Barium	58.0		58.7		56.7		58.2		57.9	0.070		0.163		0.232		0.223		0.121	0.704	2.00	1.93	826	353	245	255
Cadmium	0.216	U	0.0370	B	0.0450	B	0.0420	B	N/A	0.0150	U	0.0150	U	0.0150	U	0.0150	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	12.7		13.1		12.7		13.5		13.0	0.00600	B	0.0110	B	0.0250	B	0.0210	B	0.0462	0.212	0.962	0.808	2170	1180	515	614
Cr-VI	0.53	U	0.53	U	0.53	U	0.53	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	1.99		2.63		2.15		2.14		2.23	0.0500	U	0.0500	U	0.0500	U	0.0500	U	<2.24	<5.61	<11.2	<11.2	>44	>42	>40	>40
Selenium	0.863	U	0.721	U	0.774	U	0.693	U	N/A	0.100	U	0.100	U	0.100	U	0.100	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.863	U	0.721	U	0.774	U	0.693	U	N/A	0.0300	U	0.0300	U	0.0300	U	0.0300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Well #C7792, Interval I-008

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B26Y95-A1		B26Y95-B1		B26Y95-C1		B26Y95-C2									
	B26Y95-1	Q	B26Y95-2	Q	B26Y95-3	Q	B26Y95-4	Q	Avg	1:1	Q	1:2.5	Q	1:5	Q	1:5	Q	1:1	1:2.5	1:5	1:5	1:1	1:2.5	1:5	1:5
Arsenic	1.96		1.75		1.69		1.58		1.75	0.0750	U	0.0750	U	0.0750	U	0.0750	U	<4.30	<10.7	<21.5	<21.5	>22	>21	>18	>18
Barium	39.1		36.6		35.2		35.5		36.6	0.0260		0.0230		0.0420		0.0270		0.0710	0.157	0.574	0.369	1410	1590	866	1350
Cadmium	0.0880	B	0.0670	B	0.0650	B	0.0770	B	0.0743	0.0150	U	0.0150	U	0.0150	U	0.0150	U	<20.2	<50.5	<100	<100	>4	>2	>0	>0
Chromium	11.2		10.4		11.5		9.46		10.6	0.0250	U	0.0250	U	0.0250	U	0.0250	U	<0.23	<0.59	<1.17	<1.17	>425	>423	>421	>421
Cr-VI	0.57	U	0.57	U	0.57	U	0.57	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.25		2.17		2.18		2.05		2.16	0.0500	U	0.0500	U	0.0500	U	0.0500	U	<2.31	<5.78	<11.6	<11.6	>42	>41	>38	>38
Selenium	1.12	U	0.790	U	0.980	U	1.05	U	N/A	0.100	U	0.100	U	0.100	U	0.100	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	1.12	U	0.790	U	0.980	U	1.05	U	N/A	0.0300	U	0.0300	U	0.0300	U	0.0300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Borehole #C7970, Interval I-001

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B28NP0-A1		B28NP0-A2		B28NP0-B1		B28NP0-C1									
	B28NP0-1	Q	B28NP0-2	Q	B28NP0-3	Q	B28NP0-4	Q	Avg	1:1	Q	1:1	Q	1:2.5	Q	1:5	Q	1:1	1:1	1:2.5	1:5	1:1	1:1	1:2.5	1:5
Arsenic	2.28	B	2.07	B	2.08	B	2.34	B	2.19	0.150	U	0.150	U	0.0300	U	0.0300	U	<6.84	<6.84	<3.42	<6.84	>14	>14	>71	>68
Barium	64.2		61.8		63.3		61.6		62.7	0.0250	U	0.0100	B	0.00600		0.00500		<0.04	0.0159	0.0239	0.0399	>2510	6270	10500	12500
Cadmium	0.273	U	0.299	U	0.278	U	0.283	U	N/A	0.0150	U	0.0150	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	15.7		14.4		12.0		14.8		14.2	0.0150	U	0.0150	U	0.00300	U	0.00300	U	<0.11	<0.11	<0.05	<0.11	>947	>947	>4740	>4740
Cr-VI	0.53	U	0.53	U	0.53	U	0.53	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	3.63		3.32		3.34		3.12		3.35	0.150	U	0.150	U	0.0300	U	0.0300	U	<4.47	<4.47	<2.24	<4.47	>21	>21	>109	>107
Selenium	4.55	U	4.98	U	4.63	U	4.71	U	N/A	0.250	U	0.250	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.455	U	0.498	U	0.463	U	0.471	U	N/A	0.0250	U	0.0250	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Avg = average
B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit
K_d = distribution coefficient
N/A = not applicable
Q = laboratory qualifier
U = undetected

