Table 4.2-1b
Groundwater Regulatory Screening Criteria
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Compound	Matrix	EPA MCLs	MPCA HRLs/HBVs/RAAs[4]	EPA Tapwater Version 11/2014	Analytical Reporting Limits[1]	Lowest Screening Value
Volatile Organic Compounds (VOCs) by Method 8260B						
Benzene	GW	5	2	0.45	1	0.45
Toluene	GW	1000	200	110	1	200
Ethylbenzene	GW	700	50	1.5	1	1.5
Xylenes (total)	GW	10000	300	19	3	300
1,2,4-Trimethylbenzene	GW		100[2]	1.5	1	100
1,3,5-Trimethylbenzene	GW		100	12	1	100
Polycyclic Aromatic Hydrocarbons (PAHs) by Method 8270D						
Acenaphthene	GW		400	53	0.04	53
Acenaphthylene	GW				0.04	
Anthracene	GW		2000	180	0.04	180
Benz(a)anthracene	GW			0.034	0.04	0.034
Benzo(b)fluoranthene	GW			0.034	0.04	0.034
Benzo(k)fluoranthene	GW			0.34	0.04	0.34
Benzo(g,h,i)perylene	GW				0.04	
Benzo(a)pyrene	GW	0.2	0.06[3]	0.0034	0.04	0.0034
2-Chloronaphthalene	GW			75	0.04	75
Chrysene	GW			3.4	0.04	3.4
Dibenz(a,h)anthracene	GW			0.0034	0.04	0.0034
Fluoranthene	GW		300	80	0.04	80
Fluorene	GW		300	29	0.04	29
Indeno(1,2,3-cd)pyrene	GW			0.034	0.04	0.034
2-Methylnaphthalene	GW		8[2]	3.6	0.04	3.6
Naphthalene	GW		70	0.17	0.04	0.17
Phenanthrene	GW				0.04	
Pyrene	GW		200	12	0.04	12
Benzo(e)pyrene	GW				0.04	
Dibenzofuran	GW			0.79	0.04	0.79
1-Methylnaphthalene	GW			1.1	0.04	1.1

1 - Reporting limits will be proportionately higher for sample extracts that require dilution.
2 - The indicated concentration is a Risk Assessment Advice (RAA) value.
3 - The indicated concentration is a Health Based Value (HBV).
4 – Updated 4/21/2014
All concentration units in micrograms per liter (ug/L).

TABLE 4.3.1-6
TarGOST® Confirmation Soil Sample Laboratory Analytical Results
Burlington Northern Railroad Tie Treatment Faciltiy Superfund Site
Brainerd and Baxter, Minnesota

			Sample Location	TGC-100	TGC-100	TGC-100	TGC-100(FD)	TGC-100	TGC-100	TGC-200	TGC-200
			Sample Date	10/17/2013	10/17/2013	10/17/2013	10/17/2013	10/17/2013	10/17/2013	10/17/2013	10/17/2013
			Depth	9-10	16-17	25-26	25-26	28-29	35-36	9-10	12-13
			FD Parent ID								
		Screening Criteria									
Analyte	Units	EPA Industrial	EPA Protection of Groundwater								
MPCA List 1 Compounds:											
Benzo(a)anthracene	µg/kg	2100	10	**32100**	**92000**	**626**	**647**	**85.6**	**12300**	**122000**	**448**
Benzo(a)pyrene	µg/kg	210	3.5	**44200**	**33000**	**194**	**209**	**24**	**3430**	**62100**	**227**
Benzo(b)fluoranthene	µg/kg	2100	35	**68900**	**52300**	**291**	**332**	**44.9**	**5700**	**93800**	**329**
Benzo(ghi)perylene	µg/kg			15100	7810	57.8 J	61.9	8.1 J	976	23600	88.7
Chrysene	µg/kg	210000	1100	**48100**	**84100**	554	669	73	**11700**	**129000**	462
Dibenz(a,h)anthracene	µg/kg	210	11	**4930**	**2570**	< 59.4	**21.2**	< 12.3	**331**	**7470**	**26.9**
Indeno(1,2,3-cd) pyrene	µg/kg	2100	200	**16000**	**7730**	56.2 J	58.2	8.9 J	**915**	**24400**	80.4
Total MPCA List 1 Compounds:	µg/kg			229330	279510	1779	1998	245	35352	462370	1662
Benzo(a)pyrene Equivalents[a]	µg/kg	210[c]	3.5[c]	**61090**	**51053**	**293**	**336**	**38.2**	**5689**	**94049**	**341**
Benzo(a)pyrene Equivalents[b]	µg/kg	210[c]	3.5[c]	**61262**	**52443**	**310**	**344**	**40.4**	**5867**	**94893**	**346**
MPCA List 2 Compounds:											
2-Methylnaphthalene	µg/kg	220000	14	**1110**	**482000**	**1950**	**2690**	**182**	**77500**	**692000**	**362**
Acenaphthylene	µg/kg			8040	22700	155	167	18.5	3110	50200	87.5
Phenanthrene	µg/kg			11800	1110000	8660	9230	983	174000	1210000	4310
Acenaphthene	µg/kg	3300000	410	**1240**	**499000**	**2720**	**3240**	248	**77400**	**451000**	**886**
Anthracene	µg/kg	17000000	4200	**48700**	**270000**	1410	1680	163	**15300**	**146000**	767
Fluoranthene	µg/kg	2200000	7000	**118000**	**539000**	3690	4050	511	**78200**	**564000**	2240
Fluorene	µg/kg	2200000	400	**6160**	**444000**	**2960**	**3500**	314	**69100**	**465000**	**1300**
Naphthalene	µg/kg	18000	0.47	**969**	**1620000**	**39000**	**33500**	**1080**	**258000**	**1670000**	**382**
Pyrene	µg/kg	1700000	950	**21400**	**374000**	**2500**	**2780**	328	**49300**	**401000**	**1560**
Total MPCA List 2 Compounds:	µg/kg			217419	5360700	63045	60837	3827.5	801910	5649200	11894.5
Non-Listed PAHs:	µg/kg										
Benzo(k)fluoranthene	µg/kg	21000	350	**21200**	**19600**	134	130	16.9	**2430 J**	**33000**	131
2-Chloronaphthalene	µg/kg	8200000	290	<272	268 J	<59.4	2.8 J	<12.3	53.3 J	<5700	<13.7
TarGOST Readings	%RE			50	86	75	75	265	5	2	38

TGC-100 drilled next to TGB-115
TGC-200 drilled next to TGB-200
TGC-201 drilled next to TGB-206

BOLD - indicates exceedance of EPA Protection of Groundwater criteria
BOLD - indicates exceedance of EPA Industrial screening criteria

[a] - benzo(a)pyrene equivalents calculated using the toxicity equivalency factors recommended in *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993*

[b] - benzo(a)pyrene equivalents calculated using the MPCA worksheet referenced at http://www.pca.state.mn.us/publications/c-r1-02.xls

[c] - screening criteria presented is the value for benzo(a)pyrene

TABLE 4.3.1-6
TarGOST® Confirmation Soil Sample Laboratory Analytical Results
Burlington Northern Railroad Tie Treatment Faciltiy Superfund Site
Brainerd and Baxter, Minnesota

			Sample Location	TGC-200	TGC-200	TGC-200	TGC-201	TGC-201	TGC-201	TGC-201	TGC-201	TGC-201(FD)
			Sample Date	10/17/2013	10/17/2013	10/17/2013	10/18/2013	10/18/2013	10/18/2013	10/18/2013	10/18/2013	10/18/2013
			Depth	24-25	27-28	32-33	9-10	11.5-12.5	15-16	19-20	24-25	24-25
			FD Parent ID									
		Screening Criteria										
Analyte	Units	EPA Industrial	EPA Protection of Groundwater									
MPCA List 1 Compounds:												
Benzo(a)anthracene	µg/kg	2100	10	< 11.7	**287000**	**99.8**	**10.3 J**	**31200**	**67300**	**110**	< 11.8	< 12
Benzo(a)pyrene	µg/kg	210	3.5	< 11.7	**138000**	**49.4**	**9.8 J**	**26600**	**29600**	**50.4**	< 11.8	< 12
Benzo(b)fluoranthene	µg/kg	2100	35	2 J	**211000**	**73.3**	17.8	**34500**	**49900**	**71.4**	4.8 J	3.4 J
Benzo(ghi)perylene	µg/kg			< 11.7	52000	20.4	9.3 J	13100	12900	18.9	< 11.8	< 12
Chrysene	µg/kg	210000	1100	< 11.7	**253000**	143	13.7	**47800**	**67500**	97.3	14.6	10.2 J
Dibenz(a,h)anthracene	µg/kg	210	11	< 11.7	**16600**	< 12	< 11.5	**4170**	**4130**	< 12.5	< 11.8	< 12
Indeno(1,2,3-cd) pyrene	µg/kg	2100	200	< 11.7	**53800**	19.6	7.5 J	**11700**	**9610**	19.3	< 11.8	< 12
Total MPCA List 1 Compounds:	µg/kg			2	1011400	406	68.4	169070	240940	367	19.4	13.6
Benzo(a)pyrene Equivalents[a]	µg/kg	210[c]	3.5[c]	0.20	**210768**	**69.1**	**13.4**	**38674**	**46640**	**70.9**	0.49	0.35
Benzo(a)pyrene Equivalents[b]	µg/kg	210[c]	3.5[c]	0.20	**212356**	**73.0**	**14.1**	**38313**	**46879**	**75.0**	0.63	0.44
MPCA List 2 Compounds:												
2-Methylnaphthalene	µg/kg	220000	14	<11.7	**1670000**	**90.6**	2.6 J	**285**	**5340**	**508**	2.2 J	<12.0
Acenaphthylene	µg/kg			1.9 J	135000	22.9	5 J	4290	13400	47.8	2.1 J	1.7 J
Phenanthrene	µg/kg			10 J	2880000	832	39	11500	425000	1470	28.2	12 J
Acenaphthene	µg/kg	3300000	410	7.8 J	**1130000**	168	4.9 J	**2670**	**181000**	409	12.8	5 J
Anthracene	µg/kg	17000000	4200	< 11.7	**263000**	140	11.1 J	**25900**	**49200**	154	13.5	8 J
Fluoranthene	µg/kg	2200000	7000	10.1 J	**1460000**	451	35.8	**83100**	**265000**	728	39.9	24.2
Fluorene	µg/kg	2200000	400	5.8 J	**1130000**	233	8.9 J	**4380**	**177000**	**585**	12	4.7 J
Naphthalene	µg/kg	18000	0.47	**8.2 J**	**3310000**	**94.3**	**5.8 J**	**308**	**910**	**816**	**15.5**	**6.4 J**
Pyrene	µg/kg	1700000	950	5.9 J	**1010000**	307	26.7	**55000**	**183000**	514	22.7	14.8
Total MPCA List 2 Compounds:	µg/kg			49.7	12988000	2338.8	139.8	187433	1299850	5231.8	148.9	76.8
Non-Listed PAHs:	µg/kg											
Benzo(k)fluoranthene	µg/kg	21000	350	< 11.7	**73500**	28.9	6.5 J	**11600**	**16100**	36	< 11.8	< 12
2-Chloronaphthalene	µg/kg	8200000	290	<11.7	<14700	<12	<11.5	<58.7	70.4 J	<12.5	<11.8	<12.0
TarGOST Readings	%RE			5	52	2	4	88	4	89	4	4

TGC-100 drilled next to TGB-115
TGC-200 drilled next to TGB-200
TGC-201 drilled next to TGB-206

BOLD - indicates exceedance of EPA Protection of Groundwater criteria

BOLD - indicates exceedance of EPA Industrial screening criteria

[a] - benzo(a)pyrene equivalents calculated using the toxicity equivalency factors recommended in *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993*

[b] - benzo(a)pyrene equivalents calculated using the MPCA worksheet referenced at http://www.pca.state.mn.us/publications/c-r1-02.xls

[c] - screening criteria presented is the value for benzo(a)pyrene

Table 4.3.1-6b
Comparison of TarGOST Response and Soil Concentration – TGB-115
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Depth (ft)	Soil Type (from DTS-1)	Visual Impacts (from DTS-1)	Total PAH concentration from TGC-100 (mg/kg)	Total PAH concentration from DTS-1 (mg/kg)	benzo(a)pyrene concentration from TGC-100 (mg/kg)	benzo(a)pyrene concentration from DTS-1 (mg/kg)	naphthalene concentration from TGC-100 (mg/kg)	naphthalene concentration from DTS-1 (mg/kg)
1	SAND, loose well graded							
2								
3								
4				4': 1.96		4': 0.24		4': <0.1
5				4'-6': 1.28		4'-6': 0.17		4'-6': <0.11
6								
7								
8								
9								
10			9'-10': 4,680		9'-10': 44.2		9'-10': 1.0	
11								
12								
13	12': SAND with SILT	stained, strong petro-like odor		12'-14': 2,759		12'-14': 41.5		12'-14': <11.1
14								
15								
16								
17		lense of black sand at 16.5 ft	16'-17': 5,660		16'-17': 33.0		16'-17': 1,620	
18	17'-18': Interbedded SILT with CLAY							
19	18'-19': CLAY	petro-like odor						
20	19': SAND, loose well graded							
21								
22								
23								
24								
25		black staining; petro-like odor						
26			25'-26': 65		25'-26': 0.19		25'-26': 39	
27								
28	27'-27.2': CLAY	petro-like odor		25'-27': 12,928		25'-27': 101		25'-27': 4,090
29	28': SAND with SILT		28'-29': 4.1		28'-29': 0.024		28'-29': 1.1	
30				28'-30': 0.041		28'-30': <0.012		28'-30': <0.012
31								
32								
33								
34								
35								
36			35'-36': 1,629		35'-36': 0.92		35'-36': 49.3	
37								
38								
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								
51	50'-52': CLAY							
52								
53	52': SAND, loose well graded							
54								
55								
56		slight petro-like odor						
57								
58								
59								
60		petro-like odor						
61								
62								
63								
64								
65				64'-66': 0.434		64'-66': <0.011		64'-66': 0.036
66								
67								
68								
69								
70								
71								
72								
73								
74								
75								
76								
77								
78								
79								
80								
81								
82								
83								
84								
85								
86								
87								
88								
89								
90								
91								
92								
93								
94								
95								
96								
97								
98								
99								
100								
101								
102								
103								
104								
105								
106								
107								
108								
109								
110								

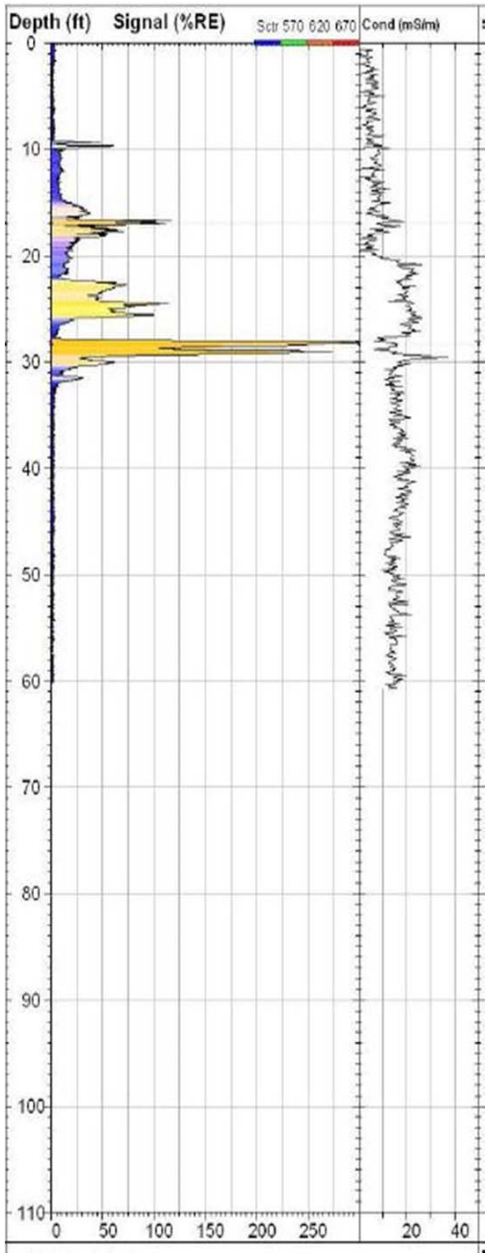


Table 4.3.1-6c
Comparison of TarGOST Response and Soil Concentration – TGB-200
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Depth (ft)	Soil Type (from CP-3)	Visual Impacts (from CP-3)	Total PAH concentration from TGC-200 (mg/kg)	Total PAH concentration from CP-3 (mg/kg)	benzo(a)pyrene concentration from TGC-200 (mg/kg)	benzo(a)pyrene concentration from CP-3 (mg/kg)	naphthalene concentration from TGC-200 (mg/kg)	naphthalene concentration from CP-3 (mg/kg)
1	SAND, loose poorly graded, fine-grained							
2								
3				2'-4': < 0.01		2'-4': < 0.01		2'-4': < 0.01
4								
5								
6		petro-like odor						
7	7': 1-inch thick clay layer							
8		stained, strong petro-like odor						
9	8.5'-9.5'': CLAY			8'-9': 9,932		8'-9': 94.2		8'-9': 3,320
10	9.5'-10': SAND, loose poorly graded	stained, strong petro-like odor	9'-10': 11,672		9'-10': 24.4		9'-10': 401	
11	10'-11'': CLAY with SAND							
12	11'-13.5': SAND, loose well graded							
13		heavy staining, sheen , petro-like odor	12'-13': 25.1		12'-13': 0.08		12'-13': 1,560	
14	13.5'-13.7': CLAY							
15	13.7-39': SAND, loose well graded	stained; petro-like odor						
16								
17		stained; petro-like odor						
18								
19								
20		staining						
21								
22								
23				22.5'-23.5': 958		22.5'-23.5': 11.4		22.5'-23.5': 141
24								
25								
26								
27								
28			27'-28': 26,774		27'-28': 53.8		27'-28': 1,010	
29								
30								
31								
32		petro-like odor, no staining						
33			32'-33': 5.0		32'-33': 0.02		32'-33': 0.31	
34								
35								
36								
37								
38		no odor						
39								
40	39'-49': SAND, loose poorly graded							
41								
42								
43								
44								
45		no odor						
46								
47								
48								
49								
50								
51								
52	51.5': CLAY	52': Bottom of hole						
53								

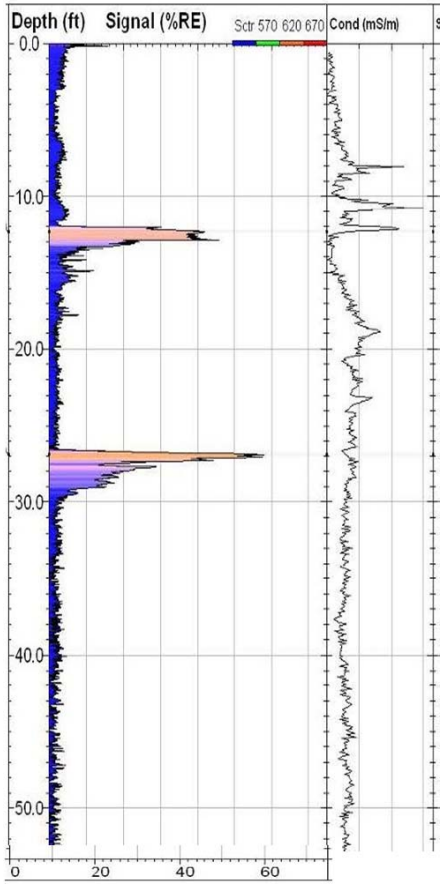
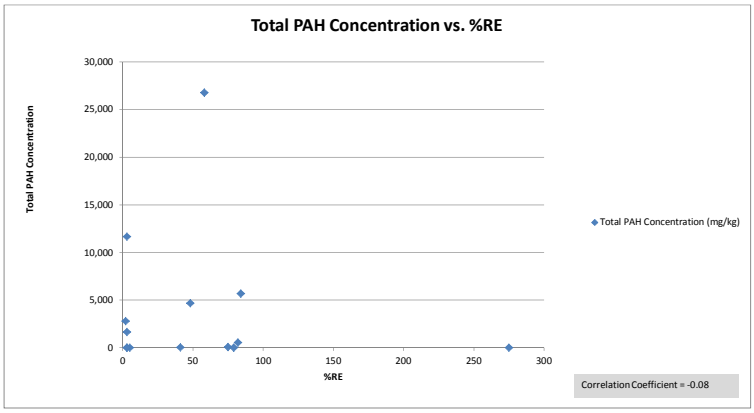
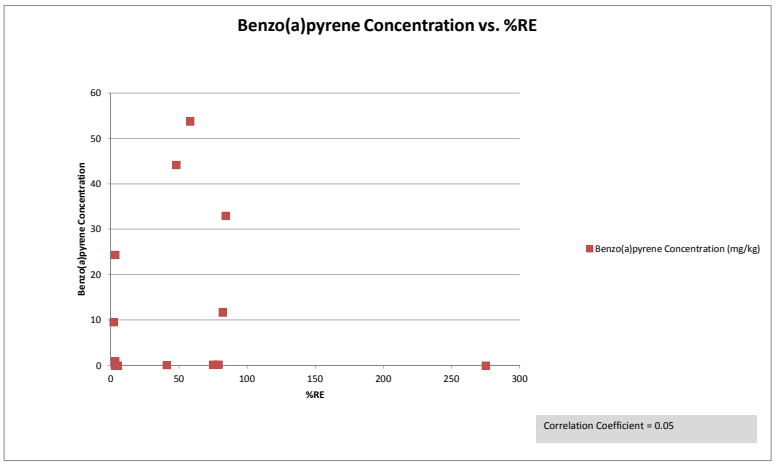


