Exhibit 6

Current BCEE 2014 Detection Limits

Test America

Method 625 RC

Analytes	CAS #	Limits	Units
4-Bromophenyl phenyl ether	101-55-3	10	ug/L
4-Chloro-3-methylphenol	59-50-7	10	ug/L
4-Chloroaniline	106-47-8	10	ug/L
4-Chlorophenyl phenyl ether	7005-72-3	10	ug/L
4-Methylphenol	106-44-5	10	ug/L
4-Nitroaniline	100-01-6	20	ug/L
4-Nitrophenol	100-02-7	30	ug/L
Acenaphthene	83-32-9	10	ug/L
Acenaphthene-d10	15067-26-2		ug/L
Acenaphthylene	208-96-8	10	ug/L
Acetophenone	98-86-2	10	ug/L
Aniline	62-53-3	10	ug/L
Anthracene	120-12-7	10	ug/L
Atrazine	1912-24-9	10	ug/L
Benzaldehyde	100-52-7	10	ug/L
Benzidine	92-87-5	10	ug/L
Benzo[a]anthracene	56-55-3	1	ug/L
Benzo[a]pyrene	50-32-8	1	ug/L
Benzo[b]fluoranthene	205-99-2	1	ug/L
Benzo[g,h,i]perylene	191-24-2	10	ug/L
Benzo[k]fluoranthene	207-08-9	1	ug/L
Benzoic acid	65-85-0	50	ug/L
Benzonitrile	100-47-0	20	ug/L
Benzyl alcohol	100-51-6	10	ug/L
Bis(2-chloroethoxy)methane	111-91-1	10	ug/L
Bis(2-chloroethyl)ether	111-44-4	1	ug/L
Bis(2-ethylhexyl) phthalate	117-81-7	10	ug/L
Butyl benzyl phthalate	85-68-7	10	ug/L
Caprolactam	105-60-2	10	ug/L
Carbamazepine	298-46-4	20	ug/L
Carbazole	86-74-8	10	ug/L
Chrysene	218-01-9	10	ug/L
Chrysene-d12	1719-03-5		ug/L
Coumarin	91-64-5	10	ug/L
DFTPP	5074-71-5		ug/L
Dibenz(a,h)anthracene	53-70-3	1	ug/L
Dibenzofuran	132-64-9	10	ug/L
Diethyl phthalate	84-66-2	10	ug/L
Dimethyl phthalate	131-11-3	10	ug/L

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Test America

Method 625 MDL's

Analytes	CAS #	Limits	Units
4-Chloroaniline	106-47-8	2.0	ug/L
4-Chlorophenyl phenyl ether	7005-72-3	2.5	ug/L
4-Methylphenol	106-44-5	1.6	ug/L
4-Nitroaniline	100-01-6	5.8	ug/L
4-Nitrophenol	100-02-7	6.7	ug/L
Acenaphthene	83-32-9	2.7	ug/L
Acenaphthene-d10	15067-26-2		ug/L
Acenaphthylene	208-96-8	2.7	ug/L
Acetophenone	98-86-2	2.7	ug/L
Aniline	62-53-3	1.8	ug/L
Anthracene	120-12-7	2.8	ug/L
Atrazine	1912-24-9	3.0	ug/L
Benzaldehyde	100-52-7	2.0	ug/L
Benzidine	92-87-5	0.89	ug/L
Benzo[a]anthracene	56-55-3	0.27	ug/L
Benzo[a]pyrene	50-32-8	0.14	ug/L
Benzo[b]fluoranthene	205-99-2	0.26	ug/L
Benzo[g,h,i]perylene	191-24-2	2.0	ug/L
Benzo[k]fluoranthene	207-08-9	0.26	ug/L
Benzoic acid	65-85-0	50	ug/L
Benzonitrile	100-47-0	1.8	ug/L
Benzyl alcohol	100-51-6	1.5	ug/L
Bis(2-chloroethoxy)methane	111-91-1	2.6	ug/L
* Bis(2-chloroethyl)ether	111-44-4	0.28	ug/L
Bis(2-ethylhexyl) phthalate	117-81-7	2.0	ug/L
Butyl benzyl phthalate	85-68-7	2.5	ug/L
Caprolactam	105-60-2	2.5	ug/L
Carbamazepine	298-46-4	1.6	ug/L
Carbazole	86-74-8	3.2	ug/L
Chrysene	218-01-9	3.1	ug/L
Chrysene-d12	1719-03-5		ug/L
Coumarin	91-64-5	3.0	ug/L
DFTPP	5074-71-5		ug/L
Dibenz(a,h)anthracene	53-70-3	0.09	ug/L
Dibenzofuran	132-64-9	2.8	ug/L
Diethyl phthalate	84-66-2	2.9	ug/L
Dimethyl phthalate	131-11-3	2.8	ug/L
Di-n-butyl phthalate	84-74-2	2.9	ug/L
Di-n-octyl phthalate	117-84-0	1.5	ug/L

Test America

8270 SIM RL

Analyte	CAS #	Limits	Units	Limit Type
4,6-Dinitro-2-methylphenol	534-52-1	0.5	ug/L	RL
Acenaphthene	83-32-9	0.05	ug/L	RL
Acenaphthylene	208-96-8	0.05	ug/L	RL
Anthracene	120-12-7	0.05	ug/L	RL
Benzo[a]anthracene	56-55-3	0.05	ug/L	RL
Benzo[a]pyrene	50-32-8	0.05	ug/L	RL
Benzo[b]fluoranthene	205-99-2	0.05	ug/L	RL
Benzo[g,h,i]perylene	191-24-2	0.05	ug/L	RL
Benzo[k]fluoranthene	207-08-9	0.05	ug/L	RL
* Bis(2-chloroethyl)ether	111-44-4	0.02	ug/L	RL
Chrysene	218-01-9	0.05	ug/L	RL
Dibenz(a,h)anthracene	53-70-3	0.05	ug/L	RL
Fluoranthene	206-44-0	0.05	ug/L	RL
Fluorene	86-73-7	0.05	ug/L	RL
Hexachlorobenzene	118-74-1	0.02	ug/L	RL
Indeno[1,2,3-cd]pyrene	193-39-5	0.05	ug/L	RL
Naphthalene	91-20-3	0.05	ug/L	RL
N-Nitrosodimethylamine	62-75-9	0.2	ug/L	RL
Pentachlorophenol	87-86-5	0.2	ug/L	RL
Phenanthrene	85-01-8	0.05	ug/L	RL
Pyrene	129-00-0	0.05	ug/L	RL

Test America

8270 SIM MDL

Analytes	CAS #	Limits	Units	Limit Type
1,4-Dioxane	123-91-1	0.1517	ug/L	MDL
4,6-Dinitro-2-methylphenol	534-52-1	0.2	ug/L	MDL
Acenaphthene	83-32-9	0.0283	ug/L	MDL
Acenaphthylene	208-96-8	0.0238	ug/L	MDL
Anthracene	120-12-7	0.0283	ug/L	MDL
Benzo[a]anthracene	56-55-3	0.0350	ug/L	MDL
Benzo[a]pyrene	50-32-8	0.0475	ug/L	MDL
Benzo[b]fluoranthene	205-99-2	0.0299	ug/L	MDL
Benzo[g,h,i]perylene	191-24-2	0.0299	ug/L	MDL
Benzo[k]fluoranthene	207-08-9	0.0153	ug/L	MDL
* Bis(2-chloroethyl)ether	111-44-4	0.0181	ug/L	MDL
Chrysene	218-01-9	0.0283	ug/L	MDL
Dibenz(a,h)anthracene	53-70-3	0.0363	ug/L	MDL
Fluoranthene	206-44-0	0.0283	ug/L	MDL
Fluorene	86-73-7	0.0283	ug/L	MDL
Hexachlorobenzene	118-74-1	0.0168	ug/L	MDL
Indeno[1,2,3-cd]pyrene	193-39-5	0.0283	ug/L	MDL
Naphthalene	91-20-3	0.0238	ug/L	MDL
N-Nitrosodimethylamine	62-75-9	0.0350	ug/L	MDL
Pentachlorophenol	87-86-5	0.14	ug/L	MDL
Phenanthrene	85-01-8	0.0283	ug/L	MDL
Pyrene	129-00-0	0.0336	ug/L	MDL

Test America

8270 RL's

Analytes	CAS #	Limits	Units	Limit Type
3,5-di-tert-butyl-4-hydroxytol	128-37-0	10	ug/L	RL
3-Nitroaniline	99-09-2	10	ug/L	RL
4,6-Dinitro-2-methylphenol	534-52-1	20	ug/L	RL
4-Bromophenyl phenyl ether	101-55-3	10	ug/L	RL
4-chloro-2-methylaniline	95-69-2	10	ug/L	RL
4-Chloro-3-methylphenol	59-50-7	10	ug/L	RL
4-Chloroaniline	106-47-8	10	ug/L	RL
4-Chlorophenyl phenyl ether	7005-72-3	10	ug/L	RL
4-Methylphenol	106-44-5	10	ug/L	RL
4-Nitroaniline	100-01-6	10	ug/L	RL
4-Nitrophenol	100-02-7	20	ug/L	RL
Acenaphthene	83-32-9	10	ug/L	RL
Acenaphthylene	208-96-8	10	ug/L	RL
Acetophenone	98-86-2	10	ug/L	RL
Aniline	62-53-3	10	ug/L	RL
Anthracene	120-12-7	10	ug/L	RL
Atrazine	1912-24-9	10	ug/L	RL
Benzaldehyde	100-52-7	10	ug/L	RL
Benzidine	92-87-5	20	ug/L	RL
Benzo[a]anthracene	56-55-3	1	ug/L	RL
Benzo[a]pyrene	50-32-8	1	ug/L	RL
Benzo[b]fluoranthene	205-99-2	1	ug/L	RL
Benzo[g,h,i]perylene	191-24-2	10	ug/L	RL
Benzo[k]fluoranthene	207-08-9	1	ug/L	RL
Benzoic acid	65-85-0	50	ug/L	RL
Benzyl alcohol	100-51-6	10	ug/L	RL
Bis(2-chloroethoxy)methane	111-91-1	10	ug/L	RL
Bis(2-chloroethyl)ether	111-44-4	1	ug/L	RL
Bis(2-ethylhexyl) phthalate	117-81-7	10	ug/L	RL
Bisphenol-A	80-05-7	30	ug/L	RL
Butyl benzyl phthalate	85-68-7	10	ug/L	RL
Caprolactam	105-60-2	10	ug/L	RL
Carbamazepine	298-46-4	20	ug/L	RL
Carbazole	86-74-8	10	ug/L	RL
Chrysene	218-01-9	10	ug/L	RL
Coumarin	91-64-5	10	ug/L	RL
Dibenz(a,h)anthracene	53-70-3	1	ug/L	RL
Dibenzofuran	132-64-9	10	ug/L	RL