Borehole #C7970, Interval I-002

Analyte	Soil Concentration (mg/kg or pCi/kg)									Leachate Concentration (mg/L or pCi/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B28NP1-A1		B28NP1-B1		B28NP1-B2		B28NP1-C1									
	B28NP1-1	Q	B28NP1-2	Q	B28NP1-3	Q	B28NP1-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	1.86	B	1.59	B	1.86	B	2.06	B	1.84	0.150	U	0.0300	U	0.0300	U	0.0300	U	<8.14	<4.07	<4.07	<8.14	>11	>59	>59	>56
Barium	59.3		58.1		61.7		55.7		58.7	0.0270		0.0330		0.0340		0.0400		0.0460	0.141	0.145	0.341	2170	1780	1720	1460
Cadmium	0.904		0.824		0.949		0.868		0.886	0.0150	U	0.00200	B	0.00100	B	0.00300	U	<1.69	0.564	0.282	<1.69	>58	441	884	>290
Chromium	100		91.5		103		94.8		97.3	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.02	<0.01	<0.01	<0.02	>6490	>32400	>32400	>32400
Cr-VI	0.52	U	0.52	U	0.52	U	0.52	U	N/A	0.030		0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	7.93		7.86		8.19		7.63		7.90	0.150	U	0.0300	U	0.0300	U	0.0300	U	<1.90	<0.95	<0.95	<1.90	>52	>261	>261	>258
Selenium	4.51	U	4.76	U	5.03	U	4.02	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.451	U	0.476	U	0.503	U	0.402	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sr-90	6740		—		—		—		6740	640		295		271		167		9.50	10.9	10.1	12.4	9.53	20.3	22.4	35.4

Borehole #C7970, Interval I-003

Analyte	Soil Concentration (mg/kg or pCi/kg)									Leachate Concentration (mg/L or pCi/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B28NP2-A1		B28NP2-B1		B28NP2-B2		B28NP2-C1									
	B28NP2-1	Q	B28NP2-2	Q	B28NP2-3	Q	B28NP2-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	1.50	B	1.36	B	1.04	B	1.30	B	1.30	0.150	U	0.0300	U	0.0300	U	0.0300	U	<11.5	<5.77	<5.77	<11.5	>8	>41	>41	>38
Barium	61.8		61.2		59.5		62.1		61.2	0.0260		0.0320		0.0310		0.0390		0.0425	0.131	0.127	0.319	2350	1910	1970	1560
Cadmium	0.392		0.386		0.417		0.386		0.395	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<3.80	<1.90	<1.90	<3.80	>25	>129	>129	>127
Chromium	84.3		61.2		77.5		59.9		70.7	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.02	<0.01	<0.01	<0.02	>4710	>23600	>23600	>23600
Cr-VI	0.52	U	0.52	U	0.52	U	0.52	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.56	B	2.52	B	2.34	B	2.52	B	2.49	0.150	U	0.0300	U	0.0300	U	0.0300	U	<6.04	<3.02	<3.02	<6.04	>16	>80	>80	>78
Selenium	4.71	U	4.89	U	4.54	U	4.62	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.471	U	0.489	U	0.454	U	0.462	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sr-90	4070		—		—		—		4070	398		190		124		199		9.78	11.7	7.62	24.4	9.23	18.9	30.3	15.5

Borehole #C7970, Interval I-004

Analyte	Soil Concentration (mg/kg or pCi/kg)									Leachate Concentration (mg/L or pCi/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B28NP3-A1		B28NP3-B1		B28NP3-C1		B28NP3-C2									
	B28NP3-1	Q	B28NP3-2	Q	B28NP3-3	Q	B28NP3-4	Q	Avg	1:1	Q	1:2.5	Q	1:5	Q	1:5	Q	1:1	1:2.5	1:5	1:5	1:1	1:2.5	1:5	1:5
Arsenic	1.25	B	1.36	B	1.36	B	1.53	B	1.38	0.150	U	0.0300	U	0.0300	U	0.0300	U	<10.9	<5.45	<10.9	<10.9	>8	>43	>41	>41
Barium	65.2		63.8		65.9		58.6		63.4	0.0260		0.0320		0.0370		0.0370		0.0410	0.126	0.292	0.292	2440	1980	1710	1710
Cadmium	0.287	U	0.246	U	0.263	U	0.310	U	N/A	0.0150	U	0.00300	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	28.1		25.5		26.0		24.7		26.1	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.06	<0.03	<0.06	<0.06	>1740	>8690	>8690	>8690
Cr-VI	0.52	U	0.52	U	0.52	U	0.52	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.59	B	2.28	B	3.10		2.52	B	2.62	0.150	U	0.0300	U	0.0300	U	0.0300	U	<5.72	<2.86	<5.72	<5.72	>16	>85	>82	>82
Selenium	4.78	U	4.10	U	4.38	U	5.17	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.478	U	0.410	U	0.438	U	0.517	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sr-90	4420		—		—		—		4420	363		199		128		119		8.21	11.3	14.5	13.5	11.2	19.7	29.5	32.1