Table 4.3.1-6d
Comparison of TarGOST Response and Soil Concentration
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

TarGOST Boring	Confirmation Boring	Sample Depth (ft)	TarGOST Measurement (%RE)	Total PAH Concentration (mg/kg)	Benzo(a)pyrene Concentration (mg/kg)	Naphthalene Concentration (mg/kg)
TGB-115	TGC-100	9'-10'	48	4,680	44.2	1
TGB-115	TGC-100	16'-17'	84	5,660	33	1,620
TGB-115	TGC-100	25'-26'	75	65	0.2	39
TGB-115	TGC-100	28'-29'	275	4.1	0.02	1.1
TGB-115	TGC-100	35'-36'	3	1629	0.92	49.3
TGB-200	TGC-200	9'-10'	3	11,672	24.4	401
TGB-200	TGC-200	12'-13'	41	25.1	0.08	1.6
TGB-200	TGC-200	27'-28'	58	26,774	53.8	1,010
TGB-200	TGC-200	32'-33'	3	5	0.02	0.31
TGB-206	TGC-201	9'-10'	5	0.35	0.008	0.03
TGB-206	TGC-201	11.5'-12.5'	82	524	11.7	55
TGB-206	TGC-201	15'-16'	2	2,789	9.6	183
TGB-206	TGC-201	19'-20'	79	11	0.19	0.51
TGB-206	TGC-201	24'-25'	3	0.4	0.006	0.02
Correlation Coefficient:				**-0.08**	**-0.03**	**0.05**





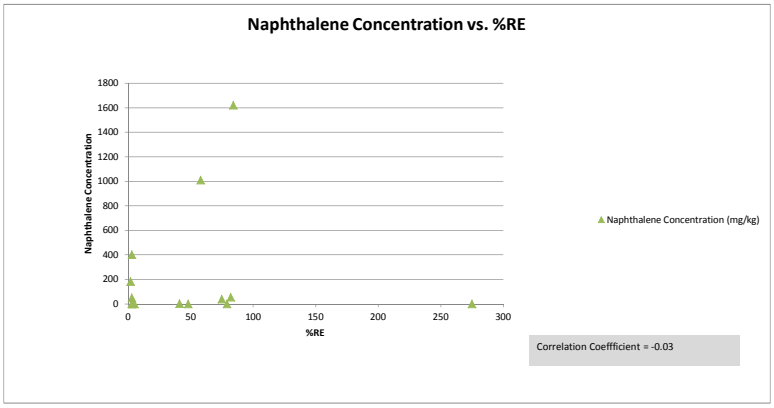


Table 4.3.1-7
Groundwater Profile Sample Laboratory Analytical Results
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l			Sample Location	GW-100	GW-100	GW-100	GW-100	GW-100	GW-101	GW-101	DUP-1	GW-101	GW-101	GW-102	GW-102	GW-102	GW-102	GW-102
			Sample Date	8/19/2013	8/19/2013	8/19/2013	8/19/2013	8/19/2013	8/20/2013	8/20/2013	8/20/2013	8/20/2013	8/20/2013	10/14/2013	10/14/2013	10/14/2013	10/14/2013	10/14/2013
			Depth	38-38	52-52	72-72	78-78	90-90	38-38	59-59	59-59	69-69	89-89	31-33	36-38	57-59	70-72	104-106
			Parent Sample ID								GW-101							
Analytes	**EPA MCL**	**EPA Tapwater**	**CAS Number**															
MPCA List 1 Compounds:																		
Benzo(a)anthracene	--	0.029	56-55-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 4	< 0.04	< 0.04	**0.048**	< 0.04	< 0.04
Benzo(a)pyrene	0.2	0.0029	50-32-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 4	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(b)fluoranthene	--	0.029	205-99-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 4	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(g,h,i)perylene	--	--	191-24-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 4	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Chrysene	--	29	218-01-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 4	< 0.04	< 0.04	0.062	< 0.04	< 0.04
Dibenz(a,h)anthracene	--	0.0029	53-70-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 4	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	--	0.029	193-39-5	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 4	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Total MPCA List 1 Compounds:	--	--		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.11	ND	ND
MPCA List 2 Compounds:																		
1-Methylnaphthalene	--	0.97	90-12-0	**21.2**	**38.4**	0.6	0.37	0.49	0.15	0.56 J	0.82 J	0.85	**89.2**	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2-Methylnaphthalene	--	2.7	91-57-6	0.35	< 0.04	0.055	< 0.04	0.042	0.085	0.46	0.56	0.92	**109**	0.088 J	< 0.04	< 0.04	< 0.04	< 0.04
Acenaphthylene	--	--	208-96-8	2.5	2.6	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.048	0.052	7.8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(e)pyrene	--	--	192-97-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 4	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Phenanthrene	--	--	85-01-8	11.2	5.6	0.46	0.085	0.28	0.11	0.93 J	1.4 J	2	58.5	0.11	< 0.04	0.6	0.052	0.055
Acenaphthene	--	40	83-32-9	25.7	**53.7**	0.5	0.15	0.18	0.1	0.36	0.38	0.48	**78**	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Anthracene	--	130	120-12-7	< 0.04	0.33	< 0.04	< 0.04	< 0.04	< 0.04	0.14 J	0.36 J	0.38	8.8	< 0.04	< 0.04	0.04	< 0.04	< 0.04
Fluoranthene	--	63	206-44-0	0.05	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.07 J	0.17 J	0.21	5.5	< 0.04	< 0.04	0.75	< 0.04	< 0.04
Fluorene	--	22	86-73-7	10.8	16.6	0.98	0.22	0.59	0.14	0.77 J	1.3 J	1.2	**48**	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Naphthalene	--	0.14	91-20-3	**14.9**	**13.8**	**1.9**	**1.2**	**1.1**	**2.1**	**11.4**	**11.6**	**43.4**	**795**	**0.17 J**	< 0.16	< 0.16	< 0.16	< 0.16
Pyrene	--	8.7	129-00-0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.048 J	0.13 J	0.14	< 4	< 0.04	< 0.04	0.45	< 0.04	< 0.04
Total MPCA List 2 Compounds	--	--		86.7	131	4.5	2.0	2.7	2.7	14.7	16.8	49.6	1200	0.37	ND	1.8	0.052	0.055
Non-Listed PAHs:																		
Benzo(k)fluoranthene	--	0.29	207-08-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 4	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2-Chloronaphthalene	--	55	91-58-7	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 4	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dibenzofuran	--	0.58	132-64-9	**14.7**	**22.9**	**0.68**	0.16	0.39	0.09	0.52	**0.67**	**0.96**	**51**	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Volatile Organic Compounds:																		
Benzene	5	0.39	71-43-2	< 1 UJ	< 1 UJ	< 1 UJ	< 1	< 1 UJ	< 1 UJ	< 1	< 1 UJ	< 1	< 1	NA	NA	NA	NA	< 1 UJ
Ethylbenzene	700	1.3	100-41-4	< 1 UJ	< 1 UJ	< 1 UJ	< 1	< 1 UJ	< 1 UJ	< 1	< 1 UJ	< 1	**2.5**	NA	NA	NA	NA	< 1 UJ
Toluene	1000	110	108-88-3	< 1 UJ	< 1 UJ	< 1 UJ	< 1	< 1 UJ	< 1 UJ	< 1	< 1 UJ	< 1	< 1	NA	NA	NA	NA	< 1 UJ
Xylene (Total)	10000	19	1330-20-7	< 3 UJ	< 3 UJ	< 3 UJ	< 3	< 3 UJ	< 3 UJ	< 3	< 3 UJ	< 3	9.7	NA	NA	NA	NA	< 3 UJ
1,2,4-Trimethylbenzene	--	1.5	95-63-6	< 1 UJ	< 1 UJ	< 1 UJ	< 1	< 1 UJ	< 1 UJ	< 1	< 1 UJ	< 1	**18.9**	NA	NA	NA	NA	< 5 UJ
1,3,5-Trimethylbenzene	--	12	108-67-8	< 1 UJ	< 1 UJ	< 1 UJ	< 1	< 1 UJ	< 1 UJ	< 1	< 1 UJ	< 1	6.7	NA	NA	NA	NA	< 5 UJ

Notes:
-- - No established value
Bold - analyte concentration exceeds the value for EPA Tapwater
'- analyte concentration exceeds the EPA MCL
< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table revised November 2013. Tables with a hazard index (HI) of 0.1 were used.
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
NA - not analyzed
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration.
R - The result is rejected and can not be used for the intended purpose.
UB - The analyte is considered a non-detect since the same analyte was found at a similar concentration in an associated quality control blank.
UJ - Undetected, reporting limit estimated

Table 4.3.1-7
Groundwater Profile Sample Laboratory Analytical Results
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l			Sample Location	GW-103	GW-103	GW-103	GW-103	GW-103	GW-104	GW-104	GW-104	GW-104	GW-104	GW-104	GW-104	GW-104 DUP
			Sample Date	10/15/2013	10/15/2013	10/15/2013	10/15/2013	10/15/2013	10/15/2013	10/15/2013	10/15/2013	10/15/2013	10/15/2013	10/15/2013	10/15/2013	10/16/2013
			Depth	32-34	36-38	46-48	54-56	62-64	39-41	54-56	60-62	64-66	70-72	74-76	80-82	80-82
			Parent Sample ID													GW-104
Analytes	**EPA MCL**	**EPA Tapwater**	**CAS Number**													
MPCA List 1 Compounds:																
Benzo(a)anthracene	--	0.029	56-55-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
Benzo(a)pyrene	0.2	0.0029	50-32-8	< 0.04	< 0.04	< 0.04	**0.048**	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
Benzo(b)fluoranthene	--	0.029	205-99-2	< 0.04	< 0.04	< 0.04	**0.058**	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
Benzo(g,h,i)perylene	--	--	191-24-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
Chrysene	--	29	218-01-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
Dibenz(a,h)anthracene	--	0.0029	53-70-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	--	0.029	193-39-5	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
Total MPCA List 1 Compounds:	--	--		ND	ND	ND	0.11	ND	ND	R	ND	ND	ND	R	ND	ND
MPCA List 2 Compounds:																
1-Methylnaphthalene	--	0.97	90-12-0	**251 J**	**238 J**	**24.8 J**	0.48 J	0.67 J	0.12	**1.6 J**	< 0.04	0.035 J	< 0.04	R	< 0.04	< 0.04
2-Methylnaphthalene	--	2.7	91-57-6	**241 J**	**426 J**	**3.5 J**	0.76 J	0.92 J	0.18	**7 J**	0.038 J	0.065	< 0.04	0.04 J	0.025 J	< 0.04
Acenaphthylene	--	--	208-96-8	19.8	16.9	2.4	0.075	0.075	< 0.04	0.22 J	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
Benzo(e)pyrene	--	--	192-97-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
Phenanthrene	--	--	85-01-8	76.6	58.1	3.3	0.63	0.44	0.24	7.8 J	0.065	0.18	< 0.04	0.042 J	0.058 J	0.022 J
Acenaphthene	--	40	83-32-9	**271**	**229**	**49.6**	0.97	1.1	0.18	2.8 J	0.025 J	0.068	< 0.04	0.05 J	0.02 J	0.055 J
Anthracene	--	130	120-12-7	18	15.9	2.9	0.18	0.54	0.19	3 J	< 0.04	0.03 J	< 0.04	R	< 0.04	< 0.04
Fluoranthene	--	63	206-44-0	0.24	0.69	0.17	0.052	0.12	0.052	0.56 J	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
Fluorene	--	22	86-73-7	**132**	**114**	4.4	0.96	0.66	0.28	19.8 J	0.078	0.18	< 0.04	0.08 J	0.022 J	< 0.04
Naphthalene	--	0.14	91-20-3	**6330 J**	**6690 J**	**47 J**	**8 J**	**15.9 J**	**1.9**	**73.6 J**	**0.32**	**0.61**	0.075 J	**0.3 J**	0.12 J	0.12 J
Pyrene	--	8.7	129-00-0	0.13	0.36	0.11	0.048	0.11	0.04	0.22 J	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
Total MPCA List 2 Compounds	--	--		7340	7789	138	12.2	20.5	3.2	117	0.53	1.2	0.075	0.51	0.25	0.20
Non-Listed PAHs:																
Benzo(k)fluoranthene	--	0.29	207-08-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
2-Chloronaphthalene	--	55	91-58-7	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.028 J	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04
Dibenzofuran	--	0.58	132-64-9	**161**	**138**	**26.7**	**0.86**	**0.87**	0.2	**7.1 J**	0.038 J	0.1	< 0.04	0.04 J	< 0.04	< 0.04
Volatile Organic Compounds:																
Benzene	5	0.39	71-43-2	< 1	< 1	< 1	< 1 UJ	< 1	< 1 UJ	< 1	< 1	< 1	< 1	< 1	< 1 UJ	< 1
Ethylbenzene	700	1.3	100-41-4	**22.8**	**13**	< 1	< 1 UJ	< 1	< 1 UJ	< 1	< 1	< 1	< 1	< 1	< 1 UJ	< 1
Toluene	1000	110	108-88-3	7.4	57.5	< 1	< 1 UJ	< 1	0.5 J	< 1	< 1	< 1	< 1	< 1	< 1 UJ	< 1
Xylene (Total)	10000	19	1330-20-7	**120**	**151**	< 3	< 3 UJ	< 3	< 3 UJ	< 3	< 3	< 3	< 3	2.1 J	< 3 UJ	< 3
1,2,4-Trimethylbenzene	--	1.5	95-63-6	**86.1 J**	**89.9 J**	**5.9 J**	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ
1,3,5-Trimethylbenzene	--	12	108-67-8	**34.8 J**	**36.1 J**	2.8 J	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ

Notes:
-- - No established value
Bold - analyte concentration exceeds the value for EPA Tapwater

< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table revised November 2013. Tables with a hazard index (HI) of 0.1 were used.
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
NA - not analyzed
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration.
R - The result is rejected and can not be used for the intended purpose.
UB - The analyte is considered a non-detect since the same analyte was found at a similar concentration in an associated quality control blank.
UJ - Undetected, reporting limit estimated

Table 4.3.1-7
Groundwater Profile Sample Laboratory Analytical Results
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l			Sample Location	GW-105	GW-105	GW-105	GW-105	GW-105	GW-200	GW-200	GW-200	GW-200	GW-200-DUP	GW-200	GW-201	GW-201	GW-201	GW-201
			Sample Date	10/16/2013	10/16/2013	10/16/2013	10/16/2013	10/16/2013	8/22/2013	8/22/2013	8/22/2013	8/22/2013	8/22/2013	8/22/2013	8/21/2013	8/21/2013	8/21/2013	8/21/2013
			Depth	29-31	44-46	56-58	64-66	98-100	32-32	52-52	61-61	68-68	68-68	78-78	21-21	26-26	32-32	40-40
			Parent Sample ID										GW-200					
Analytes	**EPA MCL**	**EPA Tapwater**	**CAS Number**															
MPCA List 1 Compounds:																		
Benzo(a)anthracene	--	0.029	56-55-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**0.15**	**0.11 J**	< 0.04	0.0075 J	**0.035 J**	0.01 J	**0.052 J**	0.022 J	**0.075**	**0.078**
Benzo(a)pyrene	0.2	0.0029	50-32-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**0.082**	**0.045 J**	< 0.04	< 0.04	< 0.04	< 0.04	**0.05 J**	< 0.04	**0.025 J**	**0.048**
Benzo(b)fluoranthene	--	0.029	205-99-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**0.14**	**0.072 J**	< 0.04	< 0.04	< 0.04	< 0.04	**0.068 J**	0.012 J	**0.038 J**	**0.068**
Benzo(g,h,i)perylene	--	--	191-24-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.042	R	< 0.04	< 0.04	< 0.04	< 0.04	0.028 J	< 0.04	< 0.04	< 0.04
Chrysene	--	29	218-01-9	< 0.04	< 0.04	< 0.04	0.03 J	< 0.04	0.15	0.11 J	< 0.04	< 0.04	0.03 J	< 0.04	0.06 J	< 0.04	0.078	0.08
Dibenz(a,h)anthracene	--	0.0029	53-70-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	--	0.029	193-39-5	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**0.035 J**	R	< 0.04	< 0.04	< 0.04	< 0.04	0.025 J	< 0.04	< 0.04	< 0.04
Total MPCA List 1 Compounds:	--	--		ND	ND	ND	0.03	ND	0.60	0.34	ND	0.0075	0.065	0.01	0.28	0.034	0.22	0.27
MPCA List 2 Compounds:																		
1-Methylnaphthalene	--	0.97	90-12-0	0.065	< 0.04	< 0.04	< 0.04	< 0.04	0.048	0.15 J	< 0.04 J	< 0.04	0.025 J	< 0.04	0.18 J	0.11	0.14	0.035 J
2-Methylnaphthalene	--	2.7	91-57-6	0.092	< 0.04	< 0.04	< 0.04	< 0.04	0.04	0.1 UB	< 0.04	0.05	0.058	< 0.04	0.22 J	0.11	0.08	0.04
Acenaphthylene	--	--	208-96-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.068	0.055 J	< 0.04	< 0.04	< 0.04	< 0.04	0.12 J	0.055	0.12	0.022 J
Benzo(e)pyrene	--	--	192-97-2	< 0.04	< 0.04	< 0.04	0.032 J	< 0.04	0.065	0.03 J	< 0.04	< 0.04	< 0.04	< 0.04	0.032 J	< 0.04	< 0.04	0.032 J
Phenanthrene	--	--	85-01-8	0.24	< 0.04	< 0.04	< 0.04	< 0.04	0.52	2 J	0.038 UB	0.12 UB	0.42 J	0.16	0.75 J	0.78	1.5	0.81
Acenaphthene	--	40	83-32-9	0.13	< 0.04	< 0.04	< 0.04	< 0.04	0.15	0.71 J	0.092 UJ	0.06 J	0.088 J	0.082	0.43 J	1.1	3.2	0.24
Anthracene	--	130	120-12-7	0.045	0.022 J	< 0.04	< 0.04	< 0.04	0.068	0.17 J	< 0.04	< 0.04	0.045	< 0.04	0.13 J	0.15	0.26	0.09
Fluoranthene	--	63	206-44-0	0.02 J	< 0.04	< 0.04	< 0.04	< 0.04	0.71	1 J	< 0.04	0.052 J	0.35 J	0.065	0.33 J	0.38	0.94	0.58
Fluorene	--	22	86-73-7	0.22	< 0.04	< 0.04	< 0.04	< 0.04	0.1	0.53 J	< 0.04	0.068 J	0.1 J	0.045	0.36 J	0.36	0.4	0.13
Naphthalene	--	0.14	91-20-3	**0.96**	< 0.16	0.095 J	< 0.16	**0.15 J**	**0.18**	**4.1 J**	**1.9 J**	**0.54**	**0.57**	**0.64**	**1.1 J**	**0.38**	**0.38**	**0.2**
Pyrene	--	8.7	129-00-0	0.012 J	< 0.04	< 0.04	0.032 J	< 0.04	0.47	0.66 J	< 0.04	0.035 J	0.24 J	0.045	0.23 J	0.19	0.62	0.38
Total MPCA List 2 Compounds	--	--		1.8	0.022	0.095	0.064	0.15	2.4	9.4	2.0	0.81	1.9	1.0	3.9	3.6	7.6	2.6
Non-Listed PAHs:																		
Benzo(k)fluoranthene	--	0.29	207-08-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.045	0.022 J	< 0.04	< 0.04	< 0.04	< 0.04	0.022 J	< 0.04	< 0.04	0.02 J
2-Chloronaphthalene	--	55	91-58-7	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04	< 0.04	R	< 0.04	< 0.04	< 0.04
Dibenzofuran	--	0.58	132-64-9	0.14	< 0.04	< 0.04	< 0.04	< 0.04	0.1	**0.88 J**	0.05 J	0.065 J	0.095 J	0.058	**1.2 J**	**0.6**	**4.2**	0.28
Volatile Organic Compounds:																		
Benzene	5	0.39	71-43-2	< 1 UJ	< 1	< 1	< 1	< 1	< 2 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	0.3 J	< 1 UJ
Ethylbenzene	700	1.3	100-41-4	< 1 UJ	< 1	< 1	< 1	< 1	< 2 UJ	0.26 J	0.4 J	< 1 UJ	< 1 UJ	< 1 UJ	0.55 J	0.53 J	0.51 J	< 1 UJ
Toluene	1000	110	108-88-3	0.49 J	< 1	< 1	< 1	< 1	0.49 J	0.39 J	0.51 J	< 1 UJ	0.26 J	< 1 UJ	0.57 J	0.54 J	0.61 J	0.32 J
Xylene (Total)	10000	19	1330-20-7	1.5 J	< 3	< 3	< 3	< 3	< 6 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ	< 3 UJ
1,2,4-Trimethylbenzene	--	1.5	95-63-6	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 2 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ
1,3,5-Trimethylbenzene	--	12	108-67-8	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 2 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ

