ANALYSIS DATA SHEET

LNC-014-DS-SB2-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-09 File ID: 022F2201.D

Sampled: 05/06/13 12:45 Prepared: 05/20/13 12:19 Analyzed: 05/23/13 05:06

Solids: 78.85 Preparation: EXT 3546 Dilution: 1

Batch: 3E17023 Sequence: 3E14606 Calibration: 3143004 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.30	8.30	16.5	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.651	1.490	90.3	35 - 140	

ANALYSIS DATA SHEET

LNC-014-DS-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-09	File ID:	007F0701.D		
Sampled:	05/06/13 12:45	Prepared:	05/18/13 17:28	Analyzed:	05/18/13 21:52		
Solids:	78.85	Preparation:	8015GRO	Dilution:	1		
Batch:	3E18011	Sequence:	3E14307	Calibration:	3044001	Instrument:	GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.70	7.39	11.1	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.695	4.353	118	50 - 150	X

ANALYSIS DATA SHEET

LNC-014-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Solid	Laboratory ID: 1305125-10RE1	File ID:	0512510R.D	
Sampled:	05/06/13 12:55	Prepared: 05/20/13 00:00	Analyzed:	05/20/13 11:38	
Solids:	71.34	Preparation: 5035A	Dilution:	1	
Batch:	3E20008	Sequence: 3E14106	Calibration:	3140003	Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone	99.6	7.33	14.7	29.3	R X ~~J~~	C05, F12
71-43-2	Benzene		1.83	3.67	7.33	U	U
74-97-5	Bromochloromethane		1.83	3.67	7.33	U	
75-27-4	Bromodichloromethane		1.83	3.67	7.33	U	
75-25-2	Bromoform		1.83	3.67	7.33	U	
74-83-9	Bromomethane		3.67	7.33	14.7	U	
78-93-3	2-Butanone	23.2	3.67	7.33	14.7	X J	C05
75-15-0	Carbon disulfide		1.83	3.67	7.33	U	U
56-23-5	Carbon tetrachloride		1.83	3.67	7.33	U	
108-90-7	Chlorobenzene		1.83	3.67	7.33	U	
75-00-3	Chloroethane		3.67	7.33	14.7	U	
67-66-3	Chloroform		1.83	3.67	7.33	U	
74-87-3	Chloromethane		3.67	7.33	14.7	U	
110-82-7	Cyclohexane		1.83	3.67	7.33	U	
124-48-1	Dibromochloromethane		1.83	3.67	7.33	U	
96-12-8	1,2-Dibromo-3-chloropropane		3.67	7.33	14.7	U	
106-93-4	1,2-Dibromoethane (EDB)		1.83	3.67	7.33	U	
95-50-1	1,2-Dichlorobenzene		1.83	3.67	7.33	U	
541-73-1	1,3-Dichlorobenzene		1.83	3.67	7.33	U	
106-46-7	1,4-Dichlorobenzene		1.83	3.67	7.33	U	
75-71-8	Dichlorodifluoromethane		3.67	7.33	14.7	U	
75-34-3	1,1-Dichloroethane		1.83	3.67	7.33	U	
107-06-2	1,2-Dichloroethane		1.83	3.67	7.33	U	
75-35-4	1,1-Dichloroethene		1.83	3.67	7.33	U	
156-59-2	cis-1,2-Dichloroethene		1.83	3.67	7.33	U	
156-60-5	trans-1,2-Dichloroethene		1.83	3.67	7.33	U	
78-87-5	1,2-Dichloropropane		1.83	3.67	7.33	U	
10061-01-5	cis-1,3-Dichloropropene		1.83	3.67	7.33	U	
10061-02-6	trans-1,3-Dichloropropene		1.83	3.67	7.33	U	
100-41-4	Ethylbenzene		1.83	3.67	7.33	U	
591-78-6	2-Hexanone		3.67	7.33	14.7	UXO	
98-82-8	Isopropylbenzene		1.83	3.67	7.33	U	
75-09-2	Methylene chloride	215	3.67	7.33	14.7		~~J~~ R, F12
79-20-9	Methyl Acetate		3.67	7.33	14.7	U	U
108-87-2	Methylcyclohexane		1.83	3.67	7.33	U	
108-10-1	4-Methyl-2-pentanone		3.67	7.33	14.7	U	
1634-04-4	Methyl t-Butyl Ether		1.83	3.67	7.33	U	
100-42-5	Styrene		1.83	3.67	7.33	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.83	3.67	7.33	U	
127-18-4	Tetrachloroethene		1.83	3.67	7.33	U	