Avg = average
B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit

K_d = distribution coefficient
N/A = not applicable

Q = laboratory qualifier
U = undetected

Originator: R. P. Wells RPW
Project: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation
Subject: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation Distribution Coefficient Calculations

Date: 10/24/11
Job No.: 14655

Calc. No.: 0100X-CA-V0060
Checked: P. L. Benjamin PLB

Rev. No.: 0
Date: 10-25-11
Sheet No.: 21 of 25

Borehole #C7970, Interval I-005

Analyte	Soil Concentration (mg/kg or pCi/kg)									Leachate Concentration (mg/L or pCi/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B28NP4-A1		B28NP4-A2		B28NP4-B1		B28NP4-C1									
	B28NP4-1	Q	B28NP4-2	Q	B28NP4-3	Q	B28NP4-4	Q	Avg	1:1	Q	1:1	Q	1:2.5	Q	1:5	Q	1:1	1:1	1:2.5	1:5	1:1	1:1	1:2.5	1:5
Arsenic	1.37	B	1.28	B	1.52	B	1.11	B	1.32	0.150	U	0.150	U	0.0300	U	0.0300	U	<11.4	<11.4	<5.68	<11.4	>8	>8	>42	>39
Barium	52.4		46.9		48.9		50.1		49.6	0.0330		0.0370		0.0420		0.0390		0.0666	0.0746	0.212	0.393	1500	1340	1180	1270
Cadmium	0.272	U	0.242	U	0.277	U	0.277	U	N/A	0.0150	U	0.0150	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	15.9		18.9		17.9		14.4		16.8	0.0150	U	0.0150	U	0.00300	U	0.00300	U	<0.09	<0.09	<0.04	<0.09	>1120	>1120	>5590	>5590
Cr-VI	0.52	U	0.52	U	0.52	U	0.52	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.36	B	2.41	B	2.49	B	2.48	B	2.44	0.150	U	0.150	U	0.0300	U	0.0300	U	<6.16	<6.16	<3.08	<6.16	>15	>15	>79	>76
Selenium	4.53	U	4.04	U	4.61	U	4.61	U	N/A	0.250	U	0.250	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.453	U	0.404	U	0.461	U	0.461	U	N/A	0.0250	U	0.0250	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sr-90	2780		—		—		—		2780	124		144		90.1		57.4		4.46	5.18	8.10	10.3	21.4	18.3	28.4	43.4

Borehole #C7970, Interval I-006

Analyte	Soil Concentration (mg/kg or pCi/kg)									Leachate Concentration (mg/L or pCi/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B28NP5-A1		B28NP5-B1		B28NP5-B2		B28NP5-C1									
	B28NP5-1	Q	B28NP5-2	Q	B28NP5-3	Q	B28NP5-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	1.70	B	1.69	B	1.78	B	2.36	B	1.88	0.150	U	0.0300	U	0.0300	U	0.0300	U	<7.97	<3.98	<3.98	<7.97	>12	>60	>60	>58
Barium	61.9		59.0		61.8		65.0		61.9	0.0310		0.0300		0.0290		0.0180		0.0501	0.121	0.117	0.145	2000	2060	2130	3440
Cadmium	0.246	U	0.254	U	0.263	U	0.293	U	N/A	0.0150	U	0.00300	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	17.8		20.2		17.8		19.0		18.7	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.08	<0.04	<0.04	<0.08	>1250	>6230	>6230	>6230
Cr-VI	0.24		0.22		0.25		0.23		0.24	0.020	U	0.020	U	0.020	U	0.020	U	<8.51	<21.3	<21.3	<42.6	>11	>9	>9	>7
Lead	2.22	B	1.98	B	2.34	B	2.34	B	2.22	0.150	U	0.0300	U	0.0300	U	0.0300	U	<6.76	<3.38	<3.38	<6.76	>14	>72	>72	>69
Selenium	4.11	U	4.24	U	4.39	U	4.88	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.411	U	0.424	U	0.439	U	0.488	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sr-90	3250		—		—		—		3250	74.6		55.3		60.3		33.6		2.30	4.25	4.64	5.17	42.6	56.3	51.4	91.7