Notes:
-- - No established value
Bold - analyte concentration exceeds the value for EPA Tapwater
< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table revised November 2013. Tables with a hazard index (HI) of 0.1 were used.
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
NA - not analyzed
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration.
R - The result is rejected and can not be used for the intended purpose.
UB - The analyte is considered a non-detect since the same analyte was found at a similar concentration in an associated quality control blank.
UJ - Undetected, reporting limit estimated

Table 4.3.1-7
Groundwater Profile Sample Laboratory Analytical Results
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l			Sample Location	GW-400	GW-400	GW-400	GW-400	GW-400	GW-400	GW-400	GW-401	GW-401	GW-401	GW-401	GW-401	GW-401	GW-401-DUP
			Sample Date	8/20/2013	8/20/2013	8/20/2013	8/20/2013	8/20/2013	8/20/2013	8/20/2013	8/21/2013	8/21/2013	8/21/2013	8/21/2013	8/21/2013	8/21/2013	8/21/2013
			Depth	31-31	37-37	49-49	56-56	65-65	72-72	81-81	32-32	41-41	54-54	65-65	75-75	88-88	88-88
			Parent Sample ID														GW-401
Analytes	**EPA MCL**	**EPA Tapwater**	**CAS Number**														
MPCA List 1 Compounds:																	
Benzo(a)anthracene	--	0.029	56-55-3	**0.05**	**0.12**	**0.06**	**0.07**	**0.28**	**0.035 J**	**0.13**	**0.04 J**	**0.088**	**0.28**	**0.16**	**0.048**	**0.2 J**	< 0.04 UJ
Benzo(a)pyrene	0.2	0.0029	50-32-8	**0.042**	**0.022 J**	< 0.04	< 0.04	**0.12**	**0.025 J**	**0.028 J**	< 0.04 UJ	< 0.04	**0.04**	**0.022 J**	< 0.04	**0.12 J**	< 0.04 UJ
Benzo(b)fluoranthene	--	0.029	205-99-2	**0.045**	**0.042**	0.02 J	0.025 J	**0.11**	0.025 J	**0.038 J**	< 0.04 UJ	0.028 J	**0.055**	**0.045**	< 0.04	**0.13 J**	< 0.04 UJ
Benzo(g,h,i)perylene	--	--	191-24-2	0.032 J	< 0.04	< 0.04	< 0.04	0.082	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	0.1 J	< 0.04 UJ
Chrysene	--	29	218-01-9	0.05	0.082	0.048	0.06	0.22	0.028 J	0.098	0.038 J	0.072	0.22	0.14	0.042	0.16 J	< 0.04 UJ
Dibenz(a,h)anthracene	--	0.0029	53-70-3	**0.032 J**	< 0.04	< 0.04	< 0.04	**0.08**	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	**0.095 J**	< 0.04 UJ
Indeno(1,2,3-cd)pyrene	--	0.029	193-39-5	**0.032 J**	< 0.04	< 0.04	< 0.04	**0.085**	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	**0.11 J**	< 0.04 UJ
Total MPCA List 1 Compounds:	--	--		0.28	0.27	0.13	0.16	0.98	0.11	0.29	0.078	0.19	0.60	0.37	0.09	0.92	ND
MPCA List 2 Compounds:																	
1-Methylnaphthalene	--	0.97	90-12-0	**68.5**	**152**	**98.4**	**24.2**	**21.1**	**7.4**	**8.5**	0.44 J	**49.3 J**	**106**	**68**	**49**	**22.9 J**	0.49 J
2-Methylnaphthalene	--	2.7	91-57-6	**34**	**65.2**	**162**	2.3	1	0.89	**4.1**	0.12 UB	**22.5 J**	**114**	**92**	**10**	1.1 J	0.11 J
Acenaphthylene	--	--	208-96-8	3.3	8.2	5.9	0.98	0.34	0.17	0.5	0.08 J	2 J	4.4	3.1	1.4	0.18 J	0.022 J
Benzo(e)pyrene	--	--	192-97-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04	0.025 J	< 0.04	< 0.04	R	< 0.04
Phenanthrene	--	--	85-01-8	28	64.9	60.2	13.8	11.8	3.3	18.5	3 J	7.4 J	38.5	31.5	3.3	3.2 J	0.33 J
Acenaphthene	--	40	83-32-9	**66**	**162**	**102**	**112**	35.6	12.5	15.5	1.8 J	**49 J**	**107**	**70.5**	**54**	8.9 J	0.51 J
Anthracene	--	130	120-12-7	1.2	2	3.7	1.6	1.1	0.28	1.3	0.38 J	0.78	1.5	1.4	0.26	0.34 J	0.038 J
Fluoranthene	--	63	206-44-0	0.84	4	2	2	2.6	0.49	4.1	0.91 J	2 J	4.6	3.3	0.81	1.3 J	0.095 J
Fluorene	--	22	86-73-7	22	**56.7**	**75.6**	9.5	4.5	4.3	10.6	6.3 J	7.4 J	21	13.5	9.5	0.44 J	0.19 J
Naphthalene	--	0.14	91-20-3	**2320**	**4080**	**3080**	**1020**	**354**	**25.9**	**60.1**	**0.84 J**	**931 J**	**3680**	**2220**	**1200**	**551 J**	**18.7 J**
Pyrene	--	8.7	129-00-0	0.34	2.5	1	1.1	1.8	0.31	1.9	0.56 J	1.1 J	3.1	2.1	0.52	1 J	0.058 J
Total MPCA List 2 Compounds	--	--		2544	4598	3591	1187	434	55.5	125	14.3	1072	4080	2505	1329	588	20.5
Non-Listed PAHs:																	
Benzo(k)fluoranthene	--	0.29	207-08-9	0.032 J	< 0.04	< 0.04	< 0.04	0.09	< 0.04	< 0.04	< 0.04 UJ	< 0.04	0.02 J	< 0.04	< 0.04	0.1 J	< 0.04 UJ
2-Chloronaphthalene	--	55	91-58-7	0.18	0.21	0.27	0.14	0.07	< 0.04	0.02 J	< 0.04 UJ	0.29	0.5	0.21	0.068	R	< 0.04
Dibenzofuran	--	0.58	132-64-9	**40**	**94.7**	**69.3**	**57**	**33.5**	**6.4**	**10.9**	**2 J**	**18.4 J**	**61**	**48**	**19.5**	**1.6 J**	0.25 J
Volatile Organic Compounds:																	
Benzene	5	0.39	71-43-2	**29.4 J**	**34.9 J**	**26.9 J**	< 10 UJ	< 5 UJ	< 2	0.36 J	0.29 J	**44.9 J**	**112 J**	**46.5 J**	**0.74 J**	0.33 J	**0.41 J**
Ethylbenzene	700	1.3	100-41-4	**49.8 J**	**61.5 J**	**75.1 J**	**18.3 J**	**7.3 J**	**1.4 J**	**1.4 J**	0.63 J	**12 J**	**48.5 J**	**36.5 J**	**10.8 J**	**9.9**	**11 J**
Toluene	1000	110	108-88-3	**118 J**	**137 J**	**159 J**	25.1 J	7.4 J	0.63 J	0.78 J	0.82 J	32.1 J	171 J	99.8 J	7.9 J	4.7	5.7 J
Xylene (Total)	10000	19	1330-20-7	**173 J**	**231 J**	< 300 UJ	**23.8 J**	10.8 J	< 6	< 3 UJ	< 3 UJ	11.1 J	**130 J**	**97.5 J**	**22.6 J**	17.4	**20.8 J**
1,2,4-Trimethylbenzene	--	1.5	95-63-6	**31 J**	**41.4 J**	< 100 UJ	**24.8 J**	**12.5 J**	1.4 J	< 1 UJ	< 1 UJ	< 10 UJ	**23.9 J**	**24.4 J**	**8.1 J**	**2.5 J**	**4.3 J**
1,3,5-Trimethylbenzene	--	12	108-67-8	< 50 UJ	**20.5 J**	< 100 UJ	5.4 J	< 5 UJ	< 2	< 1 UJ	< 1 UJ	< 10 UJ	9.7 J	10.5 J	3 J	< 1	< 1 UJ

Notes:
-- - No established value
Bold - analyte concentration exceeds the value for EPA Tapwater
< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table revised November 2013. Tables with a hazard index (HI) of 0.1 were used.
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
NA - not analyzed
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration.
R - The result is rejected and can not be used for the intended purpose.
UB - The analyte is considered a non-detect since the same analyte was found at a similar concentration in an associated quality control blank.
UJ - Undetected, reporting limit estimated

Table 4.3.1-7
Groundwater Profile Sample Laboratory Analytical Results
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l			Sample Location	GW-402	GW-402	GW-402 DUP	GW-402	GW-402	GW-402	GW-403	GW-403	GW-403 Duplicate	GW-403	GW-403	GW-403	GW-403
			Sample Date	10/16/2013	10/16/2013	10/16/2013	10/16/2013	10/16/2013	10/16/2013	10/17/2013	10/17/2013	10/17/2013	10/17/2013	10/17/2013	10/17/2013	10/17/2013
			Depth	32-34	42-44	42-44	60-62	74-76	83-85	34-36	44-46	44-46	54-56	64-66	74-76	85-87
			Parent Sample ID			GW-402						GW-403				
Analytes	**EPA MCL**	**EPA Tapwater**	**CAS Number**													
MPCA List 1 Compounds:																
Benzo(a)anthracene	--	0.029	56-55-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**27.5 J**	< 0.04	R	NA	**27.5 J**	**25 J**	< 0.04	< 0.04
Benzo(a)pyrene	0.2	0.0029	50-32-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	NA	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(b)fluoranthene	--	0.029	205-99-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	NA	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(g,h,i)perylene	--	--	191-24-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	NA	< 0.04	< 0.04	< 0.04	< 0.04
Chrysene	--	29	218-01-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**87.5**	< 0.04	R	NA	**87.5**	**85**	< 0.04	< 0.04
Dibenz(a,h)anthracene	--	0.0029	53-70-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	NA	< 0.04	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	--	0.029	193-39-5	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	NA	< 0.04	< 0.04	< 0.04	< 0.04
Total MPCA List 1 Compounds:	--	--		ND	ND	ND	ND	ND	115	ND	R	NA	115	110	ND	ND
MPCA List 2 Compounds:																
1-Methylnaphthalene	--	0.97	90-12-0	0.35	< 0.04	< 0.04	0.02 J	0.058	**190**	**2.3**	**2.7 J**	NA	**52.5**	**85**	**63.5**	0.31
2-Methylnaphthalene	--	2.7	91-57-6	0.04	< 0.04	0.028 J	0.03 J	< 0.04	**60**	< 0.04	R	NA	0.99	1	**3.8**	0.048
Acenaphthylene	--	--	208-96-8	0.052	< 0.04	< 0.04	< 0.04	< 0.04	2.3	0.18	0.18 J	NA	0.15	0.26	1.2	< 0.04
Benzo(e)pyrene	--	--	192-97-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	NA	< 0.04	< 0.04	< 0.04	< 0.04
Phenanthrene	--	--	85-01-8	0.075	0.025 J	< 0.04	0.035 J	< 0.04	1450	0.06	0.67 J	NA	1480	1440	0.062	< 0.04
Acenaphthene	--	40	83-32-9	0.75	0.025 J	0.025 J	0.055	2	**175**	3	17.1 J	NA	**115**	**138**	17.8	0.38
Anthracene	--	130	120-12-7	0.048	0.02 J	< 0.04	< 0.04	< 0.04	0.36	0.28	0.082 J	NA	0.09	0.1	0.032 J	< 0.04
Fluoranthene	--	63	206-44-0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**415**	0.025 J	R	NA	**410**	**392**	< 0.04	< 0.04
Fluorene	--	22	86-73-7	0.062	0.02 J	< 0.04	0.068	< 0.04	**280**	0.18	2 J	NA	**262**	**258**	0.26	< 0.04
Naphthalene	--	0.14	91-20-3	**0.93**	0.062 J	0.12 J	0.14 J	**0.3**	**3740**	**123**	0.09 J	NA	**768**	**1380**	**2130**	**7.4**
Pyrene	--	8.7	129-00-0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**30 J**	0.025 J	R	NA	**27.5 J**	**25 J**	< 0.04	< 0.04
Total MPCA List 2 Compounds	--	--		2.3	0.15	0.17	0.35	2.4	6343	129	22.80	NA	3116	3719	2217	8.1
Non-Listed PAHs:																
Benzo(k)fluoranthene	--	0.29	207-08-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	R	NA	< 0.04	< 0.04	< 0.04	< 0.04
2-Chloronaphthalene	--	55	91-58-7	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.19	0.055	R	NA	< 0.04	< 0.04	0.04	< 0.04
Dibenzofuran	--	0.58	132-64-9	0.23	0.052	0.032 J	0.12	**0.71**	**215**	**4.1**	**15 J**	NA	**220**	**200**	**0.66**	0.11
Volatile Organic Compounds:																
Benzene	5	0.39	71-43-2	**7.3**	< 1	< 1	< 1 UJ	< 1	**0.68 J**	**65.5**	**0.92 J**	**0.65 J**	**4.1**	**0.68 J**	< 1	< 1
Ethylbenzene	700	1.3	100-41-4	1.1	< 1	< 1	< 1 UJ	< 1	**6.8**	< 1	0.68 J	0.55 J	0.5 J	**4.8**	**32.9 J**	**2.7**
Toluene	1000	110	108-88-3	0.65 J	< 1	< 1	< 1 UJ	< 1	20.2	0.5 J	0.93 J	0.8 J	0.93 J	1.8	20.8 J	0.88 J
Xylene (Total)	10000	19	1330-20-7	1.9 J	< 3	< 3	1.8 J	< 3	**63.3**	**21.9**	1.6 J	1.3 J	8.8	**34.4**	**122 J**	6.7
1,2,4-Trimethylbenzene	--	1.5	95-63-6	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	**35.7 J**	**14 J**	< 5 UJ	0.72 J	**10.9 J**	**30 J**	**32.9 J**	1.1 J
1,3,5-Trimethylbenzene	--	12	108-67-8	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	< 1 UJ	6.9 J	0.55 J	< 5 UJ	< 5 UJ	< 5 UJ	6.1 J	10.4 J	< 5 UJ

Notes:
-- - No established value
Bold - analyte - analyte concentration exceeds the EPA MCL
< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table revised November 2013. Tables with a hazard index (HI) of 0.1 were used.
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
NA - not analyzed
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration.
R - The result is rejected and can not be used for the intended purpose.
UB - The analyte is considered a non-detect since the same analyte was found at a similar concentration in an associated quality control blank.
UJ - Undetected, reporting limit estimated

Table 4.3.1-9
Summary of Newly Installed Monitoring Well Groundwater Analytical Results - March 2014
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l				Sample Location Sample Date Parent Sample ID	MW-39A 3/26/2014	MW-39AA 3/26/2014	MW-39B 3/26/2014	MW-39C 3/26/2014	MW-40B 3/25/2014	MW-41B 3/25/2014 FD of MW-40B
Analytes	**EPA MCL**	**EPA Tapwater**	**MDH HRL/HBV**	**CAS Number**						
MPCA List 1 Compounds:										
Benzo(a)anthracene	--	0.029	--	56-55-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	0.2	0.0029	0.06	50-32-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(b)fluoranthene	--	0.029	--	205-99-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(g,h,i)perylene	--	--	--	191-24-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Chrysene	--	29	--	218-01-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dibenz(a,h)anthracene	--	0.0029	--	53-70-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	--	0.029	--	193-39-5	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Total MPCA List 1 Compounds:	--	--	0.028		ND	ND	ND	ND	ND	ND
Benzo(a)pyrene Equivalents[a]	0.2[c]	0.0029[c]	0.06[c]		ND	ND	ND	ND	ND	ND
Benzo(a)pyrene Equivalents[b]	0.2[c]	0.0029[c]	0.06[c]		ND	ND	ND	ND	ND	ND
MPCA List 2 Compounds:										
1-Methylnaphthalene	--	0.97	--	90-12-0	< 0.04	**2**	**1.9**	**131**	< 0.04	< 0.04
2-Methylnaphthalene	--	2.7	8	91-57-6	< 0.04	0.16	0.11	***21.2***	< 0.04	< 0.04
Acenaphthylene	--	--	--	208-96-8	< 0.04	0.08	0.19	14	< 0.04	< 0.04
Benzo(e)pyrene	--	--	--	192-97-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Phenanthrene	--	--	--	85-01-8	< 0.04	< 0.04	0.88	38.6	0.072 J	0.05 J
Acenaphthene	--	40	400	83-32-9	< 0.04	0.42	2.5	**140**	0.022 J	< 0.04
Anthracene	--	130	2000	120-12-7	< 0.04	< 0.04	0.26	0.27	< 0.04	< 0.04
Fluoranthene	--	63	300	206-44-0	< 0.04	< 0.04	0.21	0.69	0.03 J	0.028 J
Fluorene	--	22	300	86-73-7	< 0.04	0.11	0.38	11.3	0.032 J	0.028 J
Naphthalene	--	0.14	70	91-20-3	< 0.16	***106***	**8**	***4090***	< 0.16	< 0.16
Pyrene	--	8.7	200	129-00-0	< 0.04	0.022 J	0.12	0.24	0.025 J	0.025 J
Total MPCA List 2 Compounds	--	--	0.3		NC	*109*	*14.6*	*4447*	0.18	0.13
Non-Listed PAHs:										
Benzo(k)fluoranthene	--	0.29	--	207-08-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2-Chloronaphthalene	--	55	--	91-58-7	< 0.04	< 0.04	0.21	0.38	< 0.04	< 0.04
Dibenzofuran	--	0.58	--	132-64-9	< 0.04	0.1	***11.4***	***54.8***	< 0.04	< 0.04
Volatile Organic Compounds:										
Benzene	5	0.39	2	71-43-2	< 1	< 1	***32.4***	***31***	< 1	< 1
Ethylbenzene	700	1.3	50	100-41-4	< 1	**1.9**	**14.1**	**37.8**	< 1	< 1
Toluene	1000	110	200	108-88-3	2.9	2.2	2.4	77.5	< 1	< 1
Xylene (Total)	10000	19	300	1330-20-7	< 3	1.2 J	**22.3**	**137**	< 3	< 3
1,2,4-Trimethylbenzene	--	1.5	100	95-63-6	< 1	1.4	**4.2**	**55.6**	< 1	< 1
1,3,5-Trimethylbenzene	--	12	100	108-67-8	< 1	< 1	0.87 J	**23.1 J**	< 1	< 1
Diesel Range Organics (DRO)										
Diesel Range Organics	--	--	--		160	2300	2300	15300	100 J	170 J

BOLD - indicates an exceedance of the EPA Tapwater screening level
ITALICS - indicates an exceedance of the MDH HRL/HBV criteria
HIGHLIGHTED - indicates an exceedance of the EPA MCL criteria
[a] - benzo(a)pyrene equivalents calculated using the toxicity equivalency factors recommended in *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993*
[b] - benzo(a)pyrene equivalents calculated using the MPCA worksheet referenced at http://www.pca.state.mn.us/publications/c-r1-02.xls
[c] - screening criteria presented is the value for benzo(a)pyrene