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Test America

8270 MDL

Analytes	CAS #	Limits	Units	Limit Type
4-Chloroaniline	106-47-8	2	ug/L	MDL
4-Chlorophenyl phenyl ether	7005-72-3	2.5	ug/L	MDL
4-Methylphenol	106-44-5	1.6	ug/L	MDL
4-Nitroaniline	100-01-6	5.8	ug/L	MDL
4-Nitrophenol	100-02-7	6.7	ug/L	MDL
Acenaphthene	83-32-9	2.7	ug/L	MDL
Acenaphthylene	208-96-8	2.7	ug/L	MDL
Acetophenone	98-86-2	2.7	ug/L	MDL
Aniline	62-53-3	1.8	ug/L	MDL
Anthracene	120-12-7	2.8	ug/L	MDL
Atrazine	1912-24-9	3	ug/L	MDL
Benzaldehyde	100-52-7	2	ug/L	MDL
Benzidine	92-87-5	0.89	ug/L	MDL
Benzo[a]anthracene	56-55-3	0.27	ug/L	MDL
Benzo[a]pyrene	50-32-8	0.14	ug/L	MDL
Benzo[b]fluoranthene	205-99-2	0.26	ug/L	MDL
Benzo[g,h,i]perylene	191-24-2	2	ug/L	MDL
Benzo[k]fluoranthene	207-08-9	0.26	ug/L	MDL
Benzoic acid	65-85-0	50	ug/L	MDL
Benzyl alcohol	100-51-6	1.5	ug/L	MDL
Bis(2-chloroethoxy)methane	111-91-1	2.6	ug/L	MDL
* Bis(2-chloroethyl)ether	111-44-4	0.28	ug/L	MDL
Bis(2-ethylhexyl) phthalate	117-81-7	2	ug/L	MDL
Bisphenol-A	80-05-7	3.5	ug/L	MDL
Butyl benzyl phthalate	85-68-7	2.5	ug/L	MDL
Caprolactam	105-60-2	2.5	ug/L	MDL
Carbamazepine	298-46-4	1.6	ug/L	MDL
Carbazole	86-74-8	3.2	ug/L	MDL
Chrysene	218-01-9	3.1	ug/L	MDL
Coumarin	91-64-5	3	ug/L	MDL
Dibenz(a,h)anthracene	53-70-3	0.09	ug/L	MDL
Dibenzofuran	132-64-9	2.8	ug/L	MDL
Diethyl phthalate	84-66-2	2.9	ug/L	MDL
Dimethyl phthalate	131-11-3	2.8	ug/L	MDL
Di-n-butyl phthalate	84-74-2	2.9	ug/L	MDL
Di-n-octyl phthalate	117-84-0	1.5	ug/L	MDL
Fluoranthene	206-44-0	3.2	ug/L	MDL
Fluorene	86-73-7	2.8	ug/L	MDL

Hampton Clarke

SEMIVOLATILES (Aqueous)

RL / MDL

				RL	MDL	
	625-8270	Aqueous	Bis(2-Chloroethoxy)Methane	2	0.33051	ppb
*	625-8270	Aqueous	bis(2-Chloroethyl)ether	0.5	0.26639	ppb
	625-8270	Aqueous	bis(2-chloroisopropyl)ether	2	0.19748	ppb
	625-8270	Aqueous	bis(2-Ethylhexyl)phthalate	2	0.26216	ppb
	625-8270	Aqueous	Butylbenzylphthalate	2	0.26991	ppb
	625-8270	Aqueous	Caprolactam	2	0.32768	ppb
	625-8270	Aqueous	Carbazole	2	0.21483	ppb
	625-8270	Aqueous	Chrysene	2	0.26109	ppb
	625-8270	Aqueous	Coumarin	2	0.24791	ppb
	625-8270	Aqueous	Dibenzo[a,h]anthracene	2	0.27244	ppb
	625-8270	Aqueous	Dibenzofuran	0.5	0.25412	ppb
	625-8270	Aqueous	Diethylphthalate	2	0.21768	ppb
	625-8270	Aqueous	Dimethylnaphthalenes	2	0.17503	ppb
	625-8270	Aqueous	Dimethylphthalate	2	0.20053	ppb
	625-8270	Aqueous	Di-n-Butylphthalate	0.5	0.22526	ppb
	625-8270	Aqueous	Di-n-octylphthalate	2	0.18227	ppb
	625-8270	Aqueous	Diphenyl Ether	2	0.29104	ppb
	625-8270	Aqueous	Fluoranthene	2	0.25699	ppb
	625-8270	Aqueous	Fluorene	2	0.24931	ppb
	625-8270	Aqueous	Hexachlorobenzene	2	0.54546	ppb
	625-8270	Aqueous	Hexachlorobutadiene	2	0.58974	ppb
	625-8270	Aqueous	Hexachlorocyclopentadiene	2	0.46359	ppb
	625-8270	Aqueous	Hexachloroethane	2	0.50682	ppb
	625-8270	Aqueous	Indeno[1,2,3-cd]pyrene	2	0.22197	ppb
	625-8270	Aqueous	Isophorone	2	0.25581	ppb
	625-8270	Aqueous	Methylnaphthalenes	2	0.27167	ppb
	625-8270	Aqueous	Naphthalene	0.5	0.22385	ppb
	625-8270	Aqueous	n-Decane	2	0.39496	ppb
	625-8270	Aqueous	Nitrobenzene	2	0.34116	ppb
	625-8270	Aqueous	N-Nitrosodimethylamine	10	0.46142	ppb
	625-8270	Aqueous	N-Nitroso-Di-n-propylamine	0.5	0.33776	ppb
	625-8270	Aqueous	n-Nitrosodiphenylamine	2	0.35492	ppb
	625-8270	Aqueous	n-Octadecane	2	0.16261	ppb
	625-8270	Aqueous	Pentachloroethane	2	0.23695	ppb
	625-8270	Aqueous	Pentachlorophenol	10	3.40831	ppb
	625-8270	Aqueous	Phenanthrene	2	0.22577	ppb
	625-8270	Aqueous	Phenol	2	0.29395	ppb
	625-8270	Aqueous	Pyrene	2	0.20070	ppb
	625-8270	Aqueous	Pyridine	10	0.68442	ppb

Reporting Limit for All Methods (Soil and Aqueous) is Based on Concentration of Low Standard in Calibration Range

Hampton Clarke

8270 SIM (Aqueous)
RL / MDL

			RL	MDL	
8270 SIM	Aqueous	1,2-Diphenylhydrazine	0.05	0.01678	ppb
8270 SIM	Aqueous	2,4,5-Trichlorophenol	0.5	0.09597	ppb
8270 SIM	Aqueous	4,6-Dinitro-2-methylphenol	0.2	0.29705	ppb
8270 SIM	Aqueous	4-Chloroaniline	0.02	0.01149	ppb
8270 SIM	Aqueous	Acenaphthene	0.02	0.01943	ppb
8270 SIM	Aqueous	Acenaphthylene	0.2	0.03668	ppb
8270 SIM	Aqueous	Anthracene	0.02	0.01867	ppb
8270 SIM	Aqueous	Benzo[a]anthracene	0.02	0.01335	ppb
8270 SIM	Aqueous	Benzo[a]Pyrene	0.02	0.019	ppb
8270 SIM	Aqueous	Benzo[b]fluoranthene	0.02	0.01403	ppb
8270 SIM	Aqueous	Benzo[g,h,i]perylene	0.02	0.01596	ppb
8270 SIM	Aqueous	Benzo[k]fluoranthene	0.02	0.00773	ppb
* 8270 SIM	Aqueous	bis(2-Chloroethyl)ether	0.2	0.0345	ppb
8270 SIM	Aqueous	Carbazole	0.02	0.00603	ppb
8270 SIM	Aqueous	Chrysene	0.02	0.00513	ppb
8270 SIM	Aqueous	Dibenzo[a,h]anthracene	0.02	0.00848	ppb
8270 SIM	Aqueous	Dibenzofuran	0.02	0.0101	ppb
8270 SIM	Aqueous	Fluoranthene	0.02	0.01466	ppb
8270 SIM	Aqueous	Fluorene	0.02	0.01479	ppb
8270 SIM	Aqueous	Hexachlorobenzene	0.02	0.01518	ppb
8270 SIM	Aqueous	Hexachlorobutadiene	0.02	0.0108	ppb
8270 SIM	Aqueous	Hexachlorocyclopentadiene	0.02	0.00758	ppb
8270 SIM	Aqueous	Hexachloroethane	0.02	0.00508	ppb
8270 SIM	Aqueous	Indeno[1,2,3-cd]pyrene	0.02	0.01179	ppb
8270 SIM	Aqueous	Naphthalene	0.2	0.02803	ppb
8270 SIM	Aqueous	N-Nitrosodimethylamine	0.2	0.04432	ppb
8270 SIM	Aqueous	n-Nitroso-di-n-propylamine	0.2	0.05626	ppb
8270 SIM	Aqueous	Pentachlorophenol	0.2	0.13102	ppb
8270 SIM	Aqueous	Phenanthrene	0.2	0.02078	ppb
8270 SIM	Aqueous	Pyrene	0.02	0.01433	ppb

Reporting Limit for All Methods (Soil and Aqueous) is based on concenration of Low Standard in Calibration Range

Accutest

Compound List Report
Product: AB8270NJPPTCL11+ PP/TCL Semivolatiles +25, NJ
Matrix: AQ Aqueous

Feb 06, 2014 08:43

Method List: AB8270 / Method Ref: SW846 8270D
Report List: ABNJPPT ABN Special List
RL/MDL Factor: 1.0

LJ43649
LJ28154

Compound	CAS No.	RL	MDL	Units	Control Limits (%) Rev: 7/13 MS/MSD	RPD	BS	DUP
2-Chloroph	95-57-8	5	0.97	ug/l	30-106		33 42-110	10
4-Chloro-3	59-50-7	5	1.8	ug/l	40-130		28 49-120	10
2,4-Dichlor	120-83-2	2	1.2	ug/l	27-128		34 47-114	10
2,4-Dimeth	105-67-9	5	1.5	ug/l	32-145		31 48-129	10
2,4-Dinitro	51-28-5	20	17	ug/l	10-162		43 26-153	10
4,6-Dinitro-	534-52-1	20	0.99	ug/l	10-147		42 44-132	10
2-Methylph	95-48-7	2	1	ug/l	29-111		29 39-110	10
3&4-Methy		2	0.93	ug/l	26-114		29 36-110	10
2-Nitrophe	88-75-5	5	1.5	ug/l	27-121		35 45-110	10
4-Nitrophe	100-02-7	10	5.2	ug/l	10-135		37 10-110	10
Phenol	108-95-2	2	1.3	ug/l	10-110		33 10-110	10
2,3,4,6-Tet	58-90-2	5	0.94	ug/l	30-128		33 47-119	10
2,4,5-Trich	95-95-4	5	1.6	ug/l	35-128		30 52-119	10
2,4,6-Trich	88-06-2	5	1.3	ug/l	31-130		34 51-118	10
Acetophen	98-86-2	2	0.29	ug/l	24-142		31 39-125	10
Atrazine	1912-24-9	2	0.49	ug/l	42-160		26 58-153	10
Benzidine	92-87-5	20	4	ug/l	10-110		39 10-110	10
Benzaldeh	100-52-7	5	3.3	ug/l	17-130		33 32-119	10
4-Bromoph	101-55-3	2	0.36	ug/l	51-122		26 55-120	10
Butyl benz	85-68-7	2	0.29	ug/l	37-145		29 42-138	10
1,1'-Bipher	92-52-4	1	0.3	ug/l	40-122		30 41-123	10
2-Chlorona	91-58-7	2	0.3	ug/l	36-108		30 38-107	10
4-Chloroan	106-47-8	5	0.53	ug/l	24-110		32 38-110	10
Carbazole	86-74-8	1	0.36	ug/l	47-128		25 55-121	10
Caprolacta	105-60-2	2	0.69	ug/l	10-110		44 10-113	10
bis(2-Chlor	111-91-1	2	0.31	ug/l	43-120		31 48-117	10
* bis(2-Chlor	111-44-4	2	0.31	ug/l	33-115		34 40-108	10
bis(2-Chlor	108-60-1	2	0.45	ug/l	28-114		33 37-107	10
4-Chloroph	7005-72-3	2	0.31	ug/l	46-118		29 48-117	10
1,2-Dichlor	95-50-1	1	0.29	ug/l	22-110		34 23-110	10
1,2-Diphen	122-66-7	1	0.29	ug/l	43-133		27 49-130	10
1,3-Dichlor	541-73-1	1	0.38	ug/l	19-110		34 20-110	10
1,4-Dichlor	106-46-7	1	0.36	ug/l	20-110		34 21-110	10
2,4-Dinitrot	121-14-2	1	0.43	ug/l	49-129		27 53-129	10
2,6-Dinitrot	606-20-2	1	0.46	ug/l	52-129		26 57-126	10
3,3'-Dichlo	91-94-1	2	0.36	ug/l	14-119		33 41-109	10
Dibenzofur	132-64-9	5	0.27	ug/l	44-114		28 46-112	10
Di-n-butyl p	84-74-2	2	0.56	ug/l	47-131		27 54-127	10
Di-n-octyl p	117-84-0	2	0.31	ug/l	47-148		29 55-142	10
Diethyl phtl	84-66-2	2	0.33	ug/l	32-131		29 35-130	10
Dimethyl pl	131-11-3	2	0.28	ug/l	26-132		33 26-132	10