Borehole #C7970, Interval I-007

Analyte	Soil Concentration (mg/kg or pCi/kg)									Leachate Concentration (mg/L or pCi/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B28NP6-A1		B28NP6-B1		B28NP6-B2		B28NP6-C1									
	B28NP6-1	Q	B28NP6-2	Q	B28NP6-3	Q	B28NP6-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	1.65	B	1.82	B	1.55	B	2.00	B	1.76	0.150	U	0.0300	U	0.0300	U	0.0300	U	<8.55	<4.27	<4.27	<8.55	>11	>56	>56	>54
Barium	77.5		74.4		66.4		75.1		73.4	0.0310		0.0230		0.0230		0.0140		0.0423	0.0784	0.0784	0.0954	2360	3190	3190	5230
Cadmium	0.266	U	0.0820	B	0.237	U	0.281	U	N/A	0.0150	U	0.00300	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	23.2		23.5		23.1		22.3		23.0	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.07	<0.03	<0.03	<0.07	>1530	>7670	>7670	>7670
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.52	B	2.36	B	2.24	B	2.63	B	2.44	0.150	U	0.0300	U	0.0300	U	0.0300	U	<6.15	<3.08	<3.08	<6.15	>15	>79	>79	>76
Selenium	4.43	U	3.96	U	3.96	U	4.68	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.443	U	0.396	U	0.396	U	0.468	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sr-90	4620		—		—		—		4620	63.8		38.9		39.5		19.5		1.38	2.10	2.14	2.11	71.4	116	114	232

Avg = average
B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit

K_d = distribution coefficient
N/A = not applicable

Q = laboratory qualifier
U = undetected

Borehole #C7970, Interval I-014

Analyte	Soil Concentration (mg/kg or pCi/kg)									Leachate Concentration (mg/L or pCi/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B28NR2-A1		B28NR2-B1		B28NR2-B2		B28NR2-C1									
	B28NR2-1	Q	B28NR2-2	Q	B28NR2-3	Q	B28NR2-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	2.17	B	1.75	B	2.35	B	2.97	B	2.31	0.150	U	0.0300	U	0.0300	U	0.0300	U	<6.49	<3.25	<3.25	<6.49	>14	>75	>75	>72
Barium	54.0		50.9		57.2		72.2		58.6	0.0210	B	0.0150		0.0150		0.00800		0.0359	0.0640	0.0640	0.0683	2790	3900	3900	7320
Cadmium	0.293	U	0.251	U	0.258	U	0.338	U	N/A	0.0150	U	0.00300	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	21.1		10.1		11.8		17.0		15.0	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.10	<0.05	<0.05	<0.10	>999	>5000	>5000	>5000
Cr-VI	0.59	U	0.59	U	0.59	U	0.59	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	1.70	B	1.51	B	2.10	B	2.30	B	1.90	0.150	U	0.0300	U	0.0300	U	0.0300	U	<7.88	<3.94	<3.94	<7.88	>12	>61	>61	>58
Selenium	4.88	U	4.18	U	4.30	U	5.63	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.488	U	0.418	U	0.430	U	0.563	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sr-90	4420		—		—		—		4420	36.1		20.4		22.8		15.4		0.820	1.15	1.29	1.74	121	214	191	282

Borehole #C7971, Interval I-001

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B28VL8-A1		B28VL8-A2		B28VL8-B1		B28VL8-C1									
	B28VL8-1	Q	B28VL8-2	Q	B28VL8-3	Q	B28VL8-4	Q	Avg	1:1	Q	1:1	Q	1:2.5	Q	1:5	Q	1:1	1:1	1:2.5	1:5	1:1	1:1	1:2.5	1:5
Arsenic	1.42	B	1.87	B	1.49	B	1.51	B	1.57	0.150	U	0.150	U	0.0300	U	0.0300	U	<9.54	<9.54	<4.77	<9.54	>9	>9	>50	>47
Barium	69.9		85.9		62.0		68.5		71.6	0.0130	B	0.0130	B	0.00700		0.00500		0.0182	0.0182	0.0244	0.0349	5500	5500	10200	14300
Cadmium	0.289	U	0.284	U	0.236	U	0.300	U	N/A	0.0150	U	0.0150	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	52.0		79.7		116		71.0		79.7	0.0150	U	0.0150	U	0.00200	B	0.00300	U	<0.02	<0.02	0.00628	<0.02	>5310	>5310	39800	>26600
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.02	B	2.02	B	1.86	B	1.91	B	1.95	0.150	U	0.150	U	0.0300	U	0.0300	U	<7.68	<7.68	<3.84	<7.68	>12	>12	>63	>60
Selenium	4.82	U	4.73	U	3.93	U	5.01	U	N/A	0.250	U	0.250	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.482	U	0.473	U	0.393	U	0.501	U	N/A	0.0250	U	0.0250	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Borehole #C7971, Interval I-002