Table 4.3.4-1
LTU Leachate Sample Laboratory Analytical Results
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/L			Sample Location	LE-400	LE-400	LE-400	LE-400	LE-400	LE-400	LE-400	LE-400(FD)	LE-400	LE-400	LE-400
			Sample Date	7/23/2013	7/30/2013	8/6/2013	8/13/2013	8/20/2013	8/27/2013	9/3/2013	9/3/2013	9/10/2013	9/17/2013	9/24/2013
			Sample Name	LE-400-7-23-13	LE-400-7-30-13	LE-400-8-6-13	LE-400-8-13-13	LE-400-8-20-13	LE-400-8-27-13	LE-400-9-3-13	LE-400-9-3-13 Dup	LE-400-9-10-13	LE-400-9-17-13	LE-400-9-24-13
Analytes	**EPA MCL**	**EPA Tapwater**	**CAS Number**											
MPCA List 1 Compounds:														
Benzo(a)anthracene	--	0.029	56-55-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**0.23**	< 0.04	< 0.04	< 0.04	< 0.04 UJ
Benzo(a)pyrene	0.2	0.0029	50-32-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**0.022**	**0.04**	< 0.04	< 0.04	< 0.04 UJ
Benzo(b)fluoranthene	--	0.029	205-99-2	**0.048**	0.022 J	0.02 J	< 0.04	< 0.04	< 0.04	< 0.04	**0.048**	0.025 J	< 0.04	< 0.04 UJ
Benzo(g,h,i)perylene	--	--	191-24-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.032	< 0.04	< 0.04	< 0.04 UJ
Chrysene	--	29	218-01-9	0.2 J	0.23	0.22	0.17	0.095	0.08 UB	0.28	0.26	0.26	0.2	0.085 J
Dibenz(a,h)anthracene	--	0.0029	53-70-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**0.025**	< 0.04	< 0.04	< 0.04 UJ
Indeno(1,2,3-cd)pyrene	--	0.029	193-39-5	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**0.03**	< 0.04	< 0.04	< 0.04 UJ
Total MPCA List 1 Compounds	--	--		0.25	0.25	0.24	0.17	0.095	ND	0.53	0.44	0.29	0.2	0.09
MPCA List 2 Compounds:														
1-Methylnaphthalene	--	0.97	90-12-0	0.92 J	**1.4**	**1.5**	**1.6**	**1.7**	**2.6**	**2.1**	**1.9**	**2.5**	**3.1**	**2.4 J**
2-Methylnaphthalene	--	2.7	91-57-6	0.045 J	< 0.04	0.028 J	0.04	0.032 J	0.03 J	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04 UJ
Acenaphthylene	--	--	208-96-8	0.32 J	0.3	0.2 J	0.22	0.3	0.34	0.51	0.52	0.42	0.42	0.4 J
Benzo(e)pyrene	--	--	192-97-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.032	< 0.04	< 0.04	< 0.04 UJ
Phenanthrene	--	--	85-01-8	< 0.04	< 0.04	< 0.04	0.15	0.12	0.19	0.21	0.2	0.14	< 0.04	< 0.04 UJ
Acenaphthene	--	40	83-32-9	3.6 J	4.4	4.3 J	4.4	3.9	4.6	4.6	4.2	6.8	6.9	16.8 J
Anthracene	--	130	120-12-7	4.4 J	4.7	4.7	4.4	4.3	4.2	4.9	6	4.8	4.7	4.7 J
Fluoranthene	--	63	206-44-0	0.17 J	0.18	0.18	< 0.04	< 0.04	0.12 UB	0.25	0.27	0.16	0.16	0.13 J
Fluorene	--	22	86-73-7	1.1 J	1.4	1.2 J	1.3	1.1	1.5	1.3	1.2	1.6	1.5	0.86 J
Naphthalene	--	0.14	91-20-3	**0.21 J**	**0.24**	**0.2**	**0.32**	**0.4**	**0.61**	**0.9**	**0.84**	**1.3**	**2.2**	**0.98 J**
Pyrene	--	8.7	129-00-0	0.092 J	0.12	0.12	< 0.04	0.085	0.08 UB	< 0.04	< 0.04	0.12	0.12	0.082 J
Total MPCA List 2 Compounds	--	--		10.9	12.7	12.4	12.4	11.9	14.1	14.8	15.2	17.8	19.1	26.4
Non-Listed PAHs:														
Benzo(k)fluoranthene	--	0.29	207-08-9	< 0.04	0.032 J	0.03 J	< 0.04	< 0.04	< 0.04	< 0.062	0.032	< 0.04	< 0.04	< 0.04 UJ
2-Chloronaphthalene	--	55	91-58-7	< 0.04	0.49	0.48	0.45	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04 UJ
Dibenzofuran	--	0.58	132-64-9	**1 J**	**1.2**	**1.2**	**1.2**	**1.2**	**1.5**	**1.3**	**1.2**	**1.7**	**1.8**	**1.3 J**
Volatile Organic Compounds:														
Benzene	5	0.39	71-43-2	**0.69 J**	**0.8 J**	**0.99 J**	**1.1**	**1.7**	**1.8**	**2.3**	**2.1**	**2.1**	**1.5**	**3.5**
Ethylbenzene	700	1.3	100-41-4	0.51 J	0.69 J	0.75 J	0.72 J	1.1	1.2	**1.5**	**1.5**	**1.6**	**1.7**	**2**
Toluene	1000	110	108-88-3	< 1	< 2	< 1	< 1	0.24 J	< 1	0.28	0.24	0.41 UB	0.25 UB	0.29 UB
Xylene (Total)	10000	19	1330-20-7	1.4 J	< 6	1.5 J	1 J	1.3 J	1.3 J	1.9	1.7	2 J	1.9 J	2 J
1,2,4-Trimethylbenzene	--	1.5	95-63-6	< 1	< 2	< 1	< 1	0.55 J	< 1	0.87	0.71	1.2	0.65 J	0.87 J
1,3,5-Trimethylbenzene	--	12	108-67-8	< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

Notes:
-- - No established value
Bold - analyte concentration exceeds the value for EPA Tapwater
- analyte concentration exceeds the EPA MCL
< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table revised November 2013. Tables with a hazard index (HI) of 0.1 were used.
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration.
UB - The analyte is considered a non-detect since the same analyte was found at a similar concentration in an associated quality control blank.
UJ - Undetected, reporting limit estimated

Table 4.3.5-2
Below LTU 1985 Soil Boring Laboratory Analytical Results
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Constituent (mg/Kg)	B-2 (0.1-2.4)	B-2 Duplicate (0.1-2.4)	B-2 (2.4-4.9)	B-5 (0.5-2.5)	B-5 (2.5-5.0)	B-5 (5.0-7.5)	C-3 (0.5-1.5)	C-3 (2.5-5.0)	C-6 (0.5-2.0)	C-6 (2.5-5.0)	C-6 (5.0-10.0)	C-6 (10.0-15)	C-6 Duplicate (10.0-15)	D-1 (2.5-5.0)	D-3 (0.5-5.0)	D-5 Soil (0.5-2.5)	D-5 Duplicate (0.5-2.5)
PAHs																	
Naphthalene	5,620	3,410	23	6,510	2,720	2	5,800	<2	6,370	10,600	3,530	<2	<2	<2	<2	9,370	12,400
Acenaphthylene	2,470	2,480	6	2,990	1,380	<2	3,790	5	2,730	5,570	1,260	<2	<2	14	<2	5,510	5,580
Acenaphthene	17,900	7,230	600	20,100	9,930	<2	20,600	<2	20,900	31,300	9,250	<2	<2	609	<2	36,500	37,100
Fluorene	2,160	1,760	115	2,240	1,350	8	2,220	63	2,130	3,020	9,970	<2	0	101	<2	3,820	4,070
Phenanthrene	5,580	4,530	332	5,480	3,410	34	8,680	214	5,340	10,800	2,520	9	16	294	2	9,900	11,300
Anthracene	1,130	927	33	1,270	586	<2	1,200	3	885	1,460	358	<2	<2	<2	<2	3,440	2,510
Fluoranthene	6,270	5,090	362	6,290	4,100	<2	6,290	216	6,290	8,040	2,760	9	16	262	13	11,900	12,000
Pyrene	6,830	4,220	395	6,900	4,490	20	7,050	218	6,780	7,230	2,880	9	15	278	<2	12,200	11,700
Benz(a)anthracene	1,010	815	56	1,030	598	12	1,050	26	1,120	1,380	414	<4	<4	21	<4	2,090	1,560
Chrysene	1,030	8,510	63	968	667	<4	1,080	37	1,050	1,330	450	<4	<4	28	24	4,390	2,300
Benzo(b)fluoranthene	451	366	27	379	299	<4	541	10	650	662	194	<4	<4	<4	<4	330	47
Benzo(k)fluoranthene	299	218	16	244	196	<4	350	8	301	488	118	<4	<4	7	<4	555	147
Benzo(a)pyrene	297	236	22	207	225	<4	320	17	274	435	142	<4	<4	16	<4	882	359
Benzo(ghi)perylene	134	63	<4	108	179	<4	422	<4	<4	805	<4	<4	<4	<4	<4	1,040	192
Dibenz(a,h)anthracene	8	61	<4	<4	<4	<4	58	<4	<4	210	103	<4	<4	<4	<4	386	87
Ideno(1,2,3)pyrene	105	72	10	75	94	<4	6	<4	80	16	54	<4	<4	<4	<4	258	147
Benzene Extractables	95,300	---	6,340	93,700	87,700	25500	104,000	4,620	73,000	114,000	37,400	2,220	---	4,570	1,120	99,000	119,000
Total Phenols	17	---	10	74	25	8	15	11	71	130	25	4	---	10	7	110	130

Notes:

mg/Kg = Milligram per Kilogram

Table 4.3.6-1
Monitoring Well Construction Details
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Well Identification	Date Constructed	MN Unique Well Number	Measuring Point Elevation (MSL)	Ground Surface Elevation (MSL)	Survey Point X-Coordinate (Northing)	Survey Point Y-Coordinate (Easting)	Total Depth of Soil Boring (feet)	Constructed Depth (feet)	Screen Length (feet)	Top of Screen	Bottom of Screen	Riser Material	Screen Material
MW-1	7/20/1981	245411	1,203.24	1,202.20	171949.10	560009.45	161.5	41.0	10	31	41	Steel	Stainless Steel
MW-3A	7/29/1981	245413	1,195.47	1,196.60	171993.45	561551.80	77.3	66.2	10	56	66	Steel	Stainless Steel
MW-3B	7/31/1981	245414	1,195.59	1,197.00	171993.45	561551.80	49.0	49.0	10	39	49	Steel	Stainless Steel
MW-3C	7/28/1981	245415	1,195.41	1,196.70	171993.45	561551.80	34.5	29.5	10	19.5	29.5	Steel	Stainless Steel
MW-4B	7/13/1981	245417	1,199.86	1,197.90	171777.91	561929.73	36.5	34.2	10	26	36	Steel	Stainless Steel
MW-5	7/23/1981	245419	1,212.15	1,210.00	171204.73	561381.32	41.0	41.0	10	31	41	Steel	Stainless Steel
MW-13B	7/14/1983	245429	1,196.52	1,194.10	171650.48	561510.36	51.0	50.6	10	40.6	50.6	Steel	Carbon Steel
MW-13C	7/14/1983	245430	1,196.28	1,194.00	171650.48	561510.36	25.2	25.2	10	15.2	25.2	Steel	Carbon Steel
MW-14A	7/16/1983	245431	1,201.52	1,199.20	171333.37	562213.59	49.2	49.2	10	39.2	49.2	Steel	Carbon Steel
MW-14B	7/16/1983	NA	1,201.83	1,199.40	171333.37	562213.59	41.0	39.7	10	29.7	39.7	Steel	Carbon Steel
MW-14C	7/16/1983	NA	1,201.66	1,199.30	171333.37	562213.59	31.6	31.6	10	21.6	31.6	Steel	Carbon Steel
MW-15	8/29/1984	245434	1,201.65	1,199.05	171853.01	562262.51	62.0	57.4	30.4	27	57.4	Steel	Stainless Steel
MW-19	3/26/1987	429478	1,202.17	1,200.17	171849.26	561164.98	33.0	31.0	10	21	31	Steel	Stainless Steel
MW-20	3/26/1987	429479	1,202.21	1,200.21	171871.47	561351.14	37.0	35.0	10	25	35	Steel	Stainless Steel
MW-21	9/16/1992	NA	1,194.60	NA	171737.05	561461.52	34.0	34.0	15	19	34	PVC	PVC
MW-22	12/4/1995	568592	1,194.38	1,192.18	171835.67	561738.45	36.0	35.0	10	25	35	PVC	PVC
MW-23A	3/19/1997	583127	1,200.02	NA	171734.83	561824.34	65.0	65.0	15	50	65	Steel	Stainless Steel
MW-23C	3/19/1997	583128	1,199.69	NA	171734.83	561824.34	45.0	45.0	15	30	45	Steel	Stainless Steel
MW-24C	3/19/1997	583130	1,197.98	NA	171687.33	561625.30	45.0	45.0	15	30	45	Steel	Stainless Steel
MW-25B	2/12/2003	688472	1,191.33	1,189.25	171978.51	561834.76	47.0	47.0	10	37	47	Steel	Stainless Steel
MW-25C	2/12/2003	688473	1,191.36	1,189.46	171978.51	561834.76	30.0	30.0	10	20	30	Steel	Stainless Steel
MW-26	5/13/2003	689390	1,199.23	1,197.30	171959.90	562176.00	46.0	43.0	10	33	43	Steel	Stainless Steel
MW-27	5/14/2003	689391	1,198.81	1,196.74	171938.65	562583.50	51.0	49.0	10	39	49	Steel	Stainless Steel
MW-28	5/13/2003	689394	1,188.78	1,186.72	172141.60	562035.86	35.0	33.0	10	23	24	PVC	PVC
MW-29A	10/16/2007	746258	1,203.03	1,201.73	171525.18	561229.19	60.0	60.0	10	50	60	Steel	Stainless Steel
MW-29B	10/18/2007	746259	1,203.07	1,201.78	171520.68	561234.76	48.0	48.0	10	38	48	Steel	Stainless Steel
MW-29C	10/18/2007	746260	1,203.25	1,201.81	171526.03	561234.95	36.0	36.0	10	26	36	Steel	Stainless Steel
MW-30A	10/26/2007	746263	1,188.52	1,187.30	172130.45	561837.09	54.0	53.0	10	43	53	Steel	Stainless Steel
MW-30B	10/26/2007	746264	1,188.86	1,187.48	172125.23	561836.18	41.0	41.0	10	31	41	Steel	Stainless Steel
MW-30C	10/26/2007	746265	1,188.68	1,187.32	172134.23	561832.38	29.0	29.0	10	19	29	Steel	Stainless Steel
MW-31A	10/26/2007	746266	1,201.63	1,200.60	172274.51	561844.00	74.0	74.0	10	64	74	Steel	Stainless Steel
MW-31B	6/21/2010	779989	1,202.27	1,200.68	172268.46	561840.06	55.00	55.00	10	45.25	55.25	Steel	Stainless Steel
MW-31C	6/21/2010	779988	1,201.95	1,200.77	172269.47	561846.12	35.00	35.00	10	25	35	Steel	Stainless Steel
MW-32B	1/8/2008	756600	1,195.85	1,193.81	171380.58	561390.87	40.0	40.0	10	30	40	Steel	Stainless Steel
MW-33B	1/10/2008	761330	1,196.29	1,194.45	171509.55	561418.24	43.0	43.0	10	33	43	Steel	Stainless Steel
MW-33C	1/10/2008	761331	1,196.87	1,194.91	171517.27	561420.62	31.0	31.0	10	21	31	Steel	Stainless Steel
MW-34B	1/9/2008	761328	1,200.86	1,198.46	171530.66	561628.19	47.0	47.0	10	37	47	Steel	Stainless Steel
MW-34C	1/9/2008	761329	1,200.63	1,198.44	171519.95	561631.56	35.0	35.0	10	25	35	Steel	Stainless Steel
MW-35B	7/24/2008	763280	1,205.36	1,204.12	171589.29	562058.76	51.0	51.0	10	41	51	Steel	Stainless Steel
MW-36B	9/29/2008	767951	1,199.11	1,197.52	172446.44	561876.71	60.0	50.0	10	40	50	Steel	Stainless Steel
MW-37B	6/29/2009	766150	1,205.93	1,204.27	171586.75	562414.23	54.0	54.0	10	44	54	Steel	Stainless Steel
MW-38B	9/24/2008	767952	1,205.78	1,203.82	171398.50	561914.09	55.0	55.0	10	45	55	Steel	Stainless Steel
MW-39AA	3/2/2014	804285	1,200.13	1,197.46	171671.02	561104.23	100.0	96.0	10	86	96	Steel	Stainless Steel
MW-39A	3/2/2014	804286	1,200.06	1,197.48	171676.48	561102.52	60.0	60.0	10	50	60	Steel	Stainless Steel
MW-39B	2/28/2014	804283	1,200.27	1,197.66	171677.20	561108.03	48.0	48.0	10	38	48	Steel	Stainless Steel
MW-39C	2/28/2014	804284	1,200.19	1,197.66	171672.22	561109.60	38.0	36.0	10	26	36	Steel	Stainless Steel
MW-40B	3/5/2015	804287	1,204.86	1,201.93	171600.49	560443.53	48.0	48.0	10	38	48	Steel	Stainless Steel
TMP-1	7/23/2003	693597	1,187.99	1,186.04	172062.78	562081.01	30.0	30.0	10	20	30	PVC	PVC
TMP-2	7/23/2003	693598	1,201.36	1,199.43	171801.22	562098.33	45.0	45.0	10	35	45	PVC	PVC
TMP-3A	7/6/2006	736128	1,200.06	1,197.99	172029.93	562499.78	65.0	65.0	10	55	65	Steel	Stainless Steel
TMP-3	7/22/2003	693599	1,200.92	1,198.69	172043.23	562497.41	50.0	49.0	10	39	49	PVC	PVC
TMP-3C	7/11/2006	736129	1,199.83	1,198.03	172032.27	562508.26	39.0	39.0	10	29	39	Steel	Stainless Steel
TMP-4	7/23/2003	693600	1,200.43	1,198.57	171887.64	562447.81	50.0	49.0	10	39	49	PVC	PVC
TMP-5A	10/23/2007	746261	1,201.62	1,200.58	172172.63	563038.54	65.0	65.0	10	55	65	Steel	Stainless Steel
TMP-5	11/11/2003	698988	1,201.04	1,199.70	172167.64	563040.79	55.0	53.0	10	43	53	Steel	PVC
TMP-5C	10/26/2007	746262	1,201.20	1,200.19	172166.66	563032.70	39.0	39.0	10	29	39	Steel	Stainless Steel
TMP-6	11/12/2003	698989	1,202.64	1,200.90	172313.61	562078.16	46.0	46.0	10	36	46	PVC	PVC
TMP-6A	10/11/2011	NA	1,203.00	1,201.23	172306.29	562078.45	76.0	69.0	5	64	69	Steel	Stainless Steel
TMP-7	11/12/2003	698990	1,203.86	1,202.00	172371.65	562530.53	50.0	50.0	10	40	50	PVC	PVC
TMP-8	11/13/2003	698991	1,205.00	1,203.00	172358.61	563029.66	56.0	56.0	10	46	56	Steel	PVC
TMP-11	5/19/2004	707739	1,190.02	1,187.80	172222.48	562728.55	35.0	35.0	10	25	35	PVC	PVC
TMP-11C	7/22/2007	736132	1,189.73	1,188.18	172219.91	562720.55	27.0	27.0	10	17	27	Steel	Stainless Steel
TMP-12	6/9/2005	NA	1,193.77	1,191.75	172110.07	561632.35	60.0	53.0	10	43	53	Steel	Stainless Steel
TMP-13	6/8/2005	NA	1,203.36	1,201.53	172239.52	561635.22	69.0	59.0	10	49	59	Steel	Stainless Steel
TMP-14B	7/8/2007	736130	1,197.79	1,196.04	172073.12	562745.72	49.0	49.0	10	39	49	Steel	Stainless Steel
TMP-14C	7/11/2007	736131	1,197.89	1,196.05	172072.01	562751.67	35.0	35.0	10	25	35	Steel	Stainless Steel
TMP-15	7/13/2007	736133	1,208.15	1,206.33	171871.25	562764.25	62.5	62.5	10	52.5	62.5	Steel	Stainless Steel

Notes
MSL - Mean Sea Level
NA - Not available
Note: All wells are 2-inches in diameter except MW-15, which is 4-inches in diameter.