Accutest

Compound List Report
Product: AB625NJTCL11+ TCL Semivolatiles +20, NJ
Matrix: AQ Aqueous

Aug 29, 2014 11:44 an

Method List: AB625 A(Method Ref: EPA 625
Report List: ABNJTCL ABN TCL List without PAH
RL/MDL Factor: 1.0

LJ39692
LJ32414

Compound	CAS No.	RL	MDL	Units	Control Limits (%) Rev: 1/14 MS/MSD	RPD	BS	DUP
2-Chloroph	95-57-8	5	0.95	ug/l	20-122		36 36-112	10
4-Chloro-3-	59-50-7	5	1.2	ug/l	35-133		26 43-122	10
2,4-Dichlor	120-83-2	5	1.6	ug/l	25-132		35 40-126	10
2,4-Dimeth	105-67-9	5	1.6	ug/l	36-138		27 44-131	10
2,4-Dinitro	51-28-5	20	0.89	ug/l	10-152		44 17-161	10
4,6-Dinitro-	534-52-1	10	0.72	ug/l	10-141		43 34-142	10
2-Methylph	95-48-7	2	1.4	ug/l	24-123		26 35-108	10
3&4-Methy		5	1.3	ug/l	29-117		27 31-107	25
2-Nitrophe	88-75-5	2	1.8	ug/l	13-133		30 35-128	10
4-Nitrophe	100-02-7	10	0.84	ug/l	10-132		30 10-117	10
Phenol	108-95-2	2	0.5	ug/l	10-110		34 10-110	10
2,3,4,6-Tet	58-90-2	5	1.1	ug/l	23-139		34 46-127	10
2,4,5-Trich	95-95-4	2	1.9	ug/l	30-134		31 51-124	10
2,4,6-Trich	88-06-2	2	1.3	ug/l	24-139		32 49-127	10
Acetophen	98-86-2	5	0.37	ug/l	34-139		29 41-131	10
Atrazine	1912-24-9	5	0.16	ug/l	61-160		27 64-156	10
Benzaldeh	100-52-7	5	0.27	ug/l	15-163		33 26-152	10
1,1'-Bipher	92-52-4	5	0.33	ug/l	43-130		27 46-126	10
Caprolacta	105-60-2	5	0.32	ug/l	10-110		32 10-108	10
4-Bromoph	101-55-3	2	0.3	ug/l	57-121		26 55-124	10
Butyl benz	85-68-7	2	0.59	ug/l	53-136		27 45-142	10
2-Chlorona	91-58-7	2	0.98	ug/l	42-111		29 38-115	10
4-Chloroan	106-47-8	2	0.4	ug/l	11-100		32 19-102	10
Carbazole	86-74-8	2	0.36	ug/l	60-118		25 55-124	12
bis(2-Chlor	111-91-1	2	0.65	ug/l	42-124		29 42-126	10
* bis(2-Chlor	111-44-4	2	0.53	ug/l	38-119		27 38-120	10
bis(2-Chlor	108-60-1	2	0.74	ug/l	34-117		29 33-121	10
4-Chloroph	7005-72-3	2	0.43	ug/l	53-117		26 50-119	10
2,4-Dinitrot	121-14-2	2	0.86	ug/l	52-129		24 56-133	10
2,6-Dinitrot	606-20-2	2	0.56	ug/l	57-129		27 56-135	10
3,3'-Dichlo	91-94-1	2	1.2	ug/l	10-135		31 24-126	10
Dibenzofur	132-64-9	2	0.34	ug/l	49-113		26 47-115	18
Di-n-butyl p	84-74-2	2	0.59	ug/l	55-130		25 50-135	17
Di-n-octyl p	117-84-0	2	0.57	ug/l	58-140		25 50-146	10
Diethyl phtl	84-66-2	2	0.39	ug/l	47-126		24 43-129	10
Dimethyl pl	131-11-3	2	0.33	ug/l	45-126		27 43-129	10
bis(2-Ethyll	117-81-7	2	0.66	ug/l	60-135		22 51-143	22
Hexachlorc	87-68-3	1	0.18	ug/l	15-111		31 15-114	10
Hexachlorc	77-47-4	10	0.41	ug/l	10-115		39 10-127	10
Hexachlorc	67-72-1	5	0.28	ug/l	10-110		30 16-108	10
Isophorone	78-59-1	2	0.59	ug/l	38-125		29 40-124	10

Accutest

Method Blank Summary

Laboratory DRAFT - Not for Release

QF	Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
1 [a]	OP77597A-MB1	3M49296.D	1	09/03/14	SP	08/28/14	OP77597A	E3M2238

The QC reported here applies to the following samples: Method: SW846 8270D BY SIM

JB74466-3, JB74724-13, JB74764-1, JB74764-3, JB74764-4, JB74764-5, JB74764-6, JB74777-1, JB74777-2, JB74777-3, JB74777-4, JB74777-5, JB74777-7, JB74834-1, JB74834-2, JB74834-3, JB74834-4, JB74834-5

CAS No.	Compound	Result	RL	MDL	Units	Q
	Cresol, Total	ND	1.0	0.011	ug/l	
87-86-5	Pentachlorophenol	ND	0.30	0.10	ug/l	
108-95-2	Phenol	ND	0.50	0.14	ug/l	
83-32-9	Acenaphthene	ND	0.10	0.020	ug/l	
208-96-8	Acenaphthylene	ND	0.10	0.024	ug/l	
120-12-7	Anthracene	ND	0.10	0.020	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.012	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.012	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.010	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.016	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.015	ug/l	
218-01-9	Chrysene	ND	0.10	0.012	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	0.010	0.0026	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.017	ug/l	
206-44-0	Fluoranthene	ND	0.10	0.013	ug/l	
86-73-7	Fluorene	ND	0.10	0.017	ug/l	
118-74-1	Hexachlorobenzene	ND	0.020	0.017	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.10	0.017	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	0.20	0.0088	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.014	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.10		ug/l	
91-57-6	2-Methylnaphthalene	ND	0.10	0.023	ug/l	
91-20-3	Naphthalene	ND	0.10	0.036	ug/l	
85-01-8	Phenanthrene	ND	0.10	0.021	ug/l	
129-00-0	Pyrene	ND	0.10	0.015	ug/l	
	Toluidines (Total)	ND	0.20		ug/l	

CAS No.	Surrogate Recoveries		Limits
367-12-4	2-Fluorophenol	28%	10-110%
4165-62-2	Phenol-d5	20%	10-110%
118-79-6	2,4,6-Tribromophenol	72%	10-157%
4165-60-0	Nitrobenzene-d5	58%	23-131%
321-60-8	2-Fluorobiphenyl	63%	24-120%
1718-51-0	Terphenyl-d14	87%	10-125%

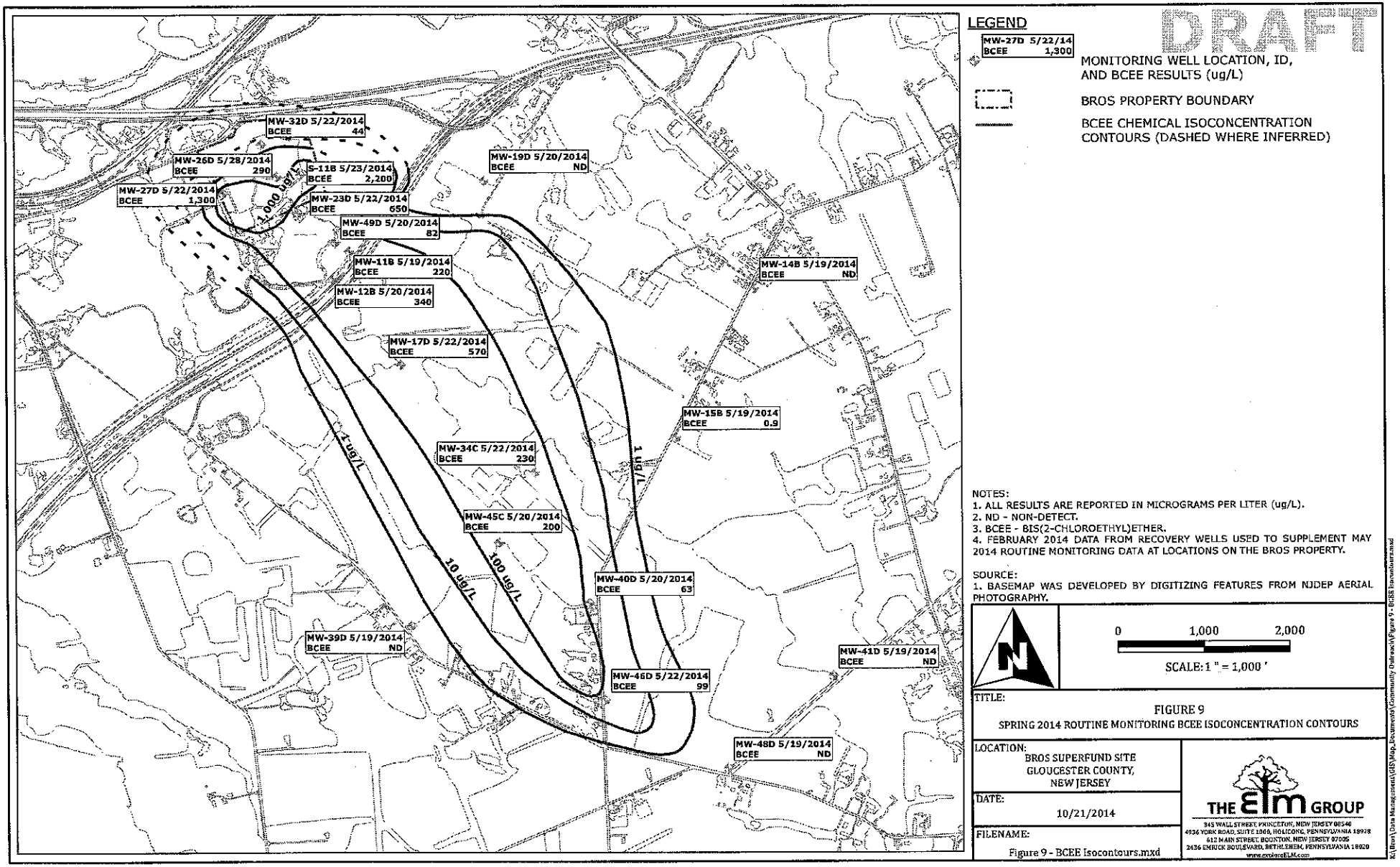
Exhibit 7

Figure 9, BCEE Isocontours

Exhibit 8

BCEE PRGs, Bridgeport Rental

Figure 9 BCEE Isocontours



LEGEND

MW-27D 5/22/14 BCEE 1,300 — MONITORING WELL LOCATION, ID, AND BCEE RESULTS (ug/L)

BROS PROPERTY BOUNDARY

BCEE CHEMICAL ISOCONCENTRATION CONTOURS (DASHED WHERE INFERRED)

DRAFT

NOTES:
1. ALL RESULTS ARE REPORTED IN MICROGRAMS PER LITER (ug/L).
2. ND - NON-DETECT.
3. BCEE - BIS(2-CHLOROETHYL)ETHER.
4. FEBRUARY 2014 DATA FROM RECOVERY WELLS USED TO SUPPLEMENT MAY 2014 ROUTINE MONITORING DATA AT LOCATIONS ON THE BROS PROPERTY.

SOURCE:
1. BASEMAP WAS DEVELOPED BY DIGITIZING FEATURES FROM NJDEP AERIAL PHOTOGRAPHY.