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B28VM3-A1		B28VM3-B1		B28VM3-B2		B28VM3-C1									
	B28VM3-1	Q	B28VM3-2	Q	B28VM3-3	Q	B28VM3-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	1.48	B	1.67	B	1.56	B	1.66	B	1.59	0.150	U	0.0300	U	0.0300	U	0.0300	U	<9.42	<4.71	<4.71	<9.42	>10	>51	>51	>48
Barium	55.5		58.0		51.7		48.0		53.3	0.0250	U	0.00400	B	0.00500	B	0.00400	B	<0.05	0.0188	0.0235	0.0375	>2130	13300	10700	13300
Cadmium	0.121	B	0.232	U	0.273	U	0.251	U	N/A	0.0150	U	0.00300	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	9.47		9.00		10.5		10.0		9.74	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.15	<0.08	<0.08	<0.15	>649	>3240	>3240	>3240
Cr-VI	0.68		0.67		0.54		0.32	B	0.55	0.020	U	0.020	U	0.020	U	0.020	U	<3.62	<9.05	<9.05	<18.1	>27	>25	>25	>23
Lead	2.28	B	2.05	B	2.36	B	2.29	B	2.25	0.150	U	0.0300	U	0.0300	U	0.0300	U	<6.68	<3.34	<3.34	<6.68	>14	>72	>72	>70
Selenium	4.81	U	3.86	U	4.55	U	4.18	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.481	U	0.386	U	0.455	U	0.418	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Avg = average
B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit
K_d = distribution coefficient
N/A = not applicable
Q = laboratory qualifier
U = undetected

Washington Closure Hanford

Originator: R. P. Wells RPW
Project: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation
Subject: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation Distribution Coefficient Calculations

Date: 10/24/11
Job No.: 14655

Calc. No.: 0100X-CA-V0060
Checked: P. L. Benjamin PB

Rev. No.: 0
Date: 10-25-11
Sheet No.: 23 of 25

Borehole #C7971, Interval I-003

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B28VN4-A1		B28VN4-B1		B28VN4-C1		B28VN4-C2									
	B28VN4-1	Q	B28VN4-2	Q	B28VN4-3	Q	B28VN4-4	Q	Avg	1:1	Q	1:2.5	Q	1:5	Q	1:5	Q	1:1	1:2.5	1:5	1:5	1:1	1:2.5	1:5	1:5
Arsenic	1.63	B	1.71	B	1.56	B	1.45	B	1.59	0.150	U	0.0300	U	0.0300	U	0.0300	U	<9.45	<4.72	<9.45	<9.45	>10	>50	>48	>48
Barium	68.0		46.3		55.0		44.0		53.3	0.0250	U	0.00400	B	0.00300	B	0.00300	B	<0.05	0.0188	0.0281	0.0281	>2130	13300	17800	17800
Cadmium	0.313	U	0.313	U	0.125	B	0.301	U	N/A	0.0150	U	0.00300	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	7.31		8.07		8.17		8.82		8.09	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.19	<0.09	<0.19	<0.19	>539	>2700	>2690	>2690
Cr-VI	0.26	B	0.54	U	0.54	U	0.40	B	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.26	B	2.32	B	2.34	B	2.84	B	2.44	0.150	U	0.0300	U	0.0300	U	0.0300	U	<6.15	<3.07	<6.15	<6.15	>15	>79	>76	>76
Selenium	5.21	U	5.21	U	5.11	U	5.02	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.521	U	0.521	U	0.511	U	0.502	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Borehole #C7971, Interval I-012