Table 4.3.6-2a
Summary of Groundwater Laboratory Analytical Results - 2013
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

units = (ug/l)		Sample Location Sample Date Sample Name	MW-1 10/11/2013 MW-1-10-11-13	MW-3A 9/24/2013 MW-3A-9-24-13	MW-3B 9/24/2013 MW-3B-9-24-13	MW-3B(FD) 9/24/2013 MW-3D-9-24-13	MW-3C 9/24/2013 MW-3C-9-24-13	MW-4B 10/11/2013 MW-4B-10-11-13	MW-13B 10/16/2013 MW-13B-10-16-13	MW-13C 10/16/2013 MW-13C-10-16-13
Analytes	**EPA Tapwater**	**CAS Number**								
List 1 Compounds:										
Benzo(a)anthracene	0.034	56-55-3	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	0.0034	50-32-8	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04
Benzo(b)fluoranthene	0.034	205-99-2	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04
Benzo(g,h,i)perylene	NL	191-24-2	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04
Chrysene	3.4	218-01-9	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04
Dibenz(a,h)anthracene	0.0034	53-70-3	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	0.034	193-39-5	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04
Total List 1 Compounds			<0.04	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04	<0.04	<0.04
Benzo(a)pyrene Equivalents			<0.04	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04	<0.04	<0.04
List 2 Compounds:										
1-Methylnaphthalene	1.1	90-12-0	< 0.04	0.16 J	**23.5 J**	**25.2 J**	**5.7 J**	< 0.04	0.66	< 0.04
2-Methylnaphthalene	3.6	91-57-6	0.045	0.032 J	0.052 J	0.03 J	0.028 J	0.045	< 0.04	< 0.04
Acenaphthylene	NL	208-96-8	< 0.04	< 0.04 UJ	1 J	1.2 J	0.42 J	< 0.04	< 0.04	< 0.04
Benzo(e)pyrene	NL	192-97-2	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04
Phenanthrene	NL	85-01-8	< 0.04	0.025 J	6.6 J	9.4 J	0.32 J	< 0.04	< 0.04	< 0.04
Acenaphthene	53	83-32-9	< 0.04	2.2 J	51.4 J	**56 J**	22.1 J	< 0.04	0.052	< 0.04
Anthracene	180	120-12-7	< 0.04	< 0.04 UJ	0.25 J	0.38 J	0.11 J	0.1	< 0.04	0.092
Fluoranthene	80	206-44-0	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	0.045 J	< 0.04	< 0.04	< 0.04
Fluorene	29	86-73-7	< 0.04	0.09 J	18.2 J	19.2 J	0.11 J	< 0.04	< 0.04	< 0.04
Naphthalene	0.17	91-20-3	< 0.16	0.09 J	**0.5 J**	**0.22 J**	**0.18 J**	< 0.16	**43.5**	< 0.16
Pyrene	12	129-00-0	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04
Total List 2 Compounds			0.045	**2.60**	**102**	**112**	**29.0**	0.145	**44.2**	0.092
Non-Listed PAHs:										
Benzo(k)fluoranthene	0.34	207-08-9	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04
2-Chloronaphthalene	75	91-58-7	< 0.04	< 0.04 UJ	0.07 J	0.078 J	0.028 J	< 0.04	< 0.04	< 0.04
Dibenzofuran	0.79	132-64-9	< 0.04	0.58 J	**35.1 J**	**36.8 J**	**6.8 J**	< 0.04	< 0.04	< 0.04
Volatile Organic Compounds:										
Benzene	0.45	71-43-2	< 1	< 1	**2.7**	**3.1**	< 1	< 1	< 1	< 1
Ethylbenzene	1.5	100-41-4	< 1	< 1	**6.6**	**7.6**	1.1	< 1	**3.4**	< 1
Toluene	110	108-88-3	< 1	< 1	2.1	2.5	< 1	< 1	< 1	< 1
Xylene (Total)	19	1330-20-7	< 3	< 3	15.6	18.5	< 3	< 3	5.3	< 3
1,2,4-Trimethylbenzene	1.5	95-63-6	< 1	< 1	0.55 J	0.59 J	< 1	< 1	< 5 UJ	< 5 UJ
1,3,5-Trimethylbenzene	12	108-67-8	< 1	< 1	< 1	< 1	< 1	< 1	< 5 UJ	< 5 UJ
Diesel Range Organics (DRO)										
Diesel Range Organics		DRO	<100	<65 UB	1100 J	830 J	450	<100	190	<110

Notes:
Bold - analyte concentration exceeds the EPA Tapwater screening level
< indicates compound was not detected and the laboratory reporting limit is shown
Benzo(a)pyrene Equivalents were calculating using EPA methods
ug/l - micrograms per liter
HBV - Health Based Value
HRL - Health Risk Limit (Minnesota Department of Health)
J - Estimated concentration.
UB - Evaluated to be undetected at the reporting limit/concentration, due to evidence of contamination
UJ - Undetected, reporting limit estimated
NL - No established regulatory action limit
FD - Field Dupicate
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
1 - 0.035 ug/L is based on MPCA Class 2B-2C standard for Mississippi River surface water

Table 4.3.6-2a
Summary of Groundwater Laboratory Analytical Results - 2013
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

units = (ug/l)		Sample Location Sample Date Sample Name	MW-14B 10/16/2013 MW-14B-10-16-13	MW-15 10/10/2013 MW-15-10-10-13	MW-19 10/26/2013 MW-19-10-26-13	MW-20 10/26/2013 MW-20-10-26-13	MW-24A 10/11/2013 MW-24A-10-11-13	MW-25B 10/26/2013 MW-25B-10-26-13	MW-25B(FD) 10/26/2013 MW-25A-10-26-13	MW-25C 10/26/2013 MW-25C-10-26-13
Analytes	**EPA Tapwater**	**CAS Number**								
List 1 Compounds:										
Benzo(a)anthracene	0.034	56-55-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	0.0034	50-32-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(b)fluoranthene	0.034	205-99-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(g,h,i)perylene	NL	191-24-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Chrysene	3.4	218-01-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dibenz(a,h)anthracene	0.0034	53-70-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	0.034	193-39-5	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Total List 1 Compounds			<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Benzo(a)pyrene Equivalents			<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
List 2 Compounds:										
1-Methylnaphthalene	1.1	90-12-0	< 0.04	< 0.04	**2.4**	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2-Methylnaphthalene	3.6	91-57-6	< 0.04	< 0.04	0.19	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Acenaphthylene	NL	208-96-8	< 0.04	< 0.04	0.31	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(e)pyrene	NL	192-97-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Phenanthrene	NL	85-01-8	< 0.04	< 0.04	0.26	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Acenaphthene	53	83-32-9	< 0.04	< 0.04	3.1	< 0.04	0.072	0.12	0.11	< 0.04
Anthracene	180	120-12-7	< 0.04	< 0.04	0.34	0.095	< 0.04	< 0.04	< 0.04	< 0.04
Fluoranthene	80	206-44-0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Fluorene	29	86-73-7	< 0.04	< 0.04	0.26	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Naphthalene	0.17	91-20-3	< 0.16	< 0.16	**57.2**	**0.24**	< 0.16	< 0.16	< 0.16	< 0.16
Pyrene	12	129-00-0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Total List 2 Compounds			0	0	**64.1**	**0.335**	0.072	0.12	0.11	0
Non-Listed PAHs:										
Benzo(k)fluoranthene	0.34	207-08-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2-Chloronaphthalene	75	91-58-7	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dibenzofuran	0.79	132-64-9	< 0.04	< 0.04	**7.1**	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Volatile Organic Compounds:										
Benzene	0.45	71-43-2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	1.5	100-41-4	< 1	< 1	**2.3**	< 1	< 1	< 1	< 1	< 1
Toluene	110	108-88-3	< 1	< 1	4.1	< 1	< 1	< 1	< 1	< 1
Xylene (Total)	19	1330-20-7	< 3	< 3	5.5	< 3	< 3	< 3	< 3	< 3
1,2,4-Trimethylbenzene	1.5	95-63-6	< 5 UJ	< 1	1.3	< 1	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	12	108-67-8	< 5 UJ	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Diesel Range Organics (DRO)										
Diesel Range Organics		DRO	<110	<100	550	<110	150	<110	<110	<110

Notes:
Bold - analyte concentration exceeds the EPA Tapwater screening level
< indicates compound was not detected and the laboratory reporting limit is shown
Benzo(a)pyrene Equivalents were calculating using EPA methods
ug/l - micrograms per liter
HBV - Health Based Value
HRL - Health Risk Limit (Minnesota Department of Health)
J - Estimated concentration.
UB - Evaluated to be undetected at the reporting limit/concentration, due to evidence of contamination
UJ - Undetected, reporting limit estimated
NL - No established regulatory action limit
FD - Field Dupicate
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
1 - 0.035 ug/L is based on MPCA Class 2B-2C standard for Mississippi River surface water

Table 4.3.6-2a
Summary of Groundwater Laboratory Analytical Results - 2013
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

units = (ug/l)		Sample Location Sample Date Sample Name	MW-26 10/16/2013 MW-26-10-16-13	MW-28 10/17/2013 MW-28-10-17-13	MW-29A 9/24/2013 MW-29A-9-24-13	MW-29B 9/24/2013 MW-29B-9-24-13	MW-29C 9/24/2013 MW-29C-9-24-13	MW-30A 9/23/2013 MW-30A-9-23-13	MW-30B 9/23/2013 MW-30B-9-23-13	MW-30C 9/23/2013 MW-30C-9-23-13
Analytes	**EPA Tapwater**	**CAS Number**								
List 1 Compounds:										
Benzo(a)anthracene	0.034	56-55-3	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ
Benzo(a)pyrene	0.0034	50-32-8	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ
Benzo(b)fluoranthene	0.034	205-99-2	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ
Benzo(g,h,i)perylene	NL	191-24-2	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ
Chrysene	3.4	218-01-9	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ
Dibenz(a,h)anthracene	0.0034	53-70-3	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ
Indeno(1,2,3-cd)pyrene	0.034	193-39-5	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ
Total List 1 Compounds			<0.04	<0.04	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04 UJ
Benzo(a)pyrene Equivalents			<0.04	<0.04	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04 UJ
List 2 Compounds:										
1-Methylnaphthalene	1.1	90-12-0	0.16	**4.4**	**2.9 J**	**74.8 J**	< 0.04 UJ	**3.4 J**	**2.1 J**	**2.9 J**
2-Methylnaphthalene	3.6	91-57-6	< 0.04	< 0.04	0.03 J	**3.8 J**	< 0.04 UJ	0.028 J	< 0.04 UJ	0.02 J
Acenaphthylene	NL	208-96-8	0.065	0.12	0.14 J	6 J	0.2 J	0.072 J	0.11 J	0.21 J
Benzo(e)pyrene	NL	192-97-2	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ
Phenanthrene	NL	85-01-8	0.14	0.14	0.062 J	9.1 J	< 0.04 UJ	0.12 J	0.14 J	1.2 J
Acenaphthene	53	83-32-9	4.8	8.2	10.9 J	**64.4 J**	2 J	10.2 J	7.6 J	8.3 J
Anthracene	180	120-12-7	0.075	0.042	< 0.04 UJ	0.058 J	0.19 J	0.022 J	0.045 J	0.11 J
Fluoranthene	80	206-44-0	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ
Fluorene	29	86-73-7	0.07	0.46	1.5 J	6.9 J	0.035 J	0.82 J	0.14 J	0.66 J
Naphthalene	0.17	91-20-3	< 0.16	< 0.16	**0.31 J**	**680 J**	< 0.16 UJ	**0.31 J**	< 0.16 UJ	**2.6 J**
Pyrene	12	129-00-0	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ
Total List 2 Compounds			**5.31**	**13.4**	**15.8**	**845**	**2.43**	**15.0**	**10.1**	**16.0**
Non-Listed PAHs:										
Benzo(k)fluoranthene	0.34	207-08-9	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ
2-Chloronaphthalene	75	91-58-7	< 0.04	< 0.04	0.0075 J	0.038 J	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	0.012 J
Dibenzofuran	0.79	132-64-9	**4.4**	**3.4**	**4.1 J**	**16.9 J**	0.042 J	**2.7 J**	**2.2 J**	**7.1 J**
Volatile Organic Compounds:										
Benzene	0.45	71-43-2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	1.5	100-41-4	< 1	< 1	< 1	**2.7**	< 1	< 1	< 1	< 1
Toluene	110	108-88-3	< 1	< 1	< 1	0.34 J	< 1	< 1	< 1	< 1
Xylene (Total)	19	1330-20-7	< 3	< 3	< 3	6.1	< 3	< 3	< 3	< 3
1,2,4-Trimethylbenzene	1.5	95-63-6	< 5 UJ	< 5 UJ	< 1	**8.8**	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	12	108-67-8	< 5 UJ	< 5 UJ	< 1	1.3	< 1	< 1	< 1	< 1
Diesel Range Organics (DRO)										
Diesel Range Organics		DRO	150	210 J	150	1800	180	200	210	390

Notes:
Bold - analyte concentration exceeds the EPA Tapwater screening level
< indicates compound was not detected and the laboratory reporting limit is shown
Benzo(a)pyrene Equivalents were calculating using EPA methods
ug/l - micrograms per liter
HBV - Health Based Value
HRL - Health Risk Limit (Minnesota Department of Health)
J - Estimated concentration.
UB - Evaluated to be undetected at the reporting limit/concentration, due to evidence of contamination
UJ - Undetected, reporting limit estimated
NL - No established regulatory action limit
FD - Field Dupicate
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
1 - 0.035 ug/L is based on MPCA Class 2B-2C standard for Mississippi River surface water

Table 4.3.6-2a
Summary of Groundwater Laboratory Analytical Results - 2013
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

units = (ug/l)		Sample Location Sample Date Sample Name	MW-31A 9/23/2013 MW-31A-9-23-13	MW-31B 9/23/2013 MW-31B-9-23-13	MW-31C 9/23/2013 MW-31C-9-23-13	MW-32B 10/11/2013 MW-32B-10-11-13	MW-32B(FD) 10/11/2013 MW-32C-10-11-13	MW-33B 10/9/2013 MW-33B-10-9-13	MW-33B(FD) 10/9/2013 MW-33A-10-9-13	MW-33C 10/9/2013 MW-33C-10-9-13
Analytes	**EPA Tapwater**	**CAS Number**								
List 1 Compounds:										
Benzo(a)anthracene	0.034	56-55-3	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	0.0034	50-32-8	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(b)fluoranthene	0.034	205-99-2	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(g,h,i)perylene	NL	191-24-2	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04
Chrysene	3.4	218-01-9	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dibenz(a,h)anthracene	0.0034	53-70-3	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04
Indeno(1,2,3-cd)pyrene	0.034	193-39-5	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Total List 1 Compounds			<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04	<0.04	<0.04 UJ	<0.04 UJ	<0.04
Benzo(a)pyrene Equivalents			<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04	<0.04	<0.04 UJ	<0.04 UJ	<0.04
List 2 Compounds:										
1-Methylnaphthalene	1.1	90-12-0	**1.8 J**	0.63 J	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2-Methylnaphthalene	3.6	91-57-6	0.032 J	0.02 J	0.025 J	< 0.04	< 0.04	< 0.04	< 0.04	0.022 J
Acenaphthylene	NL	208-96-8	< 0.04 UJ	0.028 J	< 0.04 UJ	< 0.04	< 0.04	0.082 J	0.028 J	< 0.04
Benzo(e)pyrene	NL	192-97-2	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Phenanthrene	NL	85-01-8	0.038 J	0.11 J	0.032 J	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Acenaphthene	53	83-32-9	2 J	1.5 J	< 0.032 UB	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Anthracene	180	120-12-7	< 0.04 UJ	0.038 J	< 0.04 UJ	0.042	0.048	0.14 J	0.065 J	0.12
Fluoranthene	80	206-44-0	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Fluorene	29	86-73-7	0.098 J	0.08 J	0.02 J	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Naphthalene	0.17	91-20-3	**0.48 J**	< 0.16 UJ	0.04 J	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
Pyrene	12	129-00-0	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Total List 2 Compounds			**4.45**	**2.41**	0.149	0.042	0.048	0.222	0.093	**0.426**
Non-Listed PAHs:										
Benzo(k)fluoranthene	0.34	207-08-9	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2-Chloronaphthalene	75	91-58-7	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dibenzofuran	0.79	132-64-9	0.36 J	**1.4 J**	0.03 J	< 0.04	< 0.04	< 0.04	< 0.04	0.02 J
Volatile Organic Compounds:										
Benzene	0.45	71-43-2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	1.5	100-41-4	0.42 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	110	108-88-3	< 1	< 1	< 1	< 1	< 1	< 1 UJ	< 1 UJ	< 1
Xylene (Total)	19	1330-20-7	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
1,2,4-Trimethylbenzene	1.5	95-63-6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	12	108-67-8	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Diesel Range Organics (DRO)										
Diesel Range Organics		DRO	160	140	27 J	<110	<110	220	190	140

Notes:
Bold - analyte concentration exceeds the EPA Tapwater screening level
< indicates compound was not detected and the laboratory reporting limit is shown
Benzo(a)pyrene Equivalents were calculating using EPA methods
ug/l - micrograms per liter
HBV - Health Based Value
HRL - Health Risk Limit (Minnesota Department of Health)
J - Estimated concentration.
UB - Evaluated to be undetected at the reporting limit/concentration, due to evidence of contamination
UJ - Undetected, reporting limit estimated
NL - No established regulatory action limit
FD - Field Dupicate
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
1 - 0.035 ug/L is based on MPCA Class 2B-2C standard for Mississippi River surface water

Table 4.3.6-2a
Summary of Groundwater Laboratory Analytical Results - 2013
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

units = (ug/l)		Sample Location Sample Date Sample Name	MW-34B 10/8/2013 MW-34B-10-8-13	MW-34C 10/8/2013 MW-34C-10-8-13	MW-35B 10/8/2013 MW-35B-10-8-13	MW-36B 9/23/2013 MW-36B-9-23-13	MW-37B 10/8/2013 MW-37B-10-8-13	MW-38B 10/16/2013 MW-38B-10-16-13	TMP-1 10/17/2013 TMP-1-10-17-13	TMP-3 10/10/2013 TMP-3-10-10-13
Analytes	**EPA Tapwater**	**CAS Number**								
List 1 Compounds:										
Benzo(a)anthracene	0.034	56-55-3	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	0.0034	50-32-8	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(b)fluoranthene	0.034	205-99-2	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(g,h,i)perylene	NL	191-24-2	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04
Chrysene	3.4	218-01-9	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04
Dibenz(a,h)anthracene	0.0034	53-70-3	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04 UJ	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	0.034	193-39-5	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04
Total List 1 Compounds			<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04	<0.04	<0.04
Benzo(a)pyrene Equivalents			<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04 UJ	<0.04	<0.04	<0.04
List 2 Compounds:										
1-Methylnaphthalene	1.1	90-12-0	< 0.04	< 0.04	0.022 J	< 0.04 UJ	< 0.04	< 0.04	**6.6**	0.35
2-Methylnaphthalene	3.6	91-57-6	0.025 J	< 0.04	< 0.04	0.022 J	< 0.04	< 0.04	< 0.04	0.028 J
Acenaphthylene	NL	208-96-8	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	0.13	0.14
Benzo(e)pyrene	NL	192-97-2	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04
Phenanthrene	NL	85-01-8	< 0.04	< 0.04	0.02 J	0.038 J	< 0.04	< 0.04	0.082	0.022 J
Acenaphthene	53	83-32-9	< 0.04	< 0.04	0.21	0.06 J	< 0.04	< 0.04	14.6	14.2
Anthracene	180	120-12-7	< 0.04	0.035 J	0.05	< 0.04 UJ	0.085	< 0.04	0.048	0.098
Fluoranthene	80	206-44-0	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04
Fluorene	29	86-73-7	< 0.04	< 0.04	< 0.04	0.032 J	< 0.04	< 0.04	0.4	0.095
Naphthalene	0.17	91-20-3	< 0.16	< 0.16	< 0.16	0.045 J	< 0.16	< 0.16	< 0.16	0.12 J
Pyrene	12	129-00-0	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04
Total List 2 Compounds			0.025	0.035	**0.302**	0.197	0.085	0	**21.9**	**15**
Non-Listed PAHs:										
Benzo(k)fluoranthene	0.34	207-08-9	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04
2-Chloronaphthalene	75	91-58-7	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04
Dibenzofuran	0.79	132-64-9	< 0.04	< 0.04	0.22	0.048 J	< 0.04	< 0.04	**5.6**	**9.9**
Volatile Organic Compounds:										
Benzene	0.45	71-43-2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	1.5	100-41-4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	110	108-88-3	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Xylene (Total)	19	1330-20-7	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
1,2,4-Trimethylbenzene	1.5	95-63-6	< 1	< 1	< 1	< 1	< 1	< 5 UJ	< 5 UJ	< 1
1,3,5-Trimethylbenzene	12	108-67-8	< 1	< 1	< 1	< 1	< 1	< 5 UJ	< 5 UJ	< 1
Diesel Range Organics (DRO)										
Diesel Range Organics		DRO	83 J	80 J	95 J	56 J	120	<110	360 J	250

Notes:

Bold - analyte concentration exceeds the EPA Tapwater screening level

< indicates compound was not detected and the laboratory reporting limit is shown

Benzo(a)pyrene Equivalents were calculating using EPA methods
ug/l - micrograms per liter
HBV - Health Based Value
HRL - Health Risk Limit (Minnesota Department of Health)
J - Estimated concentration.
UB - Evaluated to be undetected at the reporting limit/concentration, due to evidence of contamination
UJ - Undetected, reporting limit estimated
NL - No established regulatory action limit
FD - Field Dupicate
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
1 - 0.035 ug/L is based on MPCA Class 2B-2C standard for Mississippi River surface water