0 1,000 2,000

SCALE: 1 " = 1,000 '

TITLE:

FIGURE 9

SPRING 2014 ROUTINE MONITORING BCEE ISOCONCENTRATION CONTOURS

LOCATION:
BROS SUPERFUND SITE
GLOUCESTER COUNTY,
NEW JERSEY

DATE:
10/21/2014

FILENAME:
Figure 9 - BCEE Isocontours.mxd

THE ELM GROUP
345 WALL STREET, PRINCETON, NEW JERSEY 08540
4936 YORK ROAD, SUITE 1000, HOLICONG, PENNSYLVANIA 18928
612 MAIN STREET, BOONTON, NEW JERSEY 07005
2436 EMRICK BOULEVARD, BETHLEHEM, PENNSYLVANIA 18020
www.exploreELM.com

K:\Bros\Data Management\GIS\Map_Documents\Community Outreach\Figure 9 - BCEE Isocontours.mxd

BCEE PRGs Bridgeport Rental

July 2006

U.S. Environmental Protection Agency
Superfund Program – Region 2

Bridgeport Rental and Oil Services (BROS)
Logan Township
Gloucester County, New Jersey
Proposed Plan

INTRODUCTION

This Proposed Plan identifies the *Preferred Alternative* for cleanup of groundwater, soil and sediment contamination at the Bridgeport Rental and Oil Services (BROS) Superfund site, and provides the rationale for this preference. The proposed remedial actions are categorized as Groundwater Work and Wetlands Work. The actions contemplated under this Proposed Plan are designated as Operable Unit (OU) 2 work.

The Groundwater Work has been further divided into two major sub-categories to address media or area-specific concerns. The sub-categories are *Soils, Light Non-Aqueous Phase Liquids (LNAPLs), Shallow Groundwater*, and *Deep Groundwater*.

The Groundwater Work includes addressing on-property and off-property shallow and deep groundwater contamination associated with drinking water aquifers (water bearing strata) of the Potomac-Raritan-Magothy (PRM) system. It also includes components designed to address residual subsurface soil and LNAPL contamination which impact the groundwater system and are themselves media which represent potential exposure points in the human health risk model. For example, the contaminated soils and LNAPL are a potential exposure point/source to construction workers through a direct contact pathway and future building occupants through the vapor intrusion pathway.

The PRM aquifers were impacted by releases from on-site sources including the former 13-acre waste oil lagoon, tank farms, contaminated debris, residually contaminated soil and LNAPLs. The former waste oil lagoon and tank farms were cleaned up as part of the OU-1 remedy for the site. The OU-1 actions were completed in 1997.

The Wetlands Work includes addressing the stream corridor and wetland areas both on-property and off-property. The wetland areas were impacted by the releases of contaminants from the former waste oil lagoon during a series of overflow/spill events in the late 1960's and 1970's.

Preferred Alternative

The *Preferred Alternative* is a set of alternatives which combines technologies, within an adaptive management approach, to address both impacted media as well as post-lagoon remediation residual contamination. The preferred alternative, which is described in greater detail in the Preferred Alternative section of this Proposed Plan, includes the following Groundwater and Wetlands Work activities:

- Soil "Hot Spot" management through cover and drainage improvements, improved water budget management (using phytoremediation techniques), enhanced biodegradation, and institutional controls (ICs);
- LNAPLs management through cover and drainage improvements, limited property excavation, improved water budget management, enhanced LNAPL recovery via bioslurping with steam injection, where warranted, and ICs;
- Shallow Groundwater management through residual source remediation controls, improved water budget management (using phytoremediation techniques), groundwater extraction concurrent with the LNAPL removal system, monitored natural attenuation and ICs;
- Deep Groundwater management via in-situ chemical oxidation treatment and enhanced biodegradation in conjunction with source area pumping and treatment (with a contingency for hydraulic containment – see below for additional information); and,
- Wetlands sediment excavation, ex-situ treatment, off-site disposal (via landfilling),

(1)

LNAPL and metals are present in the DMZ. In this zone, calculated risks to red fox and Eastern screech owl were higher than the reference areas. However, in LTCS II/III (the areas of highest concern), no ecological risk exceeding an HQ of 1.0 was noted for the red fox (representative of the upper trophic level predatory mammal) or the Eastern screech owl (representative of the upper trophic level predatory avian population). Although not an ideal habitat for mink, HQ values were also calculated for this sensitive receptor. HQ values for mink were well below one.

Similar results were obtained for areas of CS, where great blue heron (receptor representing piscivorous bird population), red fox and Eastern screech owl had HQ values less that one. Risks to white perch (representing water column biota) and mummichugs (benthic feeding forage fish species) were not considered significant.

Swindell Pond sampling indicated no observed results above aquatic benchmarks. It was concluded that Swindell Pond does not contain BROS-related COPECs at concentrations of potential ecological concern. Potential adverse effects to benthic organisms, however, are probable within a limited area surrounding the seep area of Gaventa Pond.

As previously noted, while habitat for threatened and endangered species potentially occurs in Gloucester County, no rare plants or animals have been observed on the site.

REMEDIAL ACTION OBJECTIVES

It is EPA's current judgment that the Preferred Alternative identified in this Proposed Plan is necessary to protect public health and the environment from actual and threatened releases of hazardous substances, pollutants or contaminants from the site which may present an imminent and substantial endangerment to public health or welfare.

Remedial action objectives (RAOs) were developed in accordance with the National Contingency Plan and current EPA guidance. RAOs were developed for each media of concern considering on-property use in the commercial/industrial category, and off-property use under a residential/agricultural/ recreational setting.

The RAOs for shallow groundwater on- and off-property include:

- Protection of the public against ingestion and direct contact with VOCs, SVOCs and metals in the groundwater above preliminary remediation goals (PRGs – including the cleanup of shallow groundwater or reductions in movement to ensure that contaminants do not occur at potential exposure points);
- Protection against vapor intrusion from VOCs, SVOCs and PCBs in groundwater above PRGs; and,
- Protection of the public and utility workers against direct contact with VOCs, SVOCs LNAPL, PCBs and metals in groundwater above PRGs.

From a numerical standpoint, the PRGs identified, to the extent practicable at this stage for shallow groundwater, include the lower of federal or state maximum contaminant levels (MCLs) or the state groundwater quality criteria which are considered ARARs for the site. However, there is the potential for a future waiver of these chemical-specific requirements based on the ability of the proposed remedial alternatives to reduce localized areas to below threshold levels. Any such waiver would be subject to the NCP process including public participation. The following table provides numerical values for key site COCs. Values for all of the groundwater COCs are found in the RI. It is believed that the RAOs for off-property shallow groundwater are achievable in a reasonable period of time.

Groundwater PRGs

Analyte/ Contaminant Group	NJDEP GWQC	Federal MCL
Volatile Organic Compounds (ug/l)		
Benzene	1	5
TCE	1	5
Vinyl Chloride	1	2
Semi-Volatile Organic Compounds (ug/l)		
BCEE	7	-
Polychlorinated Biphenyls (ug/l)		
Total PCBs	0.5	0.5

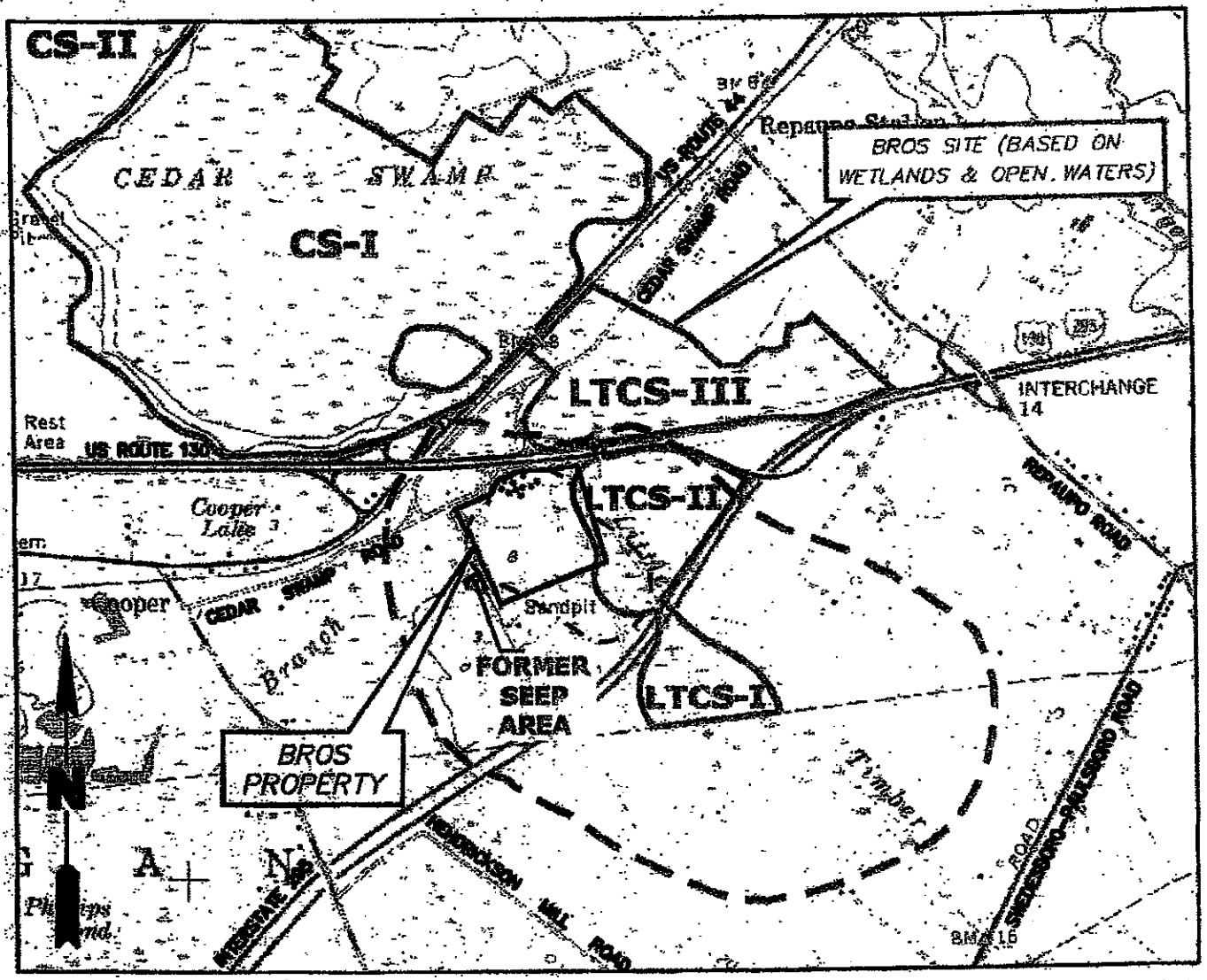
TABLE 2
BROS Preferred Remedy Components by Media

Media	Alternative No.	Remedy Components	Estimated Costs
Wetlands	DMZ-5	Excavation/ Ex-Situ Treatment/ Off-Site Disposal/ Application of Sorptive Agent (prior to Capping or incorporated into Backfill)/ Wetlands Restoration Physical Amenities: Includes the excavation of approximately 17,500 cubic yards of contaminated sediment and application of sorptive material over 10.6 acres.	$11.9M
	IZ-2	Natural Remediation (Monitored)/ Institutional Controls	$0.6M
Soil, LNAPL, and Shallow Groundwater	SHS-4	Enhanced Biodegradation Component Only Physical Amenities: Includes the installation of at least 230 chemical injection points.	$2.3M
	LNAPL-5	Institutional Controls/ Cover and Drainage Improvements/ Limited Off-Property Excavation (Gaventa Pond Seep and Green Acres Area)/ Enhanced LNAPL Recovery via Bioslurping and Thermal/Steam Injection (where warranted following Bioslurping)/ Containment-Water Budget Management via Phytoremediation/Alternate Final Cover Physical Amenities: Includes the installation of approximately 72 bioslurping extraction points. Water budget management may include planting up to 1,000 trees per acre in LNAPL areas.	$16.5M
	SGW-2	Institutional Controls/ Source Remediation/Control/ Monitored Natural Attenuation	$1.9
Deep Groundwater	DGW-6	**Phased Combination:** Source Area (Principal Threat Zone) Pumping and Treatment (Mass Reduction)/ Followed by In-Situ Chemical Oxidation Treatment in Significant Rebound Areas/ Followed by Enhanced Biodegradation – Lower Threat Zone Pumping and Treatment (Mass Reduction)/ Followed by Enhanced Biodegradation in Significant Rebound Areas Downgradient Area Enhanced Biodegradation Physical Amenities: Includes the installation of over 50 extraction wells in the PTZ/LTZ and 300 Chemical Oxidant injection wells. Will include the inoculation of groundwater with an estimated 600,000 pounds of oxidant and the extraction of over 100 million gallons of contaminated groundwater over the first two years of operation. Long-term operations could realize the extraction of over 500 million gallons of groundwater.	$57.7M
Deep Groundwater Contingency	DGW-4	Source Area Containment Pumping and Treatment/ Downgradient Area Enhanced Aerobic Biodegradation Physical Amenities: Includes the groundwater treatment plant constructed for DGW-6 with additional wells to capture the plume.	$48.5M (1) (1) If implemented as a contingency, cost would be reduced by capital expenditure for treatment plant construction under DGW-6 - estimated at $6 million.