JW 06/12/2013

ANALYSIS DATA SHEET

LNC-014-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-10RE1	File ID:	0512510R.D		
Sampled:	05/06/13 12:55	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 11:38		
Solids:	71.34	Preparation:	5035A	Dilution:	1		
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene		1.83	3.67	7.33	U
87-61-6	1,2,3-Trichlorobenzene		1.83	3.67	7.33	U
120-82-1	1,2,4-Trichlorobenzene		1.83	3.67	7.33	U
79-00-5	1,1,2-Trichloroethane		1.83	3.67	7.33	U
71-55-6	1,1,1-Trichloroethane		1.83	3.67	7.33	U
79-01-6	Trichloroethene		1.83	3.67	7.33	U
75-69-4	Trichlorofluoromethane		3.67	7.33	14.7	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.67	7.33	14.7	U
75-01-4	Vinyl chloride		1.83	3.67	7.33	U
108-38-3/106-42-	m,p-Xylene		3.67	7.33	14.7	U
95-47-6	o-Xylene		1.83	3.67	7.33	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	43.99	42.86	97.4	85 - 120	
Dibromofluoromethane	43.99	47.10	107	80 - 125	
1,2-Dichloroethane-d4	43.99	48.08	109	75 - 140	
Toluene-d8	43.99	45.12	103	85 - 115	

ANALYSIS DATA SHEET

LNC-014-DS-SB2-02

Laboratory: Empirical Laboratories, LLC | SDG: 1305125
Client: SAIC (S732) | Project: Lincoln NE ANG
Matrix: Solid | Laboratory ID: 1305125-10 | File ID: 0512510.D
Sampled: 05/06/13 12:55 | Prepared: 05/20/13 16:00 | Analyzed: 06/02/13 04:53
Solids: 71.34 | Preparation: EXT 3546 | Dilution: 1
Batch: 3E17014 | Sequence: 3F15504 | Calibration: 2261001 | Instrument: MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
98-86-2	Acetophenone		112	224	447	U UJ/A01
1912-24-9	Atrazine		112	224	447	U
100-52-7	Benzaldehyde		112	224	447	U
92-52-4	1,1-Biphenyl		112	224	447	U
101-55-3	4-Bromophenyl-phenylether		112	224	447	U
85-68-7	Butylbenzylphthalate		112	224	447	U
105-60-2	Caprolactam		112	224	447	UXQ
86-74-8	Carbazole		112	224	447	U
59-50-7	4-Chloro-3-methylphenol		112	224	447	U
106-47-8	4-Chloroaniline		112	224	447	U
111-91-1	Bis(2-chloroethoxy)methane		112	224	447	U
111-44-4	Bis(2-chloroethyl)ether		112	224	447	UQ
108-60-1	2,2'-Oxybis-1-chloropropane		112	224	447	U
91-58-7	2-Chloronaphthalene		112	224	447	U
95-57-8	2-Chlorophenol		112	224	447	U
7005-72-3	4-Chlorophenyl phenyl ether		112	224	447	U
132-64-9	Dibenzofuran		112	224	447	U
84-74-2	Di-n-butylphthalate		112	224	447	U
91-94-1	3,3'-Dichlorobenzidine		112	224	447	U
120-83-2	2,4-Dichlorophenol		112	224	447	U
84-66-2	Diethylphthalate		112	224	447	U
105-67-9	2,4-Dimethylphenol		447	896	1790	U
131-11-3	Dimethyl phthalate		112	224	447	U
534-52-1	4,6-Dinitro-2-methylphenol		1120	2240	4470	U
51-28-5	2,4-Dinitrophenol		1120	2240	4470	U
121-14-2	2,4-Dinitrotoluene		112	224	447	U
606-20-2	2,6-Dinitrotoluene		112	224	447	U
117-84-0	Di-n-octylphthalate		112	224	447	U
117-81-7	Bis(2-ethylhexyl)phthalate		112	224	447	U
118-74-1	Hexachlorobenzene		112	224	447	U
87-68-3	Hexachlorobutadiene		112	224	447	U
77-47-4	Hexachlorocyclopentadiene		112	224	447	U
67-72-1	Hexachloroethane		112	224	447	U
78-59-1	Isophorone		112	224	447	U
95-48-7	2-Methylphenol		112	224	447	U
106-44-5	4-Methylphenol		112	224	447	UQ
100-01-6	4-Nitroaniline		447	896	1790	U
99-09-2	3-Nitroaniline		447	896	1790	U
88-74-4	2-Nitroaniline		447	896	1790	U
98-95-3	Nitrobenzene		112	224	447	U