Table 4.3.6-2a
Summary of Groundwater Laboratory Analytical Results - 2013
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

units = (ug/l)		Sample Location Sample Date Sample Name	TMP-3A 10/10/2013 TMP-3A-10-10-13	TMP-3C 10/10/2013 TMP-3C-10-10-13	TMP-4 10/10/2013 TMP-4-10-10-13	TMP-5 10/3/2013 TMP-5-10-3-13	TMP-5(FD) 10/4/2013 TMP-5-10-4-13	TMP-5A 10/3/2013 TMP-5A-10-3-13	TMP-5C 10/4/2013 TMP-5C-10-4-13	TMP-6 10/17/2013 TMP-6-10-17-13
Analytes	**EPA Tapwater**	**CAS Number**								
List 1 Compounds:										
Benzo(a)anthracene	0.034	56-55-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	0.0034	50-32-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(b)fluoranthene	0.034	205-99-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(g,h,i)perylene	NL	191-24-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Chrysene	3.4	218-01-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dibenz(a,h)anthracene	0.0034	53-70-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	0.034	193-39-5	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Total List 1 Compounds			<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Benzo(a)pyrene Equivalents			<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
List 2 Compounds:										
1-Methylnaphthalene	1.1	90-12-0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.022 J	0.02 J	0.61
2-Methylnaphthalene	3.6	91-57-6	0.028 J	0.022 J	0.028 J	<0.04 UB	<0.035 UB	<0.042 UB	<0.038 UB	< 0.04
Acenaphthylene	NL	208-96-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(e)pyrene	NL	192-97-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Phenanthrene	NL	85-01-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Acenaphthene	53	83-32-9	0.075	< 0.04	<0.035 UB	< 0.04	< 0.04	< 0.04	< 0.04	1
Anthracene	180	120-12-7	0.02 J	0.03 J	0.055	< 0.04	< 0.04	< 0.04	< 0.04	0.05
Fluoranthene	80	206-44-0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Fluorene	29	86-73-7	0.032 J	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Naphthalene	0.17	91-20-3	< 0.16	< 0.16	< 0.16	0.062 J	0.06 J	0.085 J	0.06 J	< 0.16
Pyrene	12	129-00-0	0.14	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Total List 2 Compounds			0.295	0.156	0.083	0.062	0.06	0.107	0.08	**1.66**
Non-Listed PAHs:										
Benzo(k)fluoranthene	0.34	207-08-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2-Chloronaphthalene	75	91-58-7	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dibenzofuran	0.79	132-64-9	0.22	< 0.04	0.04	< 0.04	< 0.04	< 0.04	< 0.04	**0.91**
Volatile Organic Compounds:										
Benzene	0.45	71-43-2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	1.5	100-41-4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Toluene	110	108-88-3	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Xylene (Total)	19	1330-20-7	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
1,2,4-Trimethylbenzene	1.5	95-63-6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5 UJ
1,3,5-Trimethylbenzene	12	108-67-8	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 5 UJ
Diesel Range Organics (DRO)										
Diesel Range Organics		DRO	<97 UB	<74 UB	<49 UB	97 J	81 J	110	66 J	170 J

Notes:
Bold - analyte concentration exceeds the EPA Tapwater screening level
< indicates compound was not detected and the laboratory reporting limit is shown
Benzo(a)pyrene Equivalents were calculating using EPA methods
ug/l - micrograms per liter
HBV - Health Based Value
HRL - Health Risk Limit (Minnesota Department of Health)
J - Estimated concentration.
UB - Evaluated to be undetected at the reporting limit/concentration, due to evidence of contamination
UJ - Undetected, reporting limit estimated
NL - No established regulatory action limit
FD - Field Dupicate
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
1 - 0.035 ug/L is based on MPCA Class 2B-2C standard for Mississippi River surface water

Table 4.3.6-2a
Summary of Groundwater Laboratory Analytical Results - 2013
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

units = (ug/l)		Sample Location Sample Date Sample Name	TMP-6A 10/17/2013 TMP-6A-10-17-13	TMP-7 10/3/2013 TMP-7-10-3-13	TMP-8 10/3/2013 TMP-8-10-3-13	TMP-11 10/7/2013 TMP-11-10-7-13	TMP-11C 10/7/2013 TMP-11C-10-7-13	TMP-12 9/24/2013 TMP-12-9-24-13	TMP-13 9/24/2013 TMP-13-9-24-13	TMP-14B 10/4/2013 TMP-14B-10-4-13
Analytes	**EPA Tapwater**	**CAS Number**								
List 1 Compounds:										
Benzo(a)anthracene	0.034	56-55-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04
Benzo(a)pyrene	0.0034	50-32-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04
Benzo(b)fluoranthene	0.034	205-99-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04
Benzo(g,h,i)perylene	NL	191-24-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04
Chrysene	3.4	218-01-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04
Dibenz(a,h)anthracene	0.0034	53-70-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04
Indeno(1,2,3-cd)pyrene	0.034	193-39-5	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04
Total List 1 Compounds			<0.04	<0.04	<0.04	<0.04	<0.04	<0.04 UJ	<0.04 UJ	<0.04
Benzo(a)pyrene Equivalents			<0.04	<0.04	<0.04	<0.04	<0.04	<0.04 UJ	<0.04 UJ	<0.04
List 2 Compounds:										
1-Methylnaphthalene	1.1	90-12-0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**249 J**	**505 J**	< 0.04
2-Methylnaphthalene	3.6	91-57-6	< 0.04	<0.03 UB	<0.035 UB	<0.03 UB	<0.03 UB	**62.4 J**	**735 J**	<0.032 UB
Acenaphthylene	NL	208-96-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	10.6 J	10.1 J	< 0.04
Benzo(e)pyrene	NL	192-97-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04
Phenanthrene	NL	85-01-8	< 0.04	< 0.04	< 0.04	0.02 J	< 0.04	46.5 J	38.5 J	< 0.04
Acenaphthene	53	83-32-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**451 J**	**529 J**	< 0.04
Anthracene	180	120-12-7	< 0.04	0.042	< 0.04	0.032 J	0.022 J	3.5 J	4.2 J	0.02 J
Fluoranthene	80	206-44-0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.062 J	0.058 J	< 0.04
Fluorene	29	86-73-7	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	**83.5 J**	**67 J**	< 0.04
Naphthalene	0.17	91-20-3	**0.29**	0.065 J	0.072 J	0.058 J	0.058 J	**11500 J**	**15100 J**	0.065 J
Pyrene	12	129-00-0	< 0.04	0.028 J	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04
Total List 2 Compounds			0.29	0.135	0.072	0.11	0.08	**12407**	**16989**	0.085
Non-Listed PAHs:										
Benzo(k)fluoranthene	0.34	207-08-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04 UJ	< 0.04 UJ	< 0.04
2-Chloronaphthalene	75	91-58-7	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.34 J	0.36 J	< 0.04
Dibenzofuran	0.79	132-64-9	< 0.04	0.22	< 0.04	0.038 J	< 0.04	**140 J**	**160 J**	< 0.04
Volatile Organic Compounds:										
Benzene	0.45	71-43-2	< 1	< 1	< 1	< 1	< 1	**44.6**	**38.2**	< 1
Ethylbenzene	1.5	100-41-4	< 1	< 1	< 1	< 1	< 1	**54**	**67.2**	< 1
Toluene	110	108-88-3	< 1	< 1	< 1	< 1	< 1	106	**126**	< 1
Xylene (Total)	19	1330-20-7	< 3	< 3	< 3	< 3	< 3	**181**	**196**	< 3
1,2,4-Trimethylbenzene	1.5	95-63-6	< 5 UJ	< 1	< 1	< 1	< 1	**58.2**	**68.7**	< 1
1,3,5-Trimethylbenzene	12	108-67-8	< 5 UJ	< 1	< 1	< 1	< 1	**22.6**	**27.7**	< 1
Diesel Range Organics (DRO)										
Diesel Range Organics		DRO	150 J	150	67 J	71 J	59 J	16400	22100	<88 UB

Notes:
Bold - analyte concentration exceeds the EPA Tapwater screening level
< indicates compound was not detected and the laboratory reporting limit is shown
Benzo(a)pyrene Equivalents were calculating using EPA methods
ug/l - micrograms per liter
HBV - Health Based Value
HRL - Health Risk Limit (Minnesota Department of Health)
J - Estimated concentration.
UB - Evaluated to be undetected at the reporting limit/concentration, due to evidence of contamination
UJ - Undetected, reporting limit estimated
NL - No established regulatory action limit
FD - Field Dupicate
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
1 - 0.035 ug/L is based on MPCA Class 2B-2C standard for Mississippi River surface water

Table 4.3.6-2a
Summary of Groundwater Laboratory Analytical Results - 2013
Burlington Northern Railroad Tie Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

units = (ug/l)		Sample Location Sample Date Sample Name	TMP-14C 10/4/2013 TMP-14C-10-4-13	TMP-15 10/4/2013 TMP-15-10-4-13
Analytes	**EPA Tapwater**	**CAS Number**		
List 1 Compounds:				
Benzo(a)anthracene	0.034	56-55-3	< 0.04	< 0.04
Benzo(a)pyrene	0.0034	50-32-8	< 0.04	< 0.04
Benzo(b)fluoranthene	0.034	205-99-2	< 0.04	< 0.04
Benzo(g,h,i)perylene	NL	191-24-2	< 0.04	< 0.04
Chrysene	3.4	218-01-9	< 0.04	< 0.04
Dibenz(a,h)anthracene	0.0034	53-70-3	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	0.034	193-39-5	< 0.04	< 0.04
Total List 1 Compounds			<0.04	<0.04
Benzo(a)pyrene Equivalents			<0.04	<0.04
List 2 Compounds:				
1-Methylnaphthalene	1.1	90-12-0	< 0.04	< 0.04
2-Methylnaphthalene	3.6	91-57-6	<0.03 UB	<0.038 UB
Acenaphthylene	NL	208-96-8	< 0.04	< 0.04
Benzo(e)pyrene	NL	192-97-2	< 0.04	< 0.04
Phenanthrene	NL	85-01-8	< 0.04	< 0.04
Acenaphthene	53	83-32-9	< 0.04	< 0.04
Anthracene	180	120-12-7	0.055	0.058
Fluoranthene	80	206-44-0	< 0.04	< 0.04
Fluorene	29	86-73-7	< 0.04	< 0.04
Naphthalene	0.17	91-20-3	0.058 J	0.07 J
Pyrene	12	129-00-0	< 0.04	0.025 J
Total List 2 Compounds			0.113	0.153
Non-Listed PAHs:				
Benzo(k)fluoranthene	0.34	207-08-9	< 0.04	< 0.04
2-Chloronaphthalene	75	91-58-7	< 0.04	< 0.04
Dibenzofuran	0.79	132-64-9	< 0.04	< 0.04
Volatile Organic Compounds:				
Benzene	0.45	71-43-2	< 1	< 1
Ethylbenzene	1.5	100-41-4	< 1	< 1
Toluene	110	108-88-3	< 1	< 1
Xylene (Total)	19	1330-20-7	< 3	< 3
1,2,4-Trimethylbenzene	1.5	95-63-6	< 1	< 1
1,3,5-Trimethylbenzene	12	108-67-8	< 1	< 1
Diesel Range Organics (DRO)				
Diesel Range Organics		DRO	<82 UB	120

Notes:
Bold - analyte concentration exceeds the EPA Tapwater screening level
< indicates compound was not detected and the laboratory reporting limit is shown
Benzo(a)pyrene Equivalents were calculating using EPA methods
ug/l - micrograms per liter
HBV - Health Based Value
HRL - Health Risk Limit (Minnesota Department of Health)
J - Estimated concentration.
UB - Evaluated to be undetected at the reporting limit/concentration, due to evidence of contamination
UJ - Undetected, reporting limit estimated
NL - No established regulatory action limit
FD - Field Dupicate
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
1 - 0.035 ug/L is based on MPCA Class 2B-2C standard for Mississippi River surface water

Table 4.3.6-2b
Summary of Groundwater Laboratory Analytical Results - 2014
Burlington Northern Railroad Tle Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l				Sample Location	MW-3B	MW-3C	MW-4B		MW-13B	MW-13B	MW-14B		MW-19	MW-24A		MW-25B	MW-25C
				Sample Date	5/12/2014	5/12/2014	4/18/2014	4/30/2014	5/3/2014	10/17/2014	4/15/2014	4/28/2014	5/12/2014	4/18/2014	4/30/2014	5/1/2014	5/2/2014
				Parent Sample ID													
Analytes	**EPA MCL**	**EPA Tapwater**	**MDH HRL/HBV**	**CAS Number**													
List 1 Compounds:																	
Benzo(a)anthracene	--	0.034	--	56-55-3	R	< 0.04	NA	< 0.04	< 0.04	< 0.044	NA	< 0.04	< 0.04	NA	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	0.2	0.0034	0.06	50-32-8	R	< 0.04	NA	< 0.04	< 0.04	< 0.044	NA	< 0.04	< 0.04	NA	< 0.04	< 0.04	< 0.04
Benzo(b)fluoranthene	--	0.034	--	205-99-2	R	< 0.04	NA	< 0.04	< 0.04	< 0.044	NA	< 0.04	< 0.04	NA	< 0.04	< 0.04	< 0.04
Benzo(g,h,i)perylene	--	--	--	191-24-2	R	< 0.04	NA	< 0.04	< 0.04	< 0.044	NA	< 0.04	< 0.04	NA	< 0.04	< 0.04	< 0.04
Chrysene	--	3.4	--	218-01-9	R	< 0.04	NA	< 0.04	< 0.04	< 0.044	NA	< 0.04	< 0.04	NA	< 0.04	< 0.04	< 0.04
Dibenz(a,h)anthracene	--	0.0034	--	53-70-3	R	< 0.04	NA	< 0.04	< 0.04	< 0.044	NA	< 0.04	< 0.04	NA	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	--	0.034	--	193-39-5	R	< 0.04	NA	< 0.04	< 0.04	< 0.044	NA	< 0.04	< 0.04	NA	< 0.04	< 0.04	< 0.04
List 1 Compounds:	--		0.028		R	ND	NA	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND
Benzo(a)pyrene Equivalents[a]	--	--	0.06[c]		R	ND	NA	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND
Benzo(a)pyrene Equivalents[b]	--	--	0.06[c]		R	ND	NA	ND	ND	ND	NA	ND	ND	NA	ND	ND	ND
List 2 Compounds:																	
1-Methylnaphthalene	--	1.1	--	90-12-0	**22.4**	**6.7**	NA	0.44	**1.2**	**1.1**	NA	< 0.04	**46.5**	NA	< 0.04	< 0.04	< 0.04
2-Methylnaphthalene	--	3.6	8	91-57-6	0.29	0.028 J	NA	0.022 J	0.035 J	< 0.044	NA	< 0.04	***9.1***	NA	< 0.04	< 0.04	< 0.04
Acenaphthylene	--	--	--	208-96-8	1.2	0.46	NA	0.15	< 0.04	0.017 J	NA	< 0.04	3.3	NA	< 0.04	< 0.04	< 0.04
Benzo(e)pyrene	--	--	--	192-97-2	< 0.04	< 0.04	NA	< 0.04	< 0.04	< 0.044	NA	< 0.04	< 0.04	NA	< 0.04	< 0.04	< 0.04
Phenanthrene	--	--	--	85-01-8	12.2	0.25	NA	< 0.04	< 0.04	< 0.044	NA	< 0.04	3.9	NA	< 0.04	< 0.04	< 0.04
Acenaphthene	--	53	400	83-32-9	**56.4**	30.4	NA	15.3	0.08	< 0.044	NA	< 0.04	**48.6**	NA	0.06	< 0.04	< 0.04
Anthracene	--	180	2000	120-12-7	R	0.075	NA	0.088	< 0.04	0.084	NA	< 0.04	0.64	NA	< 0.04	< 0.04	0.02 J
Fluoranthene	--	80	300	206-44-0	R	0.042	NA	< 0.04	< 0.04	< 0.044	NA	< 0.04	< 0.04	NA	< 0.04	< 0.04	< 0.04
Fluorene	--	29	300	86-73-7	20.9	0.26	NA	0.12	< 0.04	< 0.044	NA	< 0.04	4.6	NA	< 0.04	< 0.04	< 0.04
Naphthalene	--	0.17	70	91-20-3	***73.5***	**0.18**	NA	0.092 J	***96***	**65**	NA	< 0.16	***2320***	NA	0.14 J	< 0.16	< 0.16
Pyrene	--	12	200	129-00-0	R	< 0.04	NA	0.045	< 0.04	< 0.044	NA	< 0.04	< 0.04	NA	< 0.04	< 0.04	< 0.04
Total List 2 Compounds:	--		0.3		R	38	NA	16	97	66	NA	ND	2437	NA	0.20	ND	0.02
Non-Listed PAHs:																	
Benzo(k)fluoranthene	--	0.34	--	207-08-9	R	< 0.04	NA	< 0.04	< 0.04	< 0.044	NA	< 0.04	< 0.04	NA	< 0.04	< 0.04	< 0.04
2-Chloronaphthalene	--	75	--	91-58-7	0.08	0.05	NA	0.1	< 0.04	< 0.044	NA	< 0.04	0.075	NA	< 0.04	< 0.04	< 0.04
Dibenzofuran	--	0.79	--	132-64-9	**36.2**	**8**	NA	**11.4**	< 0.04	< 0.044	NA	< 0.04	**38.7**	NA	< 0.04	< 0.04	< 0.04
Volatile Organic Compounds:																	
Benzene	5	0.45	2	71-43-2	***4.6***	< 1	< 1	NA	**0.5 J**	**0.41 J**	< 1	NA	***8.4***	< 1	NA	< 1	< 1 UJ
Ethylbenzene	700	1.5	50	100-41-4	**5.3**	0.39 J	< 1	NA	**4.2**	**3.3**	< 1	NA	**32.7**	< 1	NA	< 1	< 1 UJ
Toluene	1000	110	200	108-88-3	1.7	< 1	< 1	NA	1.1	0.83 J	< 1	NA	40.9	< 1	NA	< 1	< 1 UJ
Xylene (Total)	10000	19	300	1330-20-7	10.5	< 3	< 3	NA	6	2.7 J	< 3	NA	**78.1**	< 3	NA	< 3	< 3 UJ
1,2,4-Trimethylbenzene	--	1.5	100	95-63-6	1.2	< 1	< 1	NA	**1.6**	0.77 J	< 1	NA	**20.5**	< 1	NA	< 1	< 1 UJ
1,3,5-Trimethylbenzene	--	12	100	108-67-8	< 1	< 1	< 1	NA	0.8 J	< 1	< 1	NA	6.2	< 1	NA	< 1	< 1 UJ
Diesel Range Organics (DRO)																	
Diesel Range Organics	--		--		1100	490	< 46 UB	NA	< 210 UB	170	< 110	NA	4700	< 110	NA	< 54 UB	< 54 UB

Notes:
[a] - benzo(a)pyrene equivalents calculated using the toxicity equivalency factors recommended in *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993*
[b] - benzo(a)pyrene equivalents calculated using the MPCA worksheet referenced at http://www.pca.state.mn.us/publications/c-r1-02.xls
[c] - screening criteria presented is the value for benzo(a)pyrene
-- - No established value
Bold - analyte concentration exceeds the value for EPA Tapwater
- analyte concentration exceeds the EPA MCL
Italizied - analyte concentration exceeds the MDH HRL or HBV
< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table revised November 2014. Tables with a hazard index (HI) of 0.1 were used.
HBV - Health Based Value
HRL - Health Risk Limit
MDH - Minnesota Department of Health
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
NA - not analyzed
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration; either detected below the laboratory reporting limit or associated with a minor QC outlier.
UB - Not detected at the concentration shown; associated with blank contamination
R - Rejected. Analyzed but result is not reported due to associated QC problems.
UJ - Undetected, reporting limit is estimated