Estimated total cost: $90.9M (Wetlands $12.5M; Soils, LNAPLs, Shallow GW $20.7; Deep GW $57.7M)

Figure 1 – Site Location Map

Based on COCs in Soil, LNAPL, Groundwater and Wetlands



LEGEND

- BROS SITE (BASED ON WETLANDS AND OPEN WATER AREAS)
- APPROXIMATE BROS SITE BOUNDARY BASED ON GROUND WATER DATA, AS PRESENTED IN THE UPDATED (2002) WELL RESTRICTION AREA AT THE BASE (BOTTOM 15 FEET) OF THE UPPER MIDDLE PRM AQUIFER.
- APPROXIMATE BROS PROPERTY BOUNDARY
- BOUNDARY OF UPDATED WELL RESTRICTION AREA FOR RECENT STRATA AND A PORTION OF THE UPPER PRM AQUIFER
- LTCS LITTLE TIMBER CREEK SWAMP
- CS CEDAR SWAMP

EPA/ROD/R2006020001431
2006

EPA Superfund
Record of Decision:

BRIDGEPORT RENTAL & OIL SERVICES
EPA ID: NJD053292652
OU 02
BRIDGEPORT, NJ
09/27/2006

Table 9-1: Groundwater Preliminary Remediation Goals

Analyte/ Contaminant Group	NJDEP GWQC	Federal MCL
Volatile Organic Compounds (ug/L)		
Benzene	1	5
TCE	1	5
Vinyl Chloride	1	2
Semi-Volatile Organic Compounds (ug/L)		
BCEE	7	-
Polychlorinated Biphenyls (ug/L)		
Total PCBs	0.5	0.5

Figure 6-3: Deep Groundwater Extent of Contamination
(As Represented by Benzene and TCE Distribution)

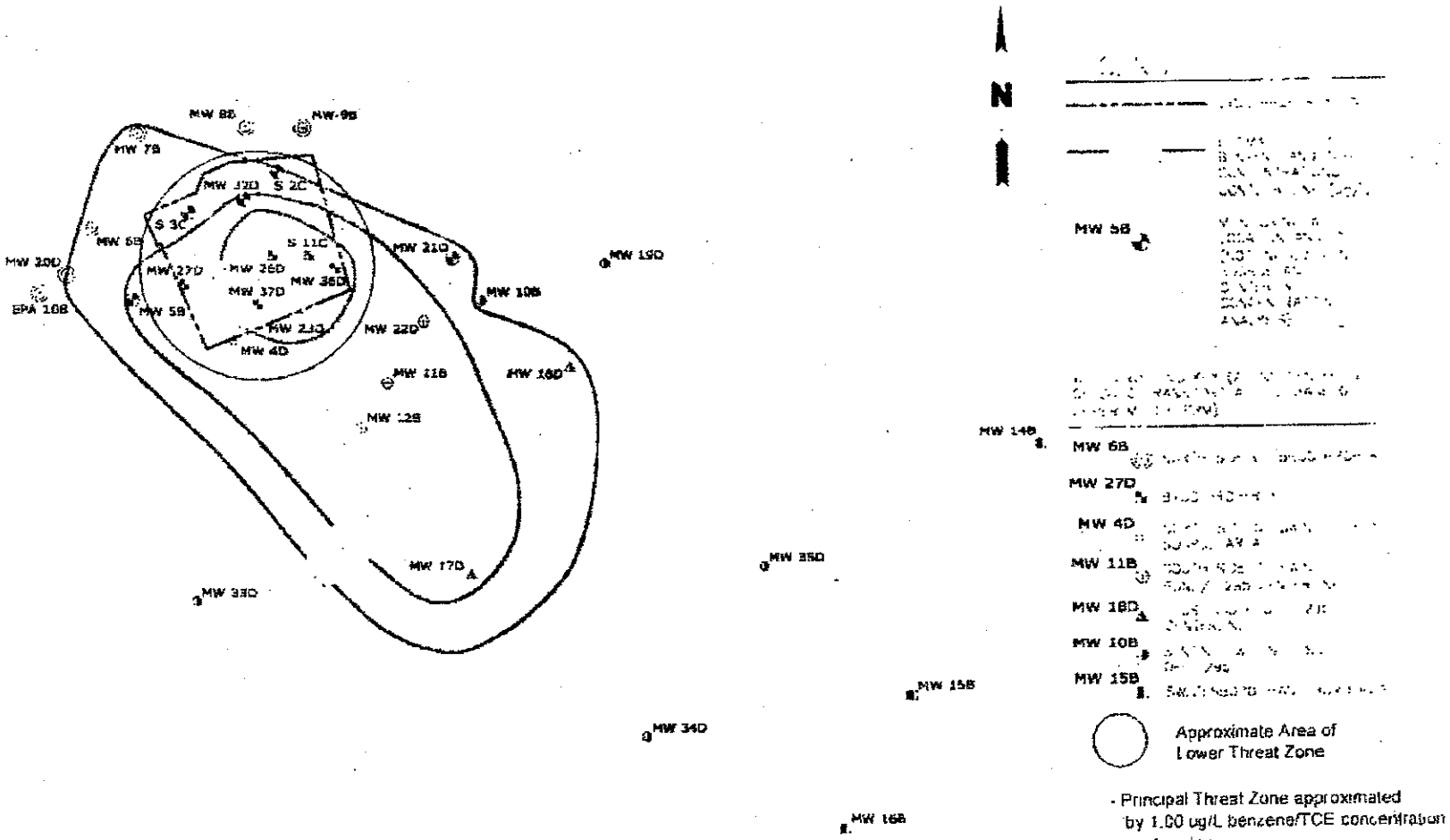


Exhibit 9

Brosha Excerpt

brosha excerpt

PUBLIC HEALTH ASSESSMENT

BRIDGEPORT RENTAL AND OIL SERVICE

LOGAN TOWNSHIP, GLOUCESTER COUNTY, NEW JERSEY

CERCLIS NO. NJD053292652

JANUARY 23, 1995

Prepared by:

New Jersey Department of Health
Environmental Health Service

Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

SUMMARY

The 30 acre Bridgeport Rental and Oil Services, Inc. (BROS) site is located in southwest New Jersey, Logan Township, approximately 1 mile east of the town of Bridgeport and about 2 miles south of the Delaware River.

Groundwater and surface soils at the BROS site have been contaminated as a result of the mismanagement of large quantities of waste oil and other fluids. A second superfund site, Chemical Leaman Tank Lines, Inc., is located near the BROS site and may be contributing to groundwater contamination within the BROS study area.

Groundwater in the top two aquifers has been impacted by significant levels of contaminants. The contaminants include, among others: volatile organic compounds (VOC's), such as methylene chloride, trichloroethene, benzene, and vinyl chloride; semi-volatile organic compounds, bis (2-chloroethyl) ether; metals, lead and chromium; and polychlorinated biphenyls (PCBs).

Past exposure of residents living near the BROS lagoon to VOC's in residential well water is likely to have occurred from before 1983 through 1987. In the past, VOC's had migrated from the BROS lagoon through the shallow groundwater system. Before connections to the public water supply were completed, all of the known residents in the area were supplied with bottled water for drinking and other domestic purposes. A permanent source of water to 33 of these residents was provided by extension of the public water supply pipeline in April 1987.

The full expanse of the contamination plume at the BROS site has not been totally characterized. Groundwater contamination has been documented in off site monitoring wells and has been estimated to have moved as much as a mile from the site towards the southeast. It is not known the extent to which residents may have used this water in the past, how it is presently used, or how it may be used in the future.

It is possible that there are residents who are downgradient from the BROS lagoon who drank water from contaminated private wells and were chronically exposed to contaminants in those wells.

Based upon information reviewed, the BROS Site is considered a public health hazard because of past exposures, and is currently considered an indeterminate public health hazard. Human exposure to site related contaminants has occurred in the past. The indeterminate nature of the current health hazard is based on the fact that site related contaminants are migrating off-site and may have contaminated groundwater in an area where residential wells are in current use. The contaminants detected in this groundwater are of sufficient concentrations as to constitute a public health hazard.

ATSDR's Health Activities Recommendation Panel has evaluated the BROS site to determine appropriate follow-up health actions. The panel determined that community health education is needed; however, the level of educational activity will be determined by the NJDOH following an evaluation of, among other factors, comments received during the public comment period for this

public health assessment.

BACKGROUND

A. Site Description and History

Groundwater and surface soils at the Bridgeport Rental and Oil Services, Inc. (BROS) site have been contaminated as a result of the mismanagement of large quantities of waste oil and other fluids. Groundwater in the top two aquifers has been impacted by significant levels of contaminants. The contaminants include, among others: volatile organic compounds (VOC's), such as methylene chloride, trichloroethene, benzene, and vinyl chloride; semi-volatile organic compounds, bis (2-chloroethyl) ether; metals, lead and chromium; and polychlorinated biphenyls (PCBs). A groundwater contaminant plume is suspected to have moved as much as a mile southeast of the site.

Due to the contamination of drinking water wells near the BROS site, first identified in the early 1980's, the U.S. Environmental Protection Agency (USEPA) supplied an alternate water supply to 33 affected residents. A permanent source of water to these residents was provided by extension of the public water supply pipeline in April 1987.

In the early 1970's, the eastern dike of the BROS lagoon was breached and an adjacent 3 acre area was covered with a superficial layer of PCB contaminated oil.

In the spring of 1981, the level of the lagoon again threatened to overflow the dike. In response to the threat, the U.S. Coast Guard increased the height of the dike by 5 feet. When the dike again threatened to overflow in 1982 and 1983, the EPA took emergency action to lower the level of the lagoon by pumping and treating the aqueous phase layer and discharging the treated material into the Little Timber Creek.

The BROS site was included on the EPA's National Priorities List (NPL) in 1983. A Phase 1 Remedial Investigation/Feasibility Study (RI/FS) was conducted in 1983 and 1984 (1), and a Record of Decision (ROD) was signed in 1984 approving remedial activity at the site. EPA is currently performing a detailed Phase 2 RI/FS to determine the nature of the extent of the groundwater contamination and to evaluate remedial alternatives.

Remedial activities have included the demolition and removal of approximately 100 tanks and process vessels used to store hazardous wastes; off-site disposal of about 400,000 gallons of oils and sludges taken from the tanks; demolition and off-site disposal of buildings, drums, and other site debris; and the construction and operation of an aqueous wastewater treatment system (AWTS). In addition, an on-site transportable incinerator has been setup on the site. The incinerator is being used for the thermal destruction of the approximately 5000 cubic yards of PCB contaminated lagoon surface oil , and the 80,000 to 100,000 cubic yards of contaminated sludges, sediments, soils, and levee material.

The listed activities were implemented through an interagency agreement between USEPA and the U.S. Army Corps of Engineers (COE). The New Jersey Department of Environmental Protection and Energy (NJDEPE) provides support to the USEPA.

The Agency for Toxic Substances and Disease Registry (ATSDR) has been involved with this site in the past. A Health Assessment was preformed by the agency in March 1986 (2) and an Addendum to the Health Assessment was completed on August 9, 1991 (10). This addendum evaluated data collected in and adjacent to Swindell Pond. The New Jersey Department of Health (NJDOH), in cooperation with ATSDR, completed a Site Review and Update (SRU) on September 2, 1992 that recommended the site be revaluated through the public health assessment process.

The 30 acre BROS site is located in southwest New Jersey, Logan Township, approximately 1 mile east of the town of Bridgeport and about 2 miles south of the Delaware River (Figure # 1). The site borders an active peach orchard on its western edge. Located on Cedar Swamp Road, it's northern border, BROS is situated at the point where Route 130 and Interstate 295 diverge. The eastern edge of the site is a swampy area leading to the Little Timber Creek. Two "man-made" ponds are found adjacent to the lagoon, south and south west of the site (Figure # 2).