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B28VV2-A1		B28VV2-B1		B28VV2-B2		B28VV2-C1									
	B28VV2-1	Q	B28VV2-2	Q	B28VV2-3	Q	B28VV2-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	1.61	B	1.41	B	1.57	B	1.66	B	1.56	0.150	U	0.0300	U	0.0300	U	0.0300	U	<9.60	<4.80	<4.80	<9.60	>9	>50	>50	>47
Barium	51.8		56.4		54.4		33.5		49.0	0.0220	B	0.00700		0.00700		0.00600		0.0449	0.0357	0.0357	0.0612	2230	7000	7000	8170
Cadmium	0.237	U	0.240	U	0.260	U	0.292	U	N/A	0.0150	U	0.00300	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	7.13		5.25		6.96		12.6		7.99	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.19	<0.09	<0.09	<0.19	>531	>2660	>2660	>2660
Cr-VI	0.54	U	0.54	U	0.54	U	3.0		N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.13	B	1.76	B	2.15	B	1.66	B	1.93	0.150	U	0.0300	U	0.0300	U	0.0300	U	<7.79	<3.90	<3.90	<7.79	>12	>62	>62	>59
Selenium	3.95	U	4.01	U	4.33	U	4.87	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.395	U	0.401	U	0.433	U	0.487	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Borehole #C7972, Interval I-001

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B29389-A1		B29389-A2		B29389-B1		B29389-C1									
	B29389-1	Q	B29389-2	Q	B29389-3	Q	B29389-4	Q	Avg	1:1	Q	1:1	Q	1:2.5	Q	1:5	Q	1:1	1:1	1:2.5	1:5	1:1	1:1	1:2.5	1:5
Arsenic	2.42	B	2.37	B	2.93	B	2.28	B	2.50	0.150	U	0.150	U	0.0300	U	0.0300	U	<6.00	<6.00	<3.00	<6.00	>16	>16	>81	>78
Barium	83.7		80.4		80.8		78.0		80.7	0.0240	B	0.0240	B	0.0130		0.0120		0.0297	0.0297	0.0403	0.0743	3360	3360	6210	6720
Cadmium	0.309	U	0.309	U	0.303	U	0.287	U	N/A	0.0150	U	0.0150	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	11.1		10.7		14.0		10.5		11.6	0.00700	B	0.00500	B	0.00200	B	0.00300	U	0.0605	0.0432	0.0432	<0.13	1650	2310	5780	>3850
Cr-VI	0.55	U	0.55	U	0.55	U	0.55	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	5.69		4.76		5.14		5.01		5.15	0.150	U	0.150	U	0.0300	U	0.0300	U	<2.91	<2.91	<1.46	<2.91	>33	>33	>169	>167
Selenium	5.14	U	5.14	U	5.05	U	4.78	U	N/A	0.250	U	0.250	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.514	U	0.514	U	0.505	U	0.478	U	N/A	0.0250	U	0.0250	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Avg = average
B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit
K_d = distribution coefficient
N/A = not applicable
Q = laboratory qualifier
U = undetected

Originator: R. P. Wells RPW
Project: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation
Subject: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation Distribution Coefficient Calculations

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Job No.: 14655

Calc. No.: 0100X-CA-V0060
Checked: P. L. Benjamin PB

Rev. No.: 0
Date: 10-25-11
Sheet No.: 24 of 25

Borehole #C7972, Interval I-002

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B29393-A1		B29393-B1		B29393-B2		B29393-C1									
	B29393-1	Q	B29393-2	Q	B29393-3	Q	B29393-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	1.97	B	1.66	B	1.78	B	2.01	B	1.86	0.150	U	0.0300	U	0.0300	U	0.0300	U	<8.09	<4.04	<4.04	<8.09	>11	>59	>59	>57
Barium	62.5		62.2		79.8		62.1		66.7	0.0190	B	0.0100		0.0100		0.00800		0.0285	0.0375	0.0375	0.0600	3510	6660	6660	8330
Cadmium	0.239	U	0.283	U	0.289	U	0.294	U	N/A	0.0150	U	0.00300	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	27.2		11.7		12.8		16.9		17.2	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.09	<0.04	<0.04	<0.09	>1140	>5710	>5710	>5710
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.23	B	2.16	B	2.27	B	2.28	B	2.24	0.150	U	0.0300	U	0.0300	U	0.0300	U	<6.71	<3.36	<3.36	<6.71	>14	>72	>72	>70
Selenium	3.98	U	4.72	U	4.81	U	4.90	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.398	U	0.472	U	0.481	U	0.490	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Borehole #C7972, Interval I-003