Table 4.3.6-2b
Summary of Groundwater Laboratory Analytical Results - 2014
Burlington Northern Railroad Tle Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l				Sample Location	MW-26C	MW-26	MW-28	MW-29A	MW-29B	MW-29C	MW-30A	MW-30A	MW-30B	MW-30B	MW-30C	MW-30C	MW-31A
				Sample Date	5/2/2014	5/2/2014	5/12/2014	5/13/2014	5/13/2014	5/13/2014	5/3/2014	10/17/2014	5/3/2014	10/17/2014	5/3/2014	10/17/2014	5/2/2014
				Parent Sample ID	FD of MW-25C												
Analytes	**EPA MCL**	**EPA Tapwater**	**MDH HRL/HBV**	**CAS Number**													
List 1 Compounds:																	
Benzo(a)anthracene	--	0.034	--	56-55-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
Benzo(a)pyrene	0.2	0.0034	0.06	50-32-8	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
Benzo(b)fluoranthene	--	0.034	--	205-99-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
Benzo(g,h,i)perylene	--	--	--	191-24-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
Chrysene	--	3.4	--	218-01-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
Dibenz(a,h)anthracene	--	0.0034	--	53-70-3	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
Indeno(1,2,3-cd)pyrene	--	0.034	--	193-39-5	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
List 1 Compounds:	--		0.028		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene Equivalents[a]	--	--	0.06[c]		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene Equivalents[b]	--	--	0.06[c]		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
List 2 Compounds:																	
1-Methylnaphthalene	--	1.1	--	90-12-0	< 0.04	0.22	0.12	**2.7**	**60**	0.46	0.59	0.96	0.98	0.56	**2.8**	**2**	1
2-Methylnaphthalene	--	3.6	8	91-57-6	< 0.04	< 0.04	< 0.04	< 0.04	0.73	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
Acenaphthylene	--	--	--	208-96-8	< 0.04	0.09	0.098	0.12	7.4	0.19	0.025 J	0.033 J	0.052	0.035 J	0.22	0.15	< 0.04
Benzo(e)pyrene	--	--	--	192-97-2	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
Phenanthrene	--	--	--	85-01-8	< 0.04	0.07	< 0.04	0.042	10.3	0.042	0.05	0.063	0.19	0.2	1.3	1.1	0.022 J
Acenaphthene	--	53	400	83-32-9	< 0.04	6.6	6.2	9.6	**61**	1.2	1.9	3.2	2.8	1.6	8.5	5.4	1.9
Anthracene	--	180	2000	120-12-7	< 0.04	0.05	0.025 J	< 0.04	0.17	0.12	< 0.04	< 0.041	0.03 J	< 0.043	0.072	0.069	< 0.04
Fluoranthene	--	80	300	206-44-0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
Fluorene	--	29	300	86-73-7	< 0.04	0.068	0.2	1.3	8.2	0.032 J	0.24	0.41	0.088	0.06	0.54	0.49	0.082
Naphthalene	--	0.17	70	91-20-3	< 0.16	< 0.16	< 0.16	0.14 J	***598***	**14.5**	**0.3**	< 0.041	< 0.16	< 0.043	**1.3**	< 0.043	0.12 J
Pyrene	--	12	200	129-00-0	< 0.04	0.035 J	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
Total List 2 Compounds:	--		0.3		ND	7.1	6.6	14	746	17	3.1	4.7	4.1	2.5	15		3.1
Non-Listed PAHs:																	
Benzo(k)fluoranthene	--	0.34	--	207-08-9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
2-Chloronaphthalene	--	75	--	91-58-7	< 0.04	< 0.04	< 0.04	< 0.04	0.035 J	< 0.04	< 0.04	< 0.041	< 0.04	< 0.043	< 0.04	< 0.043	< 0.04
Dibenzofuran	--	0.79	--	132-64-9	< 0.04	**4.8**	**2.1**	**3.5**	**18.6**	0.3	0.74	**1.3**	**1.5**	**0.98**	**6.6**	**4.5**	0.35
Volatile Organic Compounds:																	
Benzene	5	0.45	2	71-43-2	< 1 UJ	0.32 J	< 1	< 1	< 1	< 1	< 1 UJ	< 1	0.15 J	< 1	< 1 J	< 1	< 1 UJ
Ethylbenzene	700	1.5	50	100-41-4	< 1 UJ	< 1 UJ	< 1	< 1	**4.7**	0.23 J	< 1 UJ	< 1	< 1 UJ	< 1	< 1	< 1	0.19 J
Toluene	1000	110	200	108-88-3	< 1 UJ	< 1 UJ	< 1	< 1	0.91 J	< 1	< 1 UJ	< 1	< 1 UJ	< 1	< 1	< 1	< 1 UJ
Xylene (Total)	10000	19	300	1330-20-7	< 3 UJ	< 3 UJ	< 3	< 3	14.5	< 3	< 3 UJ	< 3	< 3 UJ	< 3	< 3	< 3	< 3 UJ
1,2,4-Trimethylbenzene	--	1.5	100	95-63-6	< 1 UJ	< 1 UJ	< 1	< 1	8.5	< 1	< 1 UJ	< 1	< 1 UJ	< 1	< 1	< 1	< 1 UJ
1,3,5-Trimethylbenzene	--	12	100	108-67-8	< 1 UJ	< 1 UJ	< 1	< 1	1.4	< 1	< 1 UJ	< 1	< 1 UJ	< 1	< 1	< 1	< 1 UJ
Diesel Range Organics (DRO)																	
Diesel Range Organics	--		--		< 68 UB	<170 UB	<170 UB	<140 UB	1800	<160 UB	<120 UB	99 J	< 170 UB	110	310	270	<110 UB

Notes:
[a] - benzo(a)pyrene equivalents calculated using the toxicity equivalency factors recommended in *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993*
[b] - benzo(a)pyrene equivalents calculated using the MPCA worksheet referenced at http://www.pca.state.mn.us/publications/c-r1-02.xls
[c] - screening criteria presented is the value for benzo(a)pyrene
-- - No established value
Bold - analyte concentration exceeds the value for EPA Tapwater
- analyte concentration exceeds the EPA MCL
Italizied - analyte concentration exceeds the MDH HRL or HBV
< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table revised November 2014. Tables with a hazard index (HI) of 0.1 were used.
HBV - Health Based Value
HRL - Health Risk Limit
MDH - Minnesota Department of Health
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
NA - not analyzed
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration; either detected below the laboratory reporting limit or associated with a minor QC outlier.
UB - Not detected at the concentration shown; associated with blank contamination
R - Rejected. Analyzed but result is not reported due to associated QC problems.
UJ - Undetected, reporting limit is estimated

Table 4.3.6-2b
Summary of Groundwater Laboratory Analytical Results - 2014
Burlington Northern Railroad Tle Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l				Sample Location	MW-31A	MW-31B	MW-31B	MW-31C	MW-31C	MW-32B		MW-33B		MW-33A		MW-33C		MW-
				Sample Date	10/16/2014	5/2/2014	10/16/2014	5/1/2014	10/16/2014	4/17/2014	4/29/2014	4/17/2014	4/29/2014	4/17/2014	4/29/2014	4/17/2014	4/29/2014	4/15/2014
				Parent Sample ID										FD of MW-33B				
Analytes	**EPA MCL**	**EPA Tapwater**	**MDH HRL/HBV**	**CAS Number**														
List 1 Compounds:																		
Benzo(a)anthracene	--	0.034	--	56-55-3	< 0.042	< 0.04	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Benzo(a)pyrene	0.2	0.0034	0.06	50-32-8	< 0.042	< 0.04	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Benzo(b)fluoranthene	--	0.034	--	205-99-2	< 0.042	< 0.04	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Benzo(g,h,i)perylene	--	--	--	191-24-2	< 0.042	< 0.04	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Chrysene	--	3.4	--	218-01-9	< 0.042	< 0.04	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Dibenz(a,h)anthracene	--	0.0034	--	53-70-3	< 0.042	< 0.04	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Indeno(1,2,3-cd)pyrene	--	0.034	--	193-39-5	< 0.042	< 0.04	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
List 1 Compounds:	--		0.028		ND	ND	ND	ND	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA
Benzo(a)pyrene Equivalents[a]	--	--	0.06[c]		ND	ND	ND	ND	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA
Benzo(a)pyrene Equivalents[b]	--	--	0.06[c]		ND	ND	ND	ND	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA
List 2 Compounds:																		
1-Methylnaphthalene	--	1.1	--	90-12-0	**0.98**	**2**	0.075	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
2-Methylnaphthalene	--	3.6	8	91-57-6	< 0.042	0.025 J	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Acenaphthylene	--	--	--	208-96-8	0.014 J	0.072	0.016 J	< 0.04	< 0.043	NA	< 0.04	NA	0.032 J	NA	0.038 J	NA	< 0.04	NA
Benzo(e)pyrene	--	--	--	192-97-2	< 0.042	< 0.04	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Phenanthrene	--	--	--	85-01-8	< 0.042	0.19	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Acenaphthene	--	53	400	83-32-9	1.7	3.2	0.61	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Anthracene	--	180	2000	120-12-7	< 0.042	0.032 J	< 0.043	< 0.04	< 0.043	NA	0.038 J	NA	0.045	NA	0.05	NA	0.1	NA
Fluoranthene	--	80	300	206-44-0	< 0.042	< 0.04	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Fluorene	--	29	300	86-73-7	0.084	0.16	0.024 J	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Naphthalene	--	0.17	70	91-20-3	< 0.042	**59**	< 0.043	< 0.16	< 0.043	NA	< 0.16	NA	0.025 J	NA	< 0.16	NA	< 0.16	NA
Pyrene	--	12	200	129-00-0	< 0.042	< 0.04	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Total List 2 Compounds:	--		0.3		2.8	65	< 0.043	ND	ND	NA	0.038	NA	0.102	NA	0.088	NA	0.1	NA
Non-Listed PAHs:																		
Benzo(k)fluoranthene	--	0.34	--	207-08-9	< 0.042	< 0.04	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
2-Chloronaphthalene	--	75	--	91-58-7	< 0.042	< 0.04	< 0.043	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Dibenzofuran	--	0.79	--	132-64-9	0.35	**1.6**	0.22	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA	< 0.04	NA
Volatile Organic Compounds:																		
Benzene	5	0.45	2	71-43-2	< 1	**0.42 J**	< 1	< 1	< 1	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1
Ethylbenzene	700	1.5	50	100-41-4	< 1	0.84 J	< 1	< 1	< 1	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1
Toluene	1000	110	200	108-88-3	0.15 J	< 1 UBJ	0.11 J	< 1	0.13 J	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1
Xylene (Total)	10000	19	300	1330-20-7	< 3	1.5 J	< 3	< 3	< 3	< 3	NA	< 3	NA	< 3	NA	< 3	NA	< 3
1,2,4-Trimethylbenzene	--	1.5	100	95-63-6	< 1	0.71 J	< 1	< 1	< 1	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1
1,3,5-Trimethylbenzene	--	12	100	108-67-8	< 1	< 1 UJ	< 1	< 1	< 1	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1
Diesel Range Organics (DRO)																		
Diesel Range Organics	--		--		110 J	280	120	<100	<100	<31 UB	NA	<81 UB	NA	< 79 UB	NA	<52 UB	NA	< 50 UB

Notes:
[a] - benzo(a)pyrene equivalents calculated using the toxicity equivalency factors recommended in *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993*
[b] - benzo(a)pyrene equivalents calculated using the MPCA worksheet referenced at http://www.pca.state.mn.us/publications/c-r1-02.xls
[c] - screening criteria presented is the value for benzo(a)pyrene
-- - No established value
Bold - analyte concentration exceeds the value for EPA Tapwater
- analyte concentration exceeds the EPA MCL
Italiziied - analyte concentration exceeds the MDH HRL or HBV
< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table revised November 2014. Tables with a hazard index (HI) of 0.1 were used.
HBV - Health Based Value
HRL - Health Risk Limit
MDH - Minnesota Department of Health
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
NA - not analyzed
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration; either detected below the laboratory reporting limit or associated with a minor QC outlier.
UB - Not detected at the concentration shown; associated with blank contamination
R - Rejected. Analyzed but result is not reported due to associated QC problems.
UJ - Undetected, reporting limit is estimated

Table 4.3.6-2b
Summary of Groundwater Laboratory Analytical Results - 2014
Burlington Northern Railroad Tle Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l				Sample Location	34B	MW-34C		MW-35B		MW-35B	MW-36B		MW-37B		MW-38B		MW-39AA	MW-39AA
				Sample Date	4/29/2014	4/15/2014	4/29/2014	4/15/2014	4/28/2014	10/16/2014	4/16/2014	4/28/2014	4/15/2014	4/28/2014	4/16/2014	4/28/2014	3/26/2014	5/13/2014
				Parent Sample ID														
Analytes	**EPA MCL**	**EPA Tapwater**	**MDH HRL/HBV**	**CAS Number**														
List 1 Compounds:																		
Benzo(a)anthracene	--	0.034	--	56-55-3	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	0.2	0.0034	0.06	50-32-8	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04
Benzo(b)fluoranthene	--	0.034	--	205-99-2	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04
Benzo(g,h,i)perylene	--	--	--	191-24-2	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04
Chrysene	--	3.4	--	218-01-9	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04
Dibenz(a,h)anthracene	--	0.0034	--	53-70-3	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	--	0.034	--	193-39-5	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04
List 1 Compounds:	--		0.028		ND	NA	ND	NA	ND	ND	NA	ND	NA	ND	NA	ND	ND	ND
Benzo(a)pyrene Equivalents[a]	--	--	0.06[c]		ND	NA	ND	NA	ND	ND	NA	ND	NA	ND	NA	ND	ND	ND
Benzo(a)pyrene Equivalents[b]	--	--	0.06[c]		ND	NA	ND	NA	ND	ND	NA	ND	NA	ND	NA	ND	ND	ND
List 2 Compounds:																		
1-Methylnaphthalene	--	1.1	--	90-12-0	< 0.04	NA	< 0.04	NA	< 0.04	0.024 J	NA	< 0.04	NA	< 0.04	NA	< 0.04	**2**	**22.7**
2-Methylnaphthalene	--	3.6	8	91-57-6	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	0.16	0.59
Acenaphthylene	--	--	--	208-96-8	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	0.08	0.81
Benzo(e)pyrene	--	--	--	192-97-2	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04
Phenanthrene	--	--	--	85-01-8	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	0.27
Acenaphthene	--	53	400	83-32-9	< 0.04	NA	< 0.04	NA	0.21	0.11	NA	< 0.04	NA	< 0.04	NA	< 0.04	0.42	3.4
Anthracene	--	180	2000	120-12-7	< 0.04	NA	0.038 J	NA	0.048	0.041 J	NA	< 0.04	NA	0.045	NA	< 0.04	< 0.04	< 0.04
Fluoranthene	--	80	300	206-44-0	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	0.02 J
Fluorene	--	29	300	86-73-7	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	0.11	0.19
Naphthalene	--	0.17	70	91-20-3	< 0.16	NA	< 0.16	NA	< 0.16	< 0.043	NA	< 0.16	NA	< 0.16	NA	< 0.16	***106***	***1760***
Pyrene	--	12	200	129-00-0	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	0.022 J	< 0.04
Total List 2 Compounds:	--		0.3		ND	NA	0.038	NA	0.26	< 0.043	NA	ND	NA	0.045	NA	ND	109	1788
Non-Listed PAHs:																		
Benzo(k)fluoranthene	--	0.34	--	207-08-9	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04
2-Chloronaphthalene	--	75	--	91-58-7	< 0.04	NA	< 0.04	NA	< 0.04	< 0.043	NA	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04
Dibenzofuran	--	0.79	--	132-64-9	< 0.04	NA	< 0.04	NA	0.32	0.22	NA	< 0.04	NA	< 0.04	NA	< 0.04	0.1	0.16
Volatile Organic Compounds:																		
Benzene	5	0.45	2	71-43-2	NA	< 1	NA	< 1	NA	< 1	< 1	NA	< 1	NA	< 1	NA	< 1	< 5 UJ
Ethylbenzene	700	1.5	50	100-41-4	NA	< 1	NA	< 1	NA	< 1	< 1	NA	< 1	NA	< 1	NA	**1.9**	**8.6 J**
Toluene	1000	110	200	108-88-3	NA	< 1	NA	< 1	NA	< 1	< 1	NA	< 1	NA	< 1	NA	2.2	3.8 J
Xylene (Total)	10000	19	300	1330-20-7	NA	< 3	NA	< 3	NA	< 3	< 3	NA	< 3	NA	< 3	NA	1.2 J	16.3 J
1,2,4-Trimethylbenzene	--	1.5	100	95-63-6	NA	< 1	NA	< 1	NA	< 1	< 1	NA	< 1	NA	< 1	NA	1.4	**10.3 J**
1,3,5-Trimethylbenzene	--	12	100	108-67-8	NA	< 1	NA	< 1	NA	< 1	< 1	NA	< 1	NA	< 1	NA	< 1	< 5 UJ
Diesel Range Organics (DRO)																		
Diesel Range Organics	--		--		NA	< 51 UB	NA	< 51 UB	NA	58 J	< 100	NA	<75 UB	NA	< 110	NA	2300	3000

Notes:
[a] - benzo(a)pyrene equivalents calculated using the toxicity equivalency factors recommended in *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993*
[b] - benzo(a)pyrene equivalents calculated using the MPCA worksheet referenced at http://www.pca.state.mn.us/publications/c-r1-02.xls
[c] - screening criteria presented is the value for benzo(a)pyrene
-- - No established value
Bold - analyte concentration exceeds the value for EPA Tapwater
- analyte concentration exceeds the EPA MCL
Italiziied - analyte concentration exceeds the MDH HRL or HBV
< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table
revised November 2014. Tables with a hazard index (HI)
HBV - Health Based Value
HRL - Health Risk Limit
MDH - Minnesota Department of Health
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
NA - not analyzed
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration; either detected below the
laboratory reporting limit or associated with a minor QC
UB - Not detected at the concentration shown; associated with blank contamination
R - Rejected. Analyzed but result is not reported due to associated QC problems.
UJ - Undetected, reporting limit is estimated

Table 4.3.6-2b
Summary of Groundwater Laboratory Analytical Results - 2014
Burlington Northern Railroad Tle Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l				Sample Location	MW-39AA	MW-39A	MW-39A	MW-39A	MW-39B	MW-39B	MW-39B	MW-39C	MW-39C	MW-39C	MW-40B	MW-41B	MW--
				Sample Date	10/17/2014	3/26/2014	5/12/2014	10/17/2014	3/26/2014	5/16/2014	10/17/2014	3/26/2014	5/16/2014	10/19/2014	3/25/2014	3/25/2014	4/16/2014
				Parent Sample ID												FD of MW-40B	
Analytes	**EPA MCL**	**EPA Tapwater**	**MDH HRL/HBV**	**CAS Number**													
List 1 Compounds:																	
Benzo(a)anthracene	--	0.034	--	56-55-3	< 0.043	< 0.04	< 0.04	< 0.047	< 0.04	< 0.04	< 0.043	< 0.04	< 0.04	< 0.43	< 0.04	< 0.04	NA
Benzo(a)pyrene	0.2	0.0034	0.06	50-32-8	< 0.043	< 0.04	< 0.04	< 0.047	< 0.04	< 0.04	< 0.043	< 0.04	< 0.04	< 0.43	< 0.04	< 0.04	NA
Benzo(b)fluoranthene	--	0.034	--	205-99-2	< 0.043	< 0.04	< 0.04	< 0.047	< 0.04	< 0.04	< 0.043	< 0.04	< 0.04	< 0.43	< 0.04	< 0.04	NA
Benzo(g,h,i)perylene	--	--	--	191-24-2	< 0.043	< 0.04	< 0.04	< 0.047	< 0.04	< 0.04	< 0.043	< 0.04	< 0.04	< 0.43	< 0.04	< 0.04	NA
Chrysene	--	3.4	--	218-01-9	< 0.043	< 0.04	< 0.04	< 0.047	< 0.04	< 0.04	< 0.043	< 0.04	< 0.04	< 0.43	< 0.04	< 0.04	NA
Dibenz(a,h)anthracene	--	0.0034	--	53-70-3	< 0.043	< 0.04	< 0.04	< 0.047	< 0.04	< 0.04	< 0.043	< 0.04	< 0.04	< 0.43	< 0.04	< 0.04	NA
Indeno(1,2,3-cd)pyrene	--	0.034	--	193-39-5	< 0.043	< 0.04	< 0.04	< 0.047	< 0.04	< 0.04	< 0.043	< 0.04	< 0.04	< 0.43	< 0.04	< 0.04	NA
List 1 Compounds:	--		0.028		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Benzo(a)pyrene Equivalents[a]	--	--	0.06[c]		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Benzo(a)pyrene Equivalents[b]	--	--	0.06[c]		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
List 2 Compounds:																	
1-Methylnaphthalene	--	1.1	--	90-12-0	**19.2**	< 0.04	< 0.04	< 0.047	**1.9**	**1.7**	**9.3**	**131**	**223**	**279**	< 0.04	< 0.04	NA
2-Methylnaphthalene	--	3.6	8	91-57-6	0.29	< 0.04	< 0.04	< 0.047	0.11	0.095	1.3	***21.2***	***24.7***	***42.3***	< 0.04	< 0.04	NA
Acenaphthylene	--	--	--	208-96-8	0.79	< 0.04	< 0.04	< 0.047	0.19	0.18	0.6	14	17	26.9	< 0.04	< 0.04	NA
Benzo(e)pyrene	--	--	--	192-97-2	< 0.043	< 0.04	< 0.04	< 0.047	< 0.04	< 0.04	< 0.043	< 0.04	< 0.04	< 0.43	< 0.04	< 0.04	NA
Phenanthrene	--	--	--	85-01-8	0.38	< 0.04	< 0.04	< 0.047	0.88	0.58	0.55	38.6	51.8	73.4	0.072 J	0.05 J	NA
Acenaphthene	--	53	400	83-32-9	4.1	< 0.04	0.028 J	< 0.047	2.5	1.6	5.7	**140**	**209**	**255**	0.022 J	< 0.04	NA
Anthracene	--	180	2000	120-12-7	< 0.043	< 0.04	< 0.04	< 0.047	0.26	0.24	0.3	0.27	0.31	< 0.43	< 0.04	< 0.04	NA
Fluoranthene	--	80	300	206-44-0	0.043	< 0.04	< 0.04	< 0.047	0.21	0.1	0.52	0.69	0.8	1.5	0.03 J	0.028 J	NA
Fluorene	--	29	300	86-73-7	0.14	< 0.04	< 0.04	< 0.047	0.38	0.32	< 0.043	11.3	11.4	26.8	0.032 J	0.028 J	NA
Naphthalene	--	0.17	70	91-20-3	***470***	< 0.16	0.022 J	< 0.047	**8**	**8.2**	***333***	***4090***	***5850***	***7350***	< 0.16	< 0.16	NA
Pyrene	--	12	200	129-00-0	< 0.043	< 0.04	< 0.04	< 0.047	0.12	0.065	0.019 J	0.24	0.31	0.43 J	0.025 J	0.025 J	NA
Total List 2 Compounds:	--		0.3		495	ND	0.05	ND	14.6	13	351	4447	6388	8055	0.18	0.13	NA
Non-Listed PAHs:																	
Benzo(k)fluoranthene	--	0.34	--	207-08-9	< 0.043	< 0.04	< 0.04	< 0.047	< 0.04	< 0.04	< 0.043	< 0.04	< 0.04	< 0.43	< 0.04	< 0.04	NA
2-Chloronaphthalene	--	75	--	91-58-7	< 0.043	< 0.04	< 0.04	< 0.047	0.21	0.19	< 0.043	0.38	< 0.04	< 0.43	< 0.04	< 0.04	NA
Dibenzofuran	--	0.79	--	132-64-9	**0.7**	< 0.04	< 0.04	< 0.047	**11.4**	**10.2**	**20.5**	**54.8**	**77**	**133**	< 0.04	< 0.04	NA
Volatile Organic Compounds:																	
Benzene	5	0.45	2	71-43-2	0.096 J	< 1	< 1	< 1	***32.4***	***23.5***	***25.6***	***31***	***36.1***	***94.1***	< 1	< 1	< 1
Ethylbenzene	700	1.5	50	100-41-4	**6.8**	< 1	< 1	< 1	**14.1**	**10.1**	**15.8**	**37.8**	***59.2***	***141***	< 1	< 1	< 1
Toluene	1000	110	200	108-88-3	4.1 J	2.9	< 1	< 1	2.4	3.4	10.2	77.5	136	**299**	< 1	< 1	< 1
Xylene (Total)	10000	19	300	1330-20-7	< 15	< 3	< 3	< 3	**22.3**	16.1	**22.2**	**137**	**176**	**519**	< 3	< 3	< 3
1,2,4-Trimethylbenzene	--	1.5	100	95-63-6	**5.2**	< 1	< 1	< 1	**4.2**	**4.2**	**11.5**	**55.6**	**61.7**	**153**	< 1	< 1	< 1
1,3,5-Trimethylbenzene	--	12	100	108-67-8	< 5	< 1	< 1	< 1	0.87 J	0.7 J	1.6 J	**23.1 J**	**25.6**	**67.9**	< 1	< 1	< 1
Diesel Range Organics (DRO)																	
Diesel Range Organics	--		--		3300	160	320	100 J	2300	2100	3700	15300	15000	34000	100 J	170 J	< 81 UB