The site was originally a sand and gravel pit in the 1930's, and there is evidence of waste disposal activities beginning in the 1950's. When the current owners acquired the site in the late 1960's the site was already a waste oil storage and recovery operation. Today, waste handling activities are prohibited at the site by court order. Before remediation began, the site consisted of a tank Farm, drums, tank trucks and an approximately 13 acre waste oil lagoon. The lagoon was up to 25 feet deep in certain locations, with the bottom 13 feet of the lagoon in contact with the ground water. The liquid in the lagoon is divided into three phases including: an oily layer with drums, trash, and other debris floating in it; an aqueous layer; and sludge/sediment deposits on the bottom. At one time it was estimated that there were about 2.5 million gallons of oil in the lagoon. The depth of the sludge layer was estimated to be between 2 and 4 feet. Sampling of the oil and the sludge layers revealed average PCB concentrations in excess of 500 ppm. Beneath the sludge layer are contaminated groundwater and soils. Most of the oil has been removed from the lagoon and the water level has been lowered by pumping from 8.5 to 3.0 feet below mean sea level. The water level during remediation is held at or slightly below the natural water level in the superficial aquifer (Upper Potomac-Raritan-Magothy [PRM] Aquifer). The treated water is discharged to the Little Timber Creek and is monitored to ensure acceptable effluent standards. Contaminated soils excavated from the site are incinerated in the on-site thermal destruction facility.

Access to the BROS site is strictly limited. There is tall chain-link fence surrounding the entire site. The entrance to the on-site areas is controlled by a security guard.

B. Actions Implemented during the Health Assessment Process

Since the completion of the data review for this site, March 31, 1993, there have been no additional

actions implemented. The remedial work is continuing with a few minor incidents reported. These include: the discovery of additional contamination and short term release of organic vapor while workers were digging in the western levee of the lagoon; and the discovery of an apparent human hip bone in the same area.

C. Site Hydrogeology

The BROS lagoon is underlain by three aquifers and three confining units as follows: the Upper Potomac-Raritan-Magothy (PRM) Aquifer; an intermediate confining unit; the Middle PRM Aquifer; a continuous clay confining unit; the lower PRM Aquifer; and a basal confining unit defined by the Wissahikon Formation (Figure # 3). Only the Upper and Middle PRM aquifers have been investigated as part of the Phase II RI/FS (4). In order to accurately address the vertical and horizontal migration of contaminants from the lagoon, the middle PRM Aquifer has been separated into the Upper Middle PRM and the Lower Middle PRM Aquifers.

D. Site Visit

NJDOH (J. Pasqualo, N. P. Singh, and J. Winegar), ATSDR (A. Block and S. Jones; Region II), USEPA (Region II) and Gloucester County Health Department personnel visited the BROS site on December 1, 1992. The site was well secured with a chain-link fence, guarded, and posted with warning signs. The on-site area actually consists of two distinct areas: an administrative area consisting of numerous large office trailers; and an inner exclusion zone surrounding the lagoon itself where remediation is taking place. Both of these regions were examined during our visit. During our visit the following observations were made:

- The site is undergoing active remediation;
- The large storage lagoon was obviously heavily contaminated and stained with oil, with the level of the fluid approximately 10-15 feet below the lip of the levee;
- In the eastern portion of the lagoon numerous steel drums were observed in and protruding from the oil. Each drum appears to have been punctured. In addition, there is a tanker trailer, trash, and a partially submerged boat in this section;
- There is an aqueous wastewater treatment system (AWTS) and a large mobile thermal destruction facility located near the north east corner of the lagoon. The AWTS facility pumps and treats the aqueous layer of the lagoon to keep the level at or below the water table in the surface aquifer and to remove volatile organic and inorganic contaminants. The treated water is discharged into the Little Timber Creek. The incinerator is used to burn oil, contaminated

soil, and sediments from the lagoon. At the time of our site visit the incinerator was not operating due to a dispute between two of the subcontractors;

- On the north side of the lagoon were two large piles of incinerated soil and ash. This material is stockpiled and being used as part of the back fill material for the lagoon;

- Backfilling with a mixture of incinerated soil, clean fill, and cement mix, has begun in a small area in the south west corner of the lagoon;

- The area contaminated by a previous levee breach northeast of the lagoon has just been cleared of trees and brush as part of the initial remediation of this area. The perimeter fence has been extended around this region;

- There is an active peach orchard directly adjacent to the western border of the lagoon;

- South and south west of the BROS lagoon, within 100 feet, are two "man-made" ponds, known as Swindell Pond and Gaventa Pond, respectively. According to the local health officials, the ponds are used for swimming and fishing;

- Several residences were noticed about 800 feet north of the site. A single residence was observed about 150 feet to the west.

- At the north east corner of Gaventa Pond, the point closest to the BROS Lagoon, a oil boom was noticed in the corner. There was an obvious oil slick on the lagoon side of the boom. There were also several drums of unknown origin noticed in the pond; and

- The land area just south of the lagoon, and between the two ponds, showed evidence of human activity. Off-road bike tracks were visible throughout this area. Closer to Swindell Pond there was an area noticed where persons have been building campfires and drinking. This area was littered with beer cans.

E. Demographics, Land Use, and Natural Resources Use

Demographics

The population of Logan Township was listed as 5,147 in the 1990 U.S. census. The Township

consists of approximately 15,369 acres in northwest Gloucester County, New Jersey and consists of the following towns: Bridgeport; Gibbstown; Paulsboro; Swedesboro Repaupo; and Beckett. A large percentage of the residents are employed by the local industries.

There is at least one daycare center known to be near the BROS site. The facility is located approximately 1/4 mile south and west of the site (Figure # 4, Residential Well #44).

Land Use

The area surrounding the BROS site is predominately rural and agricultural. There is an active peach orchard adjacent to the western border of the site. A truck repair garage is located about 300 feet north east of the site and there are three homes about 800 feet north.

Approximately 1/2 of Logan Township is undeveloped, including marshes, vegetated areas, and woodlands. About 5,200 acres of the Township are covered by privately owned farms that cultivate vegetable crops and fruit. About 500 acres of land is devoted to residential use.

There is another EPA Superfund site located approximately 1200 feet west of the BROS Site (Figure # 5). This site is known as the Chemical Leaman Tank Lines Site (CLTL), and it occupies 31.4 acres in Logan Township. The site includes a 14.1 acre tanker washing terminal, which has been operating since 1960. Contamination of the soil and the groundwater as a result of CLTL's activities has been confirmed. Contaminants largely consist of volatile organic compounds (VOC's).

Natural Resources Use

Residents near the BROS site use groundwater from either private wells or public water supplies for drinking and other household uses. As noted previously, the U.S. Environmental Protection Agency (USEPA) supplied an alternate water supply to 33 residents who reside just north of the site after it was first identified that their water was being contaminated by BROS. A permanent source of water was provided by extension of the public water supply pipeline by April 1987. Most of the residents to the south of the site, including those to the southeast in the projected path of the contamination plume moving in the upper middle aquifer, are utilizing private wells. Both the Upper PRM and Upper Middle PRM aquifers are used for this water source (private water). It is believed that most of these wells draw from the upper PRM aquifer (5).

Seven municipal supply wells lie within 4 miles of the BROS site. Five of the wells are screened within the Middle PRM; however, none of the wells appear to lie within the path of the BROS contaminant plume. Penns Grove Water Company wells in Bridgeport are hydraulically upgradient of the site. The Purulent Water Company wells, which lie southwest of BROS along Raccoon Creek, are hydraulically cross-gradient and are more than 3 miles away.

Only four private wells proximal to the BROS site are screened within the Middle PRM and appear to lie hydraulically downgradient and in the path of the contaminant plume. Wells 40, 43, 44, and 61 (Figure # 4) are screened within the Middle PRM and lie within 1 mile of the southwest boundary of the site. The remaining domestic wells lying to the south-southeast and proximal to the site are screened in the Upper PRM aquifer and surficial Cape May Formation.

There is an active peach orchard directly adjacent to the western border of the lagoon, which according to the local health department, sells peaches for local consumption. It seems likely, although not documented, that water from Gaventa Pond is used as irrigation water for the peach orchard.

According to the Gloucester County Health Department (personal communication) local residents use the two "man-made" ponds, known as Swindell Pond and Gaventa Pond respectively, for swimming and fishing. No information exists, however, on the number of persons swimming or fishing in the area.

The Little Timber Creek flows north along the eastern edge of the BROS site and discharges into a small drainage ditch through a tidal gate north of Route 44. It eventually drains into an unnamed tidal channel that runs along the western edge of Cedar Swamp. Water in the tidal channel finally flows into the Delaware River.

F. Health Outcome Data

There are multiple sources of health outcome data in New Jersey. State and local data for heath outcome information include the New Jersey State Cancer Registry, Birth Defects Registry, Vital Statistics Records, Renal Dialysis Network, and Hospital Discharge Reports. Federal databases such as those maintained by the agencies within the US Department of Health and Human Services (i.e., National Cancer Institute, National Institute for Occupational Safety and Health, and ATSDR) are not site-specific, but may be used for comparison or evaluation purposes.

COMMUNITY HEALTH CONCERNS

Initially, the public was most concerned about drinking water contamination in the direct vicinity of the BROS lagoon, particularly north and west of the site. They were also upset with the amount of time the study of the site was taking before actual remediation of the site was to take place. They felt action should be taken immediately.

A recent well inventory (October 1992) of domestic/residential, commercial, and municipal supply wells that lie towards the south and southeast of the site has generated and renewed local community concern regarding contaminated drinking water. This survey was conducted by the USEPA.

In general, the public was opposed to the idea of on-site incineration. This was due, in part, to negative experience that they had with a nearby hazardous waste incinerator, and a perception that incineration is a poor and inefficient technology.

At least one local resident who lives about 800 feet north of the BROS lagoon had complained about odors emanating from the site.

The owner of Swindell Pond has, in the past, expressed concern about possible contamination of his pond by the adjacent BROS lagoon.

ENVIRONMENTAL CONTAMINATION AND OTHER HAZARDS

The tables in this section list the contaminants of concern. NJDOH evaluates these contaminants in the subsequent sections of the Health Assessment to determine whether exposure to them has public health significance. NJDOH selects and discusses these contaminants based upon the following factors:

1. Concentrations of contaminants on and off the site.
2. Field data quality, laboratory data quality, and sample design.
3. Comparison of on-site and off-site concentrations with health assessment comparison values for (1) noncarcinogenic endpoints and (2) carcinogenic endpoints.
4. Community health concerns.

In the data tables that follow the On-site Contamination subsection and the Off-site Contamination subsection (appendices), the listed contaminant does not mean that it will cause adverse health effects from exposures. When selected as a contaminant of concern in one medium, that contaminant will be reported in all media.

The Data tables include the following acronyms:

- **CREG** = ATSDR Cancer Risk Evaluation Guide
- **EMEG** = ATSDR Environmental Media Evaluation Guide
- **RMEG** = Reference Dose Media Evaluation Guide, calculated from EPA's reference dose (RfD).

- **LTHA** = USEPA's Lifetime Health Advisory
- **NJ MCL** =NJ Maximum Contaminant Level
- **PPB** = Parts Per Billion
- **ND** = Not Detected

Comparison values for public health assessments are contaminant concentrations in specific media that are used to select contaminants for further evaluation. These values include Environmental Media Evaluation Guides (EMEGs), Cancer Risk Evaluation Guides (CREGs), and other relevant guidelines. CREGs are estimated contaminant concentrations based on a one excess cancer in a million persons exposed over a lifetime. CREGs are calculated from EPA's cancer slope factors. Maximum contaminant levels (MCLs) represent contaminant concentrations that New Jersey or a Federal regulatory agency, e.g., EPA, deems protective of public health (considering the availability and economics of water treatment technology) over a lifetime (70 years) at an exposure rate of 2 liters of water per day. MCLs are regulatory concentrations. EPA's Reference Dose (RfD) is an estimate of the daily exposure to a contaminant that is unlikely to cause health effects.