ANALYSIS DATA SHEET

LNC-014-DS-SB2-02

Laboratory: Empirical Laboratories, LLC — SDG: 1305125
Client: SAIC (S732) — Project: Lincoln NE ANG
Matrix: Solid — Laboratory ID: 1305125-10 — File ID: 0512510.D
Sampled: 05/06/13 12:55 — Prepared: 05/20/13 16:00 — Analyzed: 06/02/13 04:53
Solids: 71.34 — Preparation: EXT 3546 — Dilution: 1
Batch: 3E17014 — Sequence: 3F15504 — Calibration: 2261001 — Instrument: MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		447	896	1790	U UJ AD1
88-75-5	2-Nitrophenol		112	224	447	U
86-30-6	N-Nitrosodiphenylamine		112	224	447	U
621-64-7	N-Nitroso-di-n-propylamine		112	224	447	U
87-86-5	Pentachlorophenol		447	896	1790	U
108-95-2	Phenol		112	224	447	U
95-94-3	1,2,4,5-Tetrachlorobenzene		112	224	447	U
58-90-2	2,3,4,6-Tetrachlorophenol		112	224	447	U
88-06-2	2,4,6-Trichlorophenol		112	224	447	U
95-95-4	2,4,5-Trichlorophenol		112	224	447	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4478	3632	81.1	45 - 105	
2-Fluorophenol	8957	8044	89.8	35 - 105	
Nitrobenzene-d5	4478	3572	79.8	35 - 100	
Phenol-d6	8957	8137	90.8	40 - 100	
Terphenyl-d14	4478	3970	88.6	30 - 125	
2,4,6-Tribromophenol	8957	7289	81.4	35 - 125	

ANALYSIS DATA SHEET

LNC-014-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-10	File ID:	0512510.D		
Sampled:	05/06/13 12:55	Prepared:	05/20/13 16:00	Analyzed:	06/06/13 00:09		
Solids:	71.34	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E17014	Sequence:	3F15708	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		2.24	4.47	8.96	U UJ
208-96-8	Acenaphthylene		2.24	4.47	8.96	U UJ
120-12-7	Anthracene		2.24	4.47	8.96	U UJ
56-55-3	Benzo(a)anthracene	5.94	2.24	4.47	8.96	J J
50-32-8	Benzo(a)pyrene	4.49	2.24	4.47	8.96	J J
205-99-2	Benzo(b)fluoranthene	8.09	2.24	4.47	8.96	J J
191-24-2	Benzo(g,h,i)perylene	4.67	2.24	4.47	8.96	J J
207-08-9	Benzo(k)fluoranthene	4.55	2.24	4.47	8.96	J J
123-91-1	1,4-Dioxane		11.2	22.4	44.7	U UJ
218-01-9	Chrysene	10.7	2.24	4.47	8.96	J
53-70-3	Dibenz(a,h)anthracene		2.24	4.47	8.96	U UJ
206-44-0	Fluoranthene	22.0	2.24	4.47	8.96	J
86-73-7	Fluorene		2.24	4.47	8.96	U UJ
193-39-5	Indeno(1,2,3-cd)pyrene	5.35	2.24	4.47	8.96	J J
91-57-6	2-Methylnaphthalene	4.81	2.24	4.47	8.96	J J
91-20-3	Naphthalene	21.7	2.24	4.47	8.96	J
85-01-8	Phenanthrene	17.9	2.24	4.47	8.96	J
129-00-0	Pyrene	12.6	2.24	4.47	8.96	J