Notes:
[a] - benzo(a)pyrene equivalents calculated using the toxicity equivalency factors recommended in *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993*
[b] - benzo(a)pyrene equivalents calculated using the MPCA worksheet referenced at http://www.pca.state.mn.us/publications/c-r1-02.xls
[c] - screening criteria presented is the value for benzo(a)pyrene
-- - No established value
Bold - analyte concentration exceeds the value for EPA Tapwater
- analyte concentration exceeds the EPA MCL
Italizied - analyte concentration exceeds the MDH HRL or HBV
< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table revised November 2014. Tables with a hazard index (HI) of 0.1 were used.
HBV - Health Based Value
HRL - Health Risk Limit
MDH - Minnesota Department of Health
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
NA - not analyzed
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration; either detected below the laboratory reporting limit or associated with a minor QC outlier.
UB - Not detected at the concentration shown; associated with blank contamination
R - Rejected. Analyzed but result is not reported due to associated QC problems.
UJ - Undetected, reporting limit is estimated

Table 4.3.6-2b
Summary of Groundwater Laboratory Analytical Results - 2014
Burlington Northern Railroad Tle Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l				Sample Location	40B	MW-40B	TMP-1	TMP-1C	TMP-3		TMP-3A		TMP-4	TMP-4A	TMP-5	TMP-5A	TMP-6
				Sample Date	4/29/2014	10/15/2014	5/12/2014	5/12/2014	4/18/2014	4/30/2014	4/18/2014	4/30/2014	4/14/2014	4/14/2014	4/9/2014	4/9/2014	4/30/2014
				Parent Sample ID				FD of TMP-1						FD of TMP-4			
Analytes	**EPA MCL**	**EPA Tapwater**	**MDH HRL/HBV**	**CAS Number**													
List 1 Compounds:																	
Benzo(a)anthracene	--	0.034	--	56-55-3	< 0.04	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	0.2	0.0034	0.06	50-32-8	< 0.04	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(b)fluoranthene	--	0.034	--	205-99-2	< 0.04	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(g,h,i)perylene	--	--	--	191-24-2	< 0.04	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Chrysene	--	3.4	--	218-01-9	< 0.04	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dibenz(a,h)anthracene	--	0.0034	--	53-70-3	< 0.04	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	--	0.034	--	193-39-5	< 0.04	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
List 1 Compounds:	--		0.028		ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene Equivalents[a]	--	--	0.06[c]		ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene Equivalents[b]	--	--	0.06[c]		ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND
List 2 Compounds:																	
1-Methylnaphthalene	--	1.1	--	90-12-0	< 0.04	< 0.041	**3.9 J**	**3.5**	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.69 J
2-Methylnaphthalene	--	3.6	8	91-57-6	< 0.04	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Acenaphthylene	--	--	--	208-96-8	< 0.04	< 0.041	0.22	0.21	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.022 J
Benzo(e)pyrene	--	--	--	192-97-2	< 0.04	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Phenanthrene	--	--	--	85-01-8	< 0.04	< 0.041	0.055	0.058	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Acenaphthene	--	53	400	83-32-9	< 0.04	< 0.041	18.1	18	NA	< 0.04	NA	0.025 J	< 0.04	< 0.04	< 0.04	< 0.04	1.1 J
Anthracene	--	180	2000	120-12-7	< 0.04	< 0.041	0.062	0.052	NA	0.075	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.038 J
Fluoranthene	--	80	300	206-44-0	0.022 J	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.005 J
Fluorene	--	29	300	86-73-7	< 0.04	< 0.041	0.32	0.3	NA	< 0.04	NA	0.022 J	< 0.04	< 0.04	< 0.04	< 0.04	0.035 J
Naphthalene	--	0.17	70	91-20-3	< 0.16	< 0.041	< 0.16	< 0.16	NA	< 0.16	NA	0.035 J	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
Pyrene	--	12	200	129-00-0	< 0.04	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	0.065	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Total List 2 Compounds:	--		0.3		0.022	ND	23	22	NA	0.075	NA	0.15	ND	ND	ND	ND	1.9
Non-Listed PAHs:																	
Benzo(k)fluoranthene	--	0.34	--	207-08-9	< 0.04	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2-Chloronaphthalene	--	75	--	91-58-7	< 0.04	< 0.041	< 0.04	< 0.04	NA	< 0.04	NA	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Dibenzofuran	--	0.79	--	132-64-9	< 0.04	< 0.041	**6.3**	**6.4**	NA	< 0.04	NA	0.16	< 0.04	< 0.04	< 0.04	< 0.04	**1**
Volatile Organic Compounds:																	
Benzene	5	0.45	2	71-43-2	NA	< 1	< 1	< 1	< 1	NA	< 1	NA	< 1	< 1	< 1	< 1	< 1
Ethylbenzene	700	1.5	50	100-41-4	NA	< 1	< 1	< 1	< 1	NA	< 1	NA	< 1	< 1	< 1	< 1	< 1
Toluene	1000	110	200	108-88-3	NA	< 1	< 1	< 1	< 1	NA	< 1	NA	< 1	< 1	< 1	< 1	< 1
Xylene (Total)	10000	19	300	1330-20-7	NA	< 3	< 3	< 3	< 3	NA	< 3	NA	< 3	< 3	< 3	< 3	< 3
1,2,4-Trimethylbenzene	--	1.5	100	95-63-6	NA	< 1	< 1	< 1	< 1	NA	< 1	NA	< 1	< 1	< 1	< 1	< 1
1,3,5-Trimethylbenzene	--	12	100	108-67-8	NA	< 1	< 1	< 1	< 1	NA	< 1	NA	< 1	< 1	< 1	< 1	< 1
Diesel Range Organics (DRO)																	
Diesel Range Organics	--		--		NA	91 J	240	290	240	NA	< 75 UB	NA	< 80 UBJ	<48 UB	<25 UB	< 40 UB	<76 UB

Notes:
[a] - benzo(a)pyrene equivalents calculated using the toxicity equivalency factors recommended in *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993*
[b] - benzo(a)pyrene equivalents calculated using the MPCA worksheet referenced at http://www.pca.state.mn.us/publications/c-r1-02.xls
[c] - screening criteria presented is the value for benzo(a)pyrene
-- - No established value
Bold - analyte concentration exceeds the value for EPA Tapwater
- analyte concentration exceeds the EPA MCL
Italiziied - analyte concentration exceeds the MDH HRL or HBV
< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table revised November 2014. Tables with a hazard index (HI) of 0.1 were used.
HBV - Health Based Value
HRL - Health Risk Limit
MDH - Minnesota Department of Health
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
NA - not analyzed
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration; either detected below the laboratory reporting limit or associated with a minor QC outlier.
UB - Not detected at the concentration shown; associated with blank contamination
R - Rejected. Analyzed but result is not reported due to associated QC problems.
UJ - Undetected, reporting limit is estimated

Table 4.3.6-2b
Summary of Groundwater Laboratory Analytical Results - 2014
Burlington Northern Railroad Tle Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l				Sample Location	TMP-6	TMP-6A	TMP-6A	TMP-7	TMP-8	TMP-11	TMP-11C	TMP-12	TMP-12C	TMP-13	TMP-13	TMP-13A	TMP-14B
				Sample Date	10/16/2014	5/1/2014	10/16/2014	4/14/2014	4/9/2014	4/14/2014	4/14/2014	5/16/2014	5/16/2014	5/16/2014	10/19/2014	10/19/2014	4/10/2014
				Parent Sample ID									FD of TMP-12			FD of TMP-13	
Analytes	**EPA MCL**	**EPA Tapwater**	**MDH HRL/HBV**	**CAS Number**													
List 1 Compounds:																	
Benzo(a)anthracene	--	0.034	--	56-55-3	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.21	< 0.22	< 0.04
Benzo(a)pyrene	0.2	0.0034	0.06	50-32-8	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.21	< 0.22	< 0.04
Benzo(b)fluoranthene	--	0.034	--	205-99-2	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.21	< 0.22	< 0.04
Benzo(g,h,i)perylene	--	--	--	191-24-2	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.21	< 0.22	< 0.04
Chrysene	--	3.4	--	218-01-9	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.21	< 0.22	< 0.04
Dibenz(a,h)anthracene	--	0.0034	--	53-70-3	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.21	< 0.22	< 0.04
Indeno(1,2,3-cd)pyrene	--	0.034	--	193-39-5	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.21	< 0.22	< 0.04
List 1 Compounds:	--		0.028		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene Equivalents[a]	--	--	0.06[c]		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene Equivalents[b]	--	--	0.06[c]		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
List 2 Compounds:																	
1-Methylnaphthalene	--	1.1	--	90-12-0	0.81	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	**211**	**190**	**342**	**296**	**268**	< 0.04
2-Methylnaphthalene	--	3.6	8	91-57-6	< 0.042	< 0.04	< 0.045	< 0.04 UJ	0.02 J	< 0.04	0.022 J	***37***	***31.2***	***459***	***364***	***327***	< 0.04
Acenaphthylene	--	--	--	208-96-8	0.026 J	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	10.6	9.6	13	12.7	12.1	< 0.04
Benzo(e)pyrene	--	--	--	192-97-2	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.21	< 0.22	< 0.04
Phenanthrene	--	--	--	85-01-8	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	52.8	48.8	60.2	67.7	60.7	< 0.04
Acenaphthene	--	53	400	83-32-9	1.3	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	**252**	**237**	**341**	**358**	**321**	< 0.04
Anthracene	--	180	2000	120-12-7	0.037 J	< 0.04	< 0.045	< 0.04 UJ	< 0.04	0.028 J	< 0.04	2.3	2.4	3.7	< 0.21	< 0.22	< 0.04
Fluoranthene	--	80	300	206-44-0	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	0.048	0.058	0.065	< 0.21	< 0.22	< 0.04
Fluorene	--	29	300	86-73-7	0.043	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	**68.8**	**64.8**	**78.8**	**91.8**	**82**	< 0.04
Naphthalene	--	0.17	70	91-20-3	0.022 J	< 0.16	0.06	< 0.16 UJ	< 0.16	< 0.16	< 0.16	***6080***	***5480***	***11000***	***8110***	***7850***	< 0.16
Pyrene	--	12	200	129-00-0	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	0.022 J	< 0.04	< 0.21	< 0.22	< 0.04
Total List 2 Compounds:	--		0.3		2.2	ND	0.06	ND	0.02	0.028	0.022	6715	6064	12298	9300	8921	ND
Non-Listed PAHs:																	
Benzo(k)fluoranthene	--	0.34	--	207-08-9	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.21	< 0.22	< 0.04
2-Chloronaphthalene	--	75	--	91-58-7	< 0.042	< 0.04	< 0.045	< 0.04 UJ	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.21	< 0.22	< 0.04
Dibenzofuran	--	0.79	--	132-64-9	**1.1**	< 0.04	< 0.045	0.12 J	< 0.04	< 0.04	< 0.04	**110**	**104**	**163**	**181**	**164**	< 0.04
Volatile Organic Compounds:																	
Benzene	5	0.45	2	71-43-2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	***4***	***3.8***	***33***	***19.2***	*18.1*	< 1
Ethylbenzene	700	1.5	50	100-41-4	< 1	< 1	< 1	< 1	0.3 J	< 1	< 1	**49**	**47**	***74.7***	**44.6**	**39.1**	< 1
Toluene	1000	110	200	108-88-3	< 1	< 1	< 1	< 1	< 1	< 1	< 1	72.6	68.9	142	76.5	70	< 1
Xylene (Total)	10000	19	300	1330-20-7	< 3	< 3	< 3	< 3	< 3	< 3	< 3	**126**	**119**	**211**	**180**	**156**	< 3
1,2,4-Trimethylbenzene	--	1.5	100	95-63-6	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**49.6**	**48.5**	**75**	**83.8**	**72.7**	< 1
1,3,5-Trimethylbenzene	--	12	100	108-67-8	< 1	< 1	< 1	< 1	< 1	< 1	< 1	19.1	**18.7**	**30**	**36.1**	**32**	< 1
Diesel Range Organics (DRO)																	
Diesel Range Organics	--		--		82 J	< 83 UB	61 J	<66 UB	<30 UB	< 64 UB	<94 UB	12400	12100	23000	19700	18900	< 17 UB

Notes:
[a] - benzo(a)pyrene equivalents calculated using the toxicity equivalency factors recommended in *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993*
[b] - benzo(a)pyrene equivalents calculated using the MPCA worksheet referenced at http://www.pca.state.mn.us/publications/c-r1-02.xls
[c] - screening criteria presented is the value for benzo(a)pyrene
-- - No established value
Bold - analyte concentration exceeds the value for EPA Tapwater
- analyte concentration exceeds the EPA MCL
Italizied - analyte concentration exceeds the MDH HRL or HBV
< indicates compound was not detected and the laboratory reporting limit is shown
EPA MCL - EPA Maximum Contaminant Levels
EPA Tapwater - From EPA's Regional Screening Table revised November 2014. Tables with a hazard index (HI) of 0.1 were used.
HBV - Health Based Value
HRL - Health Risk Limit
MDH - Minnesota Department of Health
List 1 Compounds: Included on A.1.1. List 1 of the BN Consent Order, 1985
List 2 Compounds: Included on A.1.2. List 2 of the BN Consent Order, 1985
NA - not analyzed
ND - all results included in the calculation were not detected
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration; either detected below the laboratory reporting limit or associated with a minor QC outlier.
UB - Not detected at the concentration shown; associated with blank contamination
R - Rejected. Analyzed but result is not reported due to associated QC problems.
UJ - Undetected, reporting limit is estimated

Table 4.3.6-2b
Summary of Groundwater Laboratory Analytical Results - 2014
Burlington Northern Railroad Tle Treatment Facility Superfund Site
Brainerd and Baxter, Minnesota

Units = ug/l				Sample Location	TMP-14C	TMP-15
				Sample Date	4/10/2014	4/10/2014
				Parent Sample ID		
Analytes	**EPA MCL**	**EPA Tapwater**	**MDH HRL/HBV**	**CAS Number**		
List 1 Compounds:						
Benzo(a)anthracene	--	0.034	--	56-55-3	< 0.04	< 0.04
Benzo(a)pyrene	0.2	0.0034	0.06	50-32-8	< 0.04	< 0.04
Benzo(b)fluoranthene	--	0.034	--	205-99-2	< 0.04	< 0.04
Benzo(g,h,i)perylene	--	--	--	191-24-2	< 0.04	< 0.04
Chrysene	--	3.4	--	218-01-9	< 0.04	< 0.04
Dibenz(a,h)anthracene	--	0.0034	--	53-70-3	< 0.04	< 0.04
Indeno(1,2,3-cd)pyrene	--	0.034	--	193-39-5	< 0.04	< 0.04
List 1 Compounds:	--		0.028		ND	ND
Benzo(a)pyrene Equivalents[a]	--	--	0.06[c]		ND	ND
Benzo(a)pyrene Equivalents[b]	--	--	0.06[c]		ND	ND
List 2 Compounds:						
1-Methylnaphthalene	--	1.1	--	90-12-0	< 0.04	< 0.04
2-Methylnaphthalene	--	3.6	8	91-57-6	< 0.04	< 0.04
Acenaphthylene	--	--	--	208-96-8	< 0.04	< 0.04
Benzo(e)pyrene	--	--	--	192-97-2	< 0.04	< 0.04
Phenanthrene	--	--	--	85-01-8	< 0.04	< 0.04
Acenaphthene	--	53	400	83-32-9	< 0.04	< 0.04
Anthracene	--	180	2000	120-12-7	0.04	0.04
Fluoranthene	--	80	300	206-44-0	< 0.04	< 0.04
Fluorene	--	29	300	86-73-7	< 0.04	< 0.04
Naphthalene	--	0.17	70	91-20-3	< 0.16	< 0.16
Pyrene	--	12	200	129-00-0	< 0.04	0.028 J
Total List 2 Compounds:	--		0.3		0.04	0.068
Non-Listed PAHs:						
Benzo(k)fluoranthene	--	0.34	--	207-08-9	< 0.04	< 0.04
2-Chloronaphthalene	--	75	--	91-58-7	< 0.04	< 0.04
Dibenzofuran	--	0.79	--	132-64-9	< 0.04	< 0.04
Volatile Organic Compounds:						
Benzene	5	0.45	2	71-43-2	< 1	< 1
Ethylbenzene	700	1.5	50	100-41-4	< 1	< 1
Toluene	1000	110	200	108-88-3	< 0.12UB	< 1
Xylene (Total)	10000	19	300	1330-20-7	< 3	< 3
1,2,4-Trimethylbenzene	--	1.5	100	95-63-6	< 1	< 1
1,3,5-Trimethylbenzene	--	12	100	108-67-8	< 1	< 1
Diesel Range Organics (DRO)						
Diesel Range Organics	--		--		< 56 UB	< 53 UB

Notes:
[a] - benzo(a)pyrene equivalents
of Polycyclic Aro
[b] - benzo(a)pyrene equivalents
[c] - screening criteria presented
-- - No established value
Bold - analyte concentration ex
- analyte conce
Italizied - analyte conce
< indicates compound was not
EPA MCL - EPA Maximum Con
EPA Tapwater - From EPA's Re
November 2014. Tables with a
HBV - Health Based Value
HRL - Health Risk Limit
MDH - Minnesota Department c
List 1 Compounds: Included on
List 2 Compounds: Included on
NA - not analyzed
ND - all results included in the c
ug/l - micrograms per liter
Data Qualifiers
J - Estimated concentration; eitl
reporting limit or associated witl
UB - Not detected at the concer
R - Rejected. Analyzed but res
UJ - Undetected, reporting limit