The environmental contamination section includes sampling data from a variety of media sources including: groundwater (monitoring wells and residential wells); surface water; surface soil; subsurface soil; and sediments.

Local residential water supplies in the area of the BROS lagoon are derived primarily from the Upper PRM Aquifer and the Upper Middle PRM Aquifer. Due to this fact, the groundwater section of this public health assessment will focus primarily on these two aquifers.

The Upper PRM Aquifer is the water table aquifer. Originally the movement of groundwater in this aquifer was primarily to the north and west, however, due to the ongoing site remediation the local hydraulic gradient has reversed so that the groundwater currently moves back towards the lagoon (personal communication).

Groundwater flow in the Upper Middle PRM Aquifer is consistently toward the southeast, regardless of tidal
stage or season. Contaminant concentration in this aquifer is strongest (most contaminants, highest concentration) towards the southeast, along the direction of the groundwater flow.

As of the writing of this report the extent of the contaminant plume in the Upper Middle PRM Aquifer has not been delineated (6). The conservative estimate of the distance of contaminant transport from the lagoon in the Upper Middle PRM Aquifer was calculated to be 5,000 feet, based on 40 years of travel time and an average of the hydraulic conductivity of this aquifer. Swedesboro-Paulsboro Road is about 5,000 feet from the BROS lagoon.

TABLE # 3. CONTAMINANTS OF CONCERN; ON-SITE GROUNDWATER MONITORING WELLS; BROS SITE, LOGAN TWP., NJ., CONTAMINANTS *WITH* COMPARISON VALUES.

CONTAMINANT	CONCENTRATION RANGE-PPB		DATE	REF	COMPARISON VALUE	
	SHALLOW	DEEP			PPB	SOURCE
1,2-Dibromo-3-chloro-propane	ND-10	ND	9/90	5	20	EMEG
Benzene	ND-810	ND-95	9/90	5	1.2	CREG
Acetone	ND-77	17-33,000	9/90	5	1000	RMEG
1,1 Dichloroethene	ND	ND	9/90	5	.06	CREG
Cis-1,2 Dichloro-ethene	ND-3	ND-100	9/90	5	70	LTHA
1,2 Dichloroethane	ND	ND	9/90	5	0.4	CREG
Methylene Chloride	ND-70	ND-579	9/90	5	5	CREG
Trichloroethene	ND	ND-1000	9/90	5	3	CREG
Tetrachloroethene	ND-2	ND-25	9/90	5	0.7	CREG
1,1,2,2-Tetrachloroethane	ND	ND	9/90	5	0.2	CREG
Vinyl Chloride	ND	ND	9/90	5	0.2	EMEG
Benzo (A) Pyrene	ND-15	ND	9/90	5	.005	CREG
BEHP	ND-120	ND	9/90	5	3	CREG
BCEE	ND-11	ND-780	9/90	5	.03	CREG
Isophorone	ND-35	ND-1300	9/90	5	9	CREG
Naphthalene	ND-180	ND-25	9/90	5	20	LTHA
Manganese	292-6040	79.1-6240	9/90	5	50	RMEG
Barium	ND-1200	ND	9/90	5	700	RMEG
Zinc	ND	ND-567,000	9/90	5	3000	RMEG
Chromium	120-1730	ND	9/90	5	10	NJ MCL

* = Concentration range given for both the shallow and the deep aquifers

ND = Not Detected

Source: Phase II RI/FS

TABLE # 4. CONTAMINANTS OF CONCERN; OFF-SITE GROUNDWATER; BROS SITE, LOGAN TWP.,NJ. CONTAMINANTS *WITH* COMPARISON VALUES.

CONTAMINANT	CONCENTRATION RANGE: PPB		DATE	REF.	COMPARISON VALUE	
	SHALLOW	DEEP			PPB	SOURCE
1,2-Dibromo-3- chloro-propane	ND	ND	9/90	5	20	EMEG
Benzene	ND	ND-30	9/90	5	1.2	CREG
Acetone	ND-630	ND-3500	9/90	5	1000	RMEG
1,1 Dichloroethene	ND	ND-.9	9/90	5	.06	CREG
Cis-1,2 Dichloro-ethene	ND	ND-28	9/90	5	70	LTHA
1,2 Dichloroethane	ND	ND-17	9/90	5	0.4	CREG
Methylene Chloride	ND-16	ND	9/90	5	5	CREG
Trichloroethene	ND	ND-35	9/90	5	3	CREG
Tetrachloroethene	ND	ND-3	9/90	5	0.7	CREG
1,1,2,2-Tetrachloroethane	ND	ND-2	9/90	5	0.2	CREG
Vinyl Chloride	ND	ND-37	9/90	5	0.2	EMEG
Benzo (A) Pyrene	ND	ND	9/90	5	.005	CREG
BEHP	1-5	ND-2	9/90	5	3	CREG
* BCEE	ND	ND-380	9/90	5	.03	CREG
Isophorone	ND	ND-1	9/90	5	9	CREG
Naphthalene	ND	ND-5	9/90	5	20	LTHA
Manganese	249-2040	ND-293	9/90	5	50	RMEG
Barium	ND	ND	9/90	5	700	RMEG
Zinc	ND	ND-16,800	9/90	5	3000	RMEG
Chromium	ND-234	ND	9/90	5	10	NJ MCL

* = Concentration range given for both the shallow and the deep aquifers

ND = Not Detected

Source: Phase II RI/FS

TABLE # 5. RANGE OF CONTAMINANTS IN ON-SITE GROUNDWATER, CONTAMINANTS *WITHOUT* ATSDR COMPARISON VALUES.

CONTAMINANT	CONCENTRATION RANGE (PPB)*		REFERENCE
	SHALLOW	DEEP	
1,2,4 Trimethylbenzene	ND-360	ND	5
1,3,5 Trimethylbenzene	ND-250	ND	5
1,2 Dibromoethane	ND-36	ND	5
2-Butanone	ND-27	ND-2	5
2-Hexanone	ND-93	ND	5
N-Propylbenzene	ND-59	ND	5
N-Butylbenzene	ND-28	ND	5
P-Isopropyltoluene	ND-15	ND	5
Sec-Butylbenzene	ND-5	ND	5
2-Methylnapthalene	ND-74	ND	5
4-Methylphenol	ND-130	ND-160	5
Benzo (B) Fluoranthrene	ND-13	ND	5
Chrysene	ND-32	ND	5
Di-N-Octylphthalate	ND-12	ND	5
Dibenzofuran	ND-16	ND	5
Phenanthrene	ND-130	ND	5
Benzylalcohol	ND-2,800	ND	5
4-methyl-2-Pentanone	ND	ND-2,000	5
Lead	ND-1380	ND-2920	5

* = Concentration range given for both the shallow and the deep aquifers

ND = Not Detected

Source: Phase II RI/FS

TABLE # 6. RANGE OF CONTAMINANTS IN OFF-SITE GROUNDWATER, CONTAMINANTS *WITHOUT* ATSDR COMPARISON VALUES.

CONTAMINANT	CONCENTRATION RANGE (PPB)		REFERENCE
	SHALLOW	DEEP	
1,2,4 Trimethylbenzene	ND-11	ND-3	5
1,3,5 Trimethylbenzene	ND	ND-.7	5
1,2 Dibromoethane	ND	ND	5
2-Butanone	ND	ND-.5	5
2-Hexanone	ND	ND	5
N-Propylbenzene	ND	ND	5
N-Butylbenzene	ND	ND	5
P-Isopropyltoluene	ND	ND	5
Sec-Butylbenzene	ND	ND	5
2-Methylnapthalene	ND	ND	5
4-Methylphenol	ND	ND	5
Benzo (B) Fluoranthrene	ND	ND	5
Chrysene	ND	ND	5
Di-N-Octylphthalate	ND	ND	5
Dibenzofuran	ND	ND	5
Phenanthrene	ND	ND	5
Benzylalcohol	ND	ND	5
4-methyl-2-Pentanone	ND	ND	5
Lead	ND-140	ND-55.6	5

* = Concentration range given for both the shallow and the deep aquifers

ND = Not Detected

Source: Phase II RI/FS

TABLE # 7. CONTAMINANTS IN 11 OFF-SITE RESIDENTIAL GROUNDWATER (1983 TO 1985).

CONTAMINANT	CONCENTRATION PPB	COMPARISON VALUE (CV)		
		PPB	SOURCE	CV EXCEEDED?
trans 1,2-DCE	20	200	RMEG	NO
1,2-DCA	1.9	0.4	CREG	YES
1,2-dichloro-propane	7.1	.005	MCL	YES
1,1-DCA	1.9			NA
vinyl chloride	170	0.2	EMEG	YES
NA = NOT AVAILABLE				

Table # 8. RANGE OF CONTAMINATION IN Off-SITE GROUNDWATER, RESIDENTIAL WELLS, SEPTEMBER 1992.*

WELL#	CONTAMINANT	LEVEL PPB	DATE	REF	COMPARISON VALUE	
					PPB	SOURCE
RW-40	Cis-1,2-dichloro-ethane	9	10/92	15	70	LTHA
RW-40	Trichloroethene	120	10/92	15	3	CREG
RW-65	Dieldrin	.025	10/92	15	.002	CREG
RW-44	Aroclor 1260	0.8	10/92	15	.002	MCL

* Resampling of contaminated wells by the USEPA in 1993 was not able to confirm the presence of the contaminants shown in table.

Exhibit 10

PRGs Delaware Sand & Gravel

Exhibit 11

Artesian November 2000 BCEE Incident

Exhibit 12

Artesian Llangollen 2003 PWSSWA

PRGs Delaware Sand and Gravel

EPA/ROD/R03-88/048
1988

EPA Superfund
Record of Decision:

DELAWARE SAND & GRAVEL LANDFILL
EPA ID: DED000605972
OU 01
NEW CASTLE, DE
04/22/1988

TABLE 7

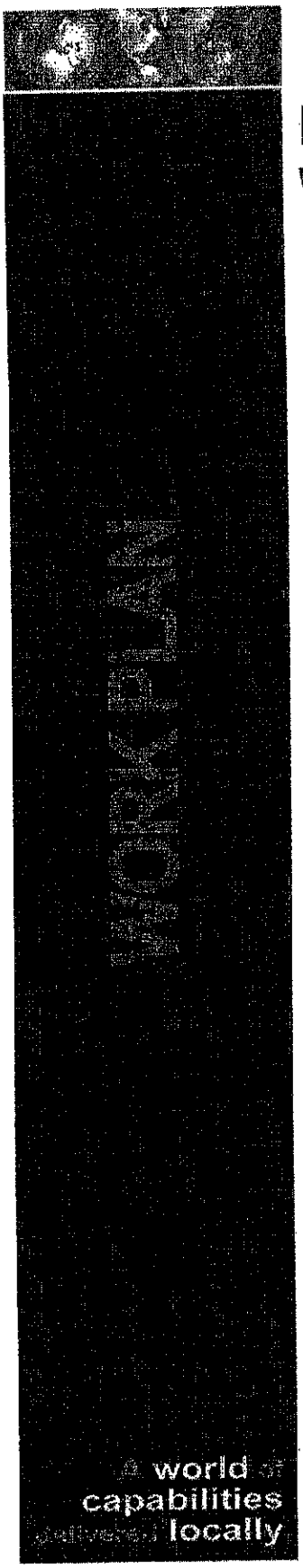
COMPOUND	ACCEPTABLE WATER EXPOSURE (UG/1)	SOURCE	KOC
TOLUENE (9)	2000	MCLG	300
METHYLENE CHLORIDE	0.7	CAGUCR	8.8
ACETONE (9)	3500	SPHEM	2.2
4-METHYL-2PENTANONE (9)	1750	IRIS (AIC)	4.5**
ETHYLBENZENE (9)	680	MCLG	1100
1,2-DICHLOROETHANE	5	MCL	14
XYLENE (9)	2	MCL	240
PHENOL (9)	3500	IRIS (ORAL) (RFD)	14.2
BIS (2-CHLOROETHYL) ETHER	0.03	(10-6) RISK	13.9
NAPHTHALENE (8)	400	ENVIRON RFD	1072 A
4-METHYLPHENOL (9)	1750	SPHEM	246 A
2-METHYLPHENOL (9)	1750	SPHEM	* A
2-BUTANONE	1750	IRIS	35