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B29399-A1		B29399-B1		B29399-C1		B29399-C2									
	B29399-1	Q	B29399-2	Q	B29399-3	Q	B29399-4	Q	Avg	1:1	Q	1:2.5	Q	1:5	Q	1:5	Q	1:1	1:2.5	1:5	1:5	1:1	1:2.5	1:5	1:5
Arsenic	1.65	B	1.84	B	1.69	B	1.82	B	1.75	0.150	U	0.0300	U	0.0300	U	0.0300	U	<8.57	<4.29	<8.57	<8.57	>11	>56	>53	>53
Barium	71.6		77.6		79.3		79.8		77.1	0.0140	B	0.0100		0.00700		0.00700		0.0182	0.0324	0.0454	0.0454	5500	7700	11000	11000
Cadmium	0.277	U	0.287	U	0.282	U	0.272	U	N/A	0.0150	U	0.00300	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	67.2		45.8		30.7		23.0		41.7	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.04	<0.02	<0.04	<0.04	>2780	>13900	>13900	>13900
Cr-VI	1.83		1.66		0.830		1.03		1.34	0.020	U	0.020	U	0.020	U	0.020	U	<1.50	<3.74	<7.48	<7.48	>66	>64	>62	>62
Lead	1.98	B	2.13	B	2.16	B	2.16	B	2.11	0.150	U	0.0300	U	0.0300	U	0.0300	U	<7.12	<3.56	<7.12	<7.12	>13	>68	>65	>65
Selenium	4.61	U	4.79	U	4.70	U	4.53	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.461	U	0.479	U	0.470	U	0.453	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Borehole #C7972, Interval I-004

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B293B9-A1		B293B9-A2		B293B9-B1		B293B9-C1									
	B293B9-1	Q	B293B9-2	Q	B293B9-3	Q	B293B9-4	Q	Avg	1:1	Q	1:1	Q	1:2.5	Q	1:5	Q	1:1	1:1	1:2.5	1:5	1:1	1:1	1:2.5	1:5
Arsenic	2.23	B	1.88	B	1.68	B	1.68	B	1.87	0.150	U	0.150	U	0.0300	U	0.0300	U	<8.03	<8.03	<4.02	<8.03	>11	>11	>60	>57
Barium	59.2		65.4		63.0		57.7		61.3	0.0200	B	0.0210	B	0.0110		0.00700		0.0326	0.0342	0.0448	0.0571	3060	2920	5570	8760
Cadmium	0.313	U	0.295	U	0.279	U	0.270	U	N/A	0.0150	U	0.0150	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	24.5		31.6		18.9		160		58.8	0.0150	U	0.0150	U	0.00300	U	0.00300	U	<0.03	<0.03	<0.01	<0.03	>3920	>3920	>19600	>19600
Cr-VI	0.74		0.36	B	0.34	B	0.29	B	0.43	0.020	U	0.020	U	0.020	U	0.020	U	<4.62	<4.62	<11.6	<23.1	>21	>21	>19	>17
Lead	2.98	B	2.75	B	2.91		2.51	B	2.79	0.150	U	0.150	U	0.0300	U	0.0300	U	<5.38	<5.38	<2.69	<5.38	>18	>18	>90	>88
Selenium	5.21	U	4.92	U	4.65	U	4.49	U	N/A	0.250	U	0.250	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.521	U	0.492	U	0.465	U	0.449	U	N/A	0.0250	U	0.0250	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Avg = average
B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit

K_d = distribution coefficient
N/A = not applicable

Q = laboratory qualifier
U = undetected

Washington Closure Hanford

Originator: R. P. Wells RPW
Project: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation
Subject: 100-F, 100-IU-2, and 100-IU-6 Remedial Investigation Distribution Coefficient Calculations

Date: 10/24/11
Job No.: 14655

Calc. No.: 0100X-CA-V0060
Checked: P. L. Benjamin PB

Rev. No.: 0
Date: 10-25-11
Sheet No.: 25 of 25

Borehole #C7972, Interval I-005

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B293C4-A1		B293C4-B1		B293C4-B2		B293C4-C1									
	B293C4-1	Q	B293C4-2	Q	B293C4-3	Q	B293C4-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	2.75	B	1.88	B	2.11	B	1.17	B	1.98	0.150	U	0.0300	U	0.0300	U	0.0300	U	<7.59	<3.79	<3.79	<7.59	>12	>63	>63	>61
Barium	73.9		52.3		47.7		39.0		53.2	0.0250	U	0.00700		0.00700		0.0410		<0.05	0.0329	0.0329	0.385	>2130	7600	7600	1290
Cadmium	0.309	U	0.276	U	0.246	U	0.242	U	N/A	0.0150	U	0.00300	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	13.6		11.5		14.3		7.23		11.7	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.13	<0.06	<0.06	<0.13	>776	>3880	>3880	>3880
Cr-VI	0.52	U	0.52	U	0.52	U	0.52	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	3.88		2.62	B	2.45	B	2.02	B	2.74	0.150	U	0.0300	U	0.0300	U	0.0300	U	<5.47	<2.73	<2.73	<5.47	>17	>89	>89	>86
Selenium	5.16	U	4.60	U	4.09	U	4.03	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.516	U	0.460	U	0.409	U	0.403	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Borehole #C7972, Interval I-006