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4478	3663	81.8	45 - 105	
Terphenyl-d14	4478	3647	81.4	30 - 125	
2,4,6-Tribromophenol	8957	7771	86.8	35 - 125	

ANALYSIS DATA SHEET

LNC-014-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-10	File ID:	023F2301.D		
Sampled:	05/06/13 12:55	Prepared:	05/20/13 12:19	Analyzed:	05/23/13 05:40		
Solids:	71.34	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E17023	Sequence:	3E14606	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		9.15	9.15	18.2	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.820	1.963	108	35 - 140	

ANALYSIS DATA SHEET

LNC-014-DS-SB2-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-10 File ID: 008F0801.D

Sampled: 05/06/13 12:55 Prepared: 05/18/13 17:28 Analyzed: 05/18/13 22:33

Solids: 71.34 Preparation: 8015GRO Dilution: 1

Batch: 3E18011 Sequence: 3E14307 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.40	6.79	10.2	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.396	4.232	125	50 - 150	X

ANALYSIS DATA SHEET

LNC-014-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID:	1305125-11	File ID:	0512511D.D
Sampled:	05/07/13 14:50	Prepared:	05/18/13 14:45	Analyzed:	05/18/13 14:45
Solids:		Preparation:	5030B	Dilution:	5
Batch:	3E18005	Sequence:	3E14033	Calibration:	3127004
Instrument:	MS-VOA5				

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		12.5	25.0	50.0	U
71-43-2	Benzene		1.25	2.50	5.00	U
74-97-5	Bromochloromethane		1.25	2.50	5.00	U
75-27-4	Bromodichloromethane		1.25	2.50	5.00	U
75-25-2	Bromoform		1.25	2.50	5.00	U
74-83-9	Bromomethane		2.50	5.00	10.0	U
78-93-3	2-Butanone		12.5	25.0	50.0	U
75-15-0	Carbon disulfide		1.25	2.50	5.00	U
56-23-5	Carbon tetrachloride		1.25	2.50	5.00	U
108-90-7	Chlorobenzene		1.25	2.50	5.00	U
75-00-3	Chloroethane		2.50	5.00	10.0	UX
67-66-3	Chloroform		1.25	2.50	5.00	U
74-87-3	Chloromethane		1.25	2.50	5.00	U
110-82-7	Cyclohexane		1.25	2.50	5.00	U
124-48-1	Dibromochloromethane		1.25	2.50	5.00	U
96-12-8	1,2-Dibromo-3-chloropropane		2.50	5.00	10.0	U
106-93-4	1,2-Dibromoethane (EDB)		1.25	2.50	5.00	U
95-50-1	1,2-Dichlorobenzene		1.25	2.50	5.00	U
541-73-1	1,3-Dichlorobenzene		1.25	2.50	5.00	U
106-46-7	1,4-Dichlorobenzene		1.25	2.50	5.00	U
75-71-8	Dichlorodifluoromethane		2.50	5.00	10.0	U
75-34-3	1,1-Dichloroethane		1.25	2.50	5.00	U
107-06-2	1,2-Dichloroethane		1.25	2.50	5.00	U
75-35-4	1,1-Dichloroethene		1.25	2.50	5.00	U
156-59-2	cis-1,2-Dichloroethene		1.25	2.50	5.00	U
156-60-5	trans-1,2-Dichloroethene		1.25	2.50	5.00	U
78-87-5	1,2-Dichloropropane		1.25	2.50	5.00	U
10061-01-5	cis-1,3-Dichloropropene		1.25	2.50	5.00	U
10061-02-6	trans-1,3-Dichloropropene		1.25	2.50	5.00	U
100-41-4	Ethylbenzene		1.25	2.50	5.00	U
591-78-6	2-Hexanone		6.25	12.5	25.0	U
98-82-8	Isopropylbenzene		1.25	2.50	5.00	U
75-09-2	Methylene chloride		2.50	5.00	10.0	U
79-20-9	Methyl Acetate		2.50	5.00	10.0	UX
108-87-2	Methylcyclohexane		1.25	2.50	5.00	U
108-10-1	4-Methyl-2-pentanone		6.25	12.5	25.0	U
1634-04-4	Methyl t-Butyl Ether		1.25	2.50	5.00	U
100-42-5	Styrene		1.25	2.50	5.00	U
79-34-5	1,1,2,2-Tetrachloroethane		1.25	2.50	5.00	U
127-18-4	Tetrachloroethene		1.25	2.50	5.00	U