1 ACCEPTABLE SOIL CONCENTRATIONS CALCULATED FROM PRODUCT OF ACCEPTABLE WATER EXPOSURE AND KOC VALUE, FOLLOWED BY TEN-FOLD ALLOWANCE FOR DILUTION, I.E. (ACCEPTABLE WATER EXPOSURE) X (KOC) X (10)

A = KOC CALCULATED FROM KOC/KOW RELATIONSHIPS REPORTED IN LYMAN ETAL.(1982)
EQUATION FOR NAPTHALENE: LOG KOC = 1.00 LOG KOW - 0.21
EQUATION FOR 4-METHYLPHENOL: LOG KOC = 0.544 LOG KOW + 1.377

* = NO KOW DATA AVAILABLE FOR 2-METHYLPHENOL; ASSUME VALUE SIMILAR TO 4-METHYLPHENOL

** = NO KOW DATA AVAILABLE - ASSUME VALUE SIMILAR TO MIBK PEROXIDE



FEASIBILITY STUDY WORK PLAN – REVISION 2

Delaware Sand & Gravel Superfund Site
New Castle, Delaware

Submitted To: United States Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029 USA

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October 2011
Revision 2

Project No.: 013-6052-006

Golder Associates

(3)

Table 7-1: Preliminary Remediation Goals for Groundwater
Delaware Sand & Gravel Superfund Site
New Castle, Delaware

Contaminant of Concern	Preliminary Remediation Goal (µg/L)	Maximum Contaminant Level (µg/L)
Benzene	5	5
bis(2-Chloroethyl)ether	0.1	0.1*
bis(2-Ethylhexyl)phthalate	6	6
1,2-Dichloroethane	5	5
cis-1,2-Dichloroethene	11	70
Ethylbenzene	30	700
Toluene	460	1,000
Tetrachloroethene	0.8	5
Trichloroethene	0.18	5
Vinyl chloride	2	2
Iron	10,900	300**
Manganese	1,900	50**

Notes:
1) Preliminary Remediation Goals for Groundwater for Delaware Sand & Gravel Landfill Operable Unit 6 as provided by USEPA on June 29, 2011
2) PRG = preliminary remediation goal
3) MCL = maximum contaminant level
4) * indicates Delaware's Interim Advisory Level for BCEE in drinking water
5) ** indicates Secondary MCL
6) µg/L = micrograms per liter

Prepared by: RWB
Checked by: TAM

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FOR IMMEDIATE RELEASE
Contact: Joseph A. DiNunzio
(302) 453-6900

ARTESIAN'S WATER NEVER UNSAFE TO DRINK BASED ON EXISTING EPA STANDARDS

NOVEMBER 11, 2000—Artesian Water Company today disputed the characterization in a November 11, 2000 News Journal report that the water Artesian has provided to the public was unsafe. Artesian supplied water to its customers within the parameters for safe water as established by the Environmental Protection Agency (EPA). Dian C. Taylor, CEO & President of Artesian, stated that "We are dedicated to providing quality water, and we will continue to do what is necessary to ensure a safe, reliable water supply for all our customers. We are available and prepared, upon request, to meet with any civic association, maintenance corporation and/or community group to answer any further questions."

On November 1, 2000, Artesian voluntarily removed its Llangollen well field from service immediately upon notice from the Delaware Division of Public Health (DPH) that levels of bis (2-chloroethyl) ether (BCEE) exceeded the EPA's action level of 0.96 parts per billion, which has been the level set for the protection of public health and the environment.

According to DPH, exposure to BCEE at this low concentration causes no short-term health effects. This compound also does not accumulate in the human body. It metabolizes rapidly and passes out of the body in urine. The DPH has issued an Information Sheet on BCEE which may be obtained by contacting them.

The possible effects of long-term exposure to BCEE are based upon limited studies on mice that indicated a possible increase in risk for liver

tumors. Based on these limited studies, the EPA has concluded that a person drinking two liters of water per day for a period of 30 years might have a 1 in 10,000 increased risk for such cancer. Based on these studies, the EPA has classified BCEE as a "probable human carcinogen" if consumed at the rate of the two liter of water per day for a period of 30 years. According to the International Agency for Cancer Research (IARC), there is "inadequate evidence for carcinogenicity in humans" from exposure to BCEE based on the studies performed to date. The IARC classification of "inadequate evidence" is because, per IARC: "The available studies are of insufficient quality, consistency or statistical power to permit a conclusion regarding the presence or absence of a causal association between exposure and cancer, or no data on cancer in humans are available."

Artesian acted to remove its Llangollen well field from service immediately upon notification of levels of BCEE of 1.0 ppb, just above the EPA's action level of 0.96 ppb in order to assure protection of public health under standards set in an appropriately conservative manner by EPA. Artesian is proceeding with the installation of an activated carbon treatment system, which will eliminate BCEE from any water supplied to its customers.

After Artesian's voluntary removal of its well field from service, DPH has proposed a new and much more conservative drinking water standard for Delaware of 0.096 ppb for BCEE. DPH did not propose this more conservative standard when first notified of the presence of BCEE in Artesian's drinking water in April 2000, nor at meetings held with EPA Region 3, DPH and Artesian in June 2000 and with EPA Region 3, DPH, Artesian and the Delaware Department of Natural Resources and Environmental Control on October 11, 2000. The proposed standard does not mean that water was unsafe at the standard of 0.96 ppb applied by EPA and followed by Artesian. Artesian expects that this proposed standard will apply to all drinking water in Delaware once approved in the course of the normal regulatory standard setting process.

The use of carbon treatment to remove chemicals such as BCEE is the only approved industry practice and is approved by the National Sanitation Foundation. The DPH has committed to expedite their review and approval required for the installation of this treatment system.

Artesian expects that installation of the treatment equipment at the Llangollen site will begin the week of November 27 and that the well field will be back in service by the end of the year after test results confirm the absence of BCEE in water delivered to customers.

Artesian regularly tests its water for more than 130 regulated and unregulated substances. As required by the Federal Safe Drinking Water Act, Artesian reports any detection of these substances in a "Water Quality Report" that is distributed to all customers. This report is published in the spring and includes all testing results from the previous year. A copy of our latest Water Quality Report may be found on our web site, or you may call our Customer Service Department at (302) 453-6930.

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Public Water Supply
Source Water Assessment
for

Artesian Water Co. (Llangollen)

PWS ID: DE0000552

New Castle County, Delaware

Final Report: December 31, 2003

State of Delaware
Department of Natural Resources and Environmental Control
Division of Water Resources
Source Water Assessment and Protection Program
89 Kings Highway
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Artesian Water Company

Llangollen Wellfield

Well Number	Sample Date	Contaminant Class	Analyte	Sample Result µg/l*	(P/S)MCL** *If applicable µg/l	(P/S)MCL Violation?	Greater than 50% of MCL	Synthetic Substance Detection?
Well 2 (35081)	8/22/2001	Other Organics	BCEE (Bis(2-chloroethyl) Ether)	0.044	0.096[B]			Yes
	8/22/2001	Other Organics	Chloroform	0.2J	80[A]			Yes
	8/22/2001	Pesticides	Dacthal	0.75	37[B]			Yes
	8/22/2001	Petroleum Hydrocarbons	MTBE	1.0	10			Yes
	8/22/2001	Other Inorganics	pH	6.04	6.5-8.5 units			

Well Number	Sample Date	Contaminant Class	Analyte	Sample Result µg/l*	(P/S)MCL** *If applicable µg/l	(P/S)MCL Violation?	Greater than 50% of MCL	Synthetic Substance Detection?
Well 7 (10049)	8/22/2001	Other Organics	Cis-1,2-DCE (Cis-1,2-Dichloroethylene)	0.2J	70			Yes
	8/22/2001	Other Organics	1,2-DCA (1,2-Dichloroethane)	6.0	5			
	8/22/2001	Other Organics	Trichlorofluoromethane	2.4	80[A]			Yes
	8/22/2001	Other Organics	Bromoform	0.2J	80[A]			Yes
	8/22/2001	Other Organics	Chloroform	0.2J	80[A]			Yes
	8/22/2001	Other Organics	BCEE (Bis(2-chloroethyl) Ether)	0.6	0.096[B]			
	8/22/2001	Other Organics	PCE (Tetrachloroethylene)	5.8	5			
	8/22/2001	Pesticides	Dacthal	1.1	37[B]			Yes
	8/22/2001	Petroleum Hydrocarbons	MTBE	0.1J	10			Yes
	8/22/2001	Other Inorganics	pH	5.76	6.5-8.5 units			

Well Number	Sample Date	Contaminant Class	Analyte	Sample Result µg/l*	(P/S)MCL** *If applicable µg/l	(P/S)MCL Violation?	Greater than 50% of MCL	Synthetic Substance Detection?
Well G-3 (10050)	8/22/2001	Other Organics	Cis-1,2-DCE (Cis-1,2-Dichloroethylene)	0.1J	70			Yes
		Other Organics	1,1-DCA (1,1-Dichloroethane)	0.1J	5			Yes
	8/22/2001	Other Organics	1,2-DCA (1,2-Dichloroethane)	0.4J	5			Yes
		Other Organics	Chlorobenzene	0.4J	100			Yes
		Other Organics	Diethyl Ether	0.6J	N/A			Yes
	8/22/2001	Other Organics	Trichlorofluoromethane	2.4	80[A]			Yes
	8/22/2001	Other Organics	Bromoform	1.7	80[A]			Yes
		Other Organics	Dibromochloromethane	0.6	80[A]			Yes
	8/22/2001	Other Organics	Bromodichloromethane	0.2J	80[A]			Yes
	8/22/2001	Other Organics	BCEE (Bis(2-chloroethyl) Ether)	3.05	0.096[B]			
	8/22/2001	Other Organics	TCE (Trichloroethylene)	1.7	5			Yes
	8/22/2001	Pesticides	Dacthal	0.17	37[B]			Yes
	8/22/2001	Other Inorganics	pH	5.76	6.5-8.5 units			

Well Number	Sample Date	Contaminant Class	Analyte	Sample Result µg/l*	(P/S)MCL** *If applicable µg/l	(P/S)MCL Violation?	Greater than 50% of MCL	Synthetic Substance Detection?
Well K-1 (10052)	8/22/2001	Other Organics	BCEE (Bis(2-chloroethyl) Ether)	0.010	0.096[B]			Yes
	8/22/2001	Other Organics	TCE (Trichloroethylene)	2.4	5			Yes
	8/22/2001	Other Organics	Carbon Tetrachloride	0.1J	80[A]			Yes
	8/22/2001	Other Inorganics	pH	5.51	6.5-8.5 units			

Well Number	Sample Date	Contaminant Class	Analyte	Sample Result µg/l*	(P/S)MCL** *If applicable µg/l	(P/S)MCL Violation?	Greater than 50% of MCL	Synthetic Substance Detection?
Well ASR (156408)	8/22/2001	Other Organics	Dibromochloromeithane	3.4	80[A]			Yes
	8/21/2001	Other Organics	Bromodichloromethane	1.1	80[A]			
	8/22/2001	Other Organics	Bromoform	7.1	80[A]			Yes
	8/22/2001	Other Organics	Chloroform	0.3J	80[A]			Yes
	8/22/2001	Other Organics	BCEE (Bis(2-chloroethyl) Ether)	0.0296	0.096[B]			Yes
	8/22/2001	Other Inorganics	pH	6.28	6.5-8.5 units			

*: Results are in micrograms/liter unless listed otherwise
**: PMCL = Primary Maximum Contaminant Level, SMCL = Secondery Maximum Contaminant Level
A: Bromoform, Chloroform, Bromodichloromethane, Dibromochloromethane, and Trichlorofluoromethane are constituents of the Trihalomethane Group which has a total PMCL of 80 µg/l.
B: Delaware Uniform Risk-Based Standard or Proposed State-instituted MCL
C: pH is a widespread problem in Delaware that will not be used to adjust susceptibility
J: Laboratory Qualifier indicating that substance was present though the quantity is at levels just above the detection limits of the equiment.