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B293C8-A1		B293C8-B1		B293C8-C1		B293C8-C2									
	B293C8-1	Q	B293C8-2	Q	B293C8-3	Q	B293C8-4	Q	Avg	1:1	Q	1:2.5	Q	1:5	Q	1:5	Q	1:1	1:2.5	1:5	1:5	1:1	1:2.5	1:5	1:5
Arsenic	1.33	B	1.82	B	1.60	B	1.54	B	1.57	0.150	U	0.0300	U	0.0300	U	0.0300	U	<9.54	<4.77	<9.54	<9.54	>9	>50	>47	>47
Barium	43.7		68.9		47.8		54.7		53.8	0.0250	U	0.00600		0.00500		0.00500	B	<0.05	0.0279	0.0465	0.0465	>2150	8960	10800	10800
Cadmium	0.234	U	0.266	U	0.257	U	0.302	U	N/A	0.0150	U	0.00300	U	0.00300	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	18.6		17.5		24.6		15.8		19.1	0.0150	U	0.00300	U	0.00300	U	0.00300	U	<0.08	<0.04	<0.08	<0.08	>1270	>6370	>6370	>6370
Cr-VI	0.51	U	0.51	U	0.51	U	0.51	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.36		3.96		3.85		7.49		4.42	0.150	U	0.0300	U	0.0300	U	0.0300	U	<3.40	<1.70	<3.40	<3.40	>28	>145	>142	>142
Selenium	3.89	U	4.43	U	4.28	U	5.04	U	N/A	0.250	U	0.0500	U	0.0500	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.389	U	0.443	U	0.428	U	0.504	U	N/A	0.0250	U	0.00500	U	0.00500	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Borehole #C7972, Interval I-008

Analyte	Soil Concentration (mg/kg)									Leachate Concentration (mg/L)								Percent Leached per Soil:Water Ratio				Estimated K_d per Soil:Water Ratio (mL/g)			
	Replicate #1		Replicate #2		Replicate #3		Replicate #4			B293F1-A1		B293F1-B1		B293F1-B2		B293F1-C1									
	B293F1-1	Q	B293F1-2	Q	B293F1-3	Q	B293F1-4	Q	Avg	1:1	Q	1:2.5	Q	1:2.5	Q	1:5	Q	1:1	1:2.5	1:2.5	1:5	1:1	1:2.5	1:2.5	1:5
Arsenic	1.86	B	1.66	B	1.84	B	1.88	B	1.81	0.150	U	0.0300	U	0.150	U	0.0300	U	<8.29	<4.14	<20.7	<8.29	>11	>58	>10	>55
Barium	53.0		64.2		53.9		58.7		57.5	0.0310		0.0390		0.0340		0.0380		0.0540	0.170	0.148	0.331	1850	1470	1690	1510
Cadmium	0.310	U	0.299	U	0.268	U	0.299	U	N/A	0.0150	U	0.00300	U	0.0150	U	0.00300	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	8.14		8.88		9.38		9.61		9.00	0.0150	U	0.00300	U	0.0150	U	0.00300	U	<0.17	<0.08	<0.42	<0.17	>599	>3000	>598	>3000
Cr-VI	0.53	U	0.53	U	0.53	U	0.53	U	N/A	0.020	U	0.020	U	0.020	U	0.020	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	2.59	B	3.00		2.22	B	2.08	B	2.47	0.150	U	0.0300	U	0.150	U	0.0300	U	<6.07	<3.03	<15.2	<6.07	>15	>80	>14	>77
Selenium	5.17	U	4.98	U	4.47	U	4.98	U	N/A	0.250	U	0.0500	U	0.250	U	0.0500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	0.517	U	0.498	U	0.447	U	0.498	U	N/A	0.0250	U	0.00500	U	0.0250	U	0.00500	U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Avg = average
B = analyte was detected at less than the contract required detection limit but greater than or equal to the minimum detection limit

K_d = distribution coefficient
N/A = not applicable

Q = laboratory qualifier
U = undetected

Calculation Brief Distribution Sheet

Calculation Number: 0100X-CA-V0060

100-F, 100-IU-2, and 100-IU-6 Remedial Investigation Distribution Coefficient Calculations, Rev. 0

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