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ANALYSIS DATA SHEET

LNC-014-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-11	File ID:	0512511D.D
Sampled:	05/07/13 14:50	Prepared:	05/18/13 14:45	Analyzed:	05/18/13 14:45
Solids:		Preparation:	5030B	Dilution:	5

Batch: 3E18005 Sequence: 3E14033 Calibration: 3127004 Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
108-88-3	Toluene		1.25	2.50	5.00	U
87-61-6	1,2,3-Trichlorobenzene		1.25	2.50	5.00	U
120-82-1	1,2,4-Trichlorobenzene		1.25	2.50	5.00	U
79-00-5	1,1,2-Trichloroethane		1.25	2.50	5.00	U
71-55-6	1,1,1-Trichloroethane		1.25	2.50	5.00	U
79-01-6	Trichloroethene		1.25	2.50	5.00	U
75-69-4	Trichlorofluoromethane		2.50	5.00	10.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		2.50	5.00	10.0	U
75-01-4	Vinyl chloride		1.25	2.50	5.00	UX
108-38-3/106-42-	m,p-Xylene		2.50	5.00	10.0	U
95-47-6	o-Xylene		1.25	2.50	5.00	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.59	92.0	75 - 120	
Dibromofluoromethane	30.00	29.77	99.2	85 - 115	
1,2-Dichloroethane-d4	30.00	30.46	102	70 - 120	
Toluene-d8	30.00	30.50	102	85 - 120	

U

ANALYSIS DATA SHEET

LNC-014-DP-SB2-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Water Laboratory ID: 1305125-11 File ID: 0512511.D

Sampled: 05/07/13 14:50 Prepared: 05/13/13 12:35 Analyzed: 05/15/13 23:36

Solids: Preparation: EXT 3510 Dilution: 1

Batch: 3E13311 Sequence: 3E14040 Calibration: 2261001 Instrument: MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
98-86-2	Acetophenone		1.20	2.40	4.81	U UJ 602
1912-24-9	Atrazine		1.20	2.40	4.81	U
100-52-7	Benzaldehyde		1.20	2.40	4.81	U
92-52-4	1,1-Biphenyl		1.20	2.40	4.81	U
101-55-3	4-Bromophenyl-phenylether		1.20	2.40	4.81	U
85-68-7	Butylbenzylphthalate		1.20	2.40	4.81	U
105-60-2	Caprolactam		1.20	2.40	4.81	U
86-74-8	Carbazole		1.20	2.40	4.81	U
59-50-7	4-Chloro-3-methylphenol		1.20	2.40	4.81	U U
106-47-8	4-Chloroaniline		1.20	2.40	4.81	U UJ 602
111-91-1	Bis(2-chloroethoxy)methane		1.20	2.40	4.81	U
111-44-4	Bis(2-chloroethyl)ether		1.20	2.40	4.81	U
108-60-1	2,2'-Oxybis-1-chloropropane		1.20	2.40	4.81	U
91-58-7	2-Chloronaphthalene		1.20	2.40	4.81	U
95-57-8	2-Chlorophenol		1.20	2.40	4.81	U U
7005-72-3	4-Chlorophenyl phenyl ether		1.20	2.40	4.81	U UJ 602
132-64-9	Dibenzofuran		1.20	2.40	4.81	U UJ
84-74-2	Di-n-butylphthalate		1.20	2.40	4.81	U
91-94-1	3,3'-Dichlorobenzidine		1.20	2.40	4.81	U
120-83-2	2,4-Dichlorophenol		1.20	2.40	4.81	U U
84-66-2	Diethylphthalate		1.20	2.40	4.81	U UJ 602
105-67-9	2,4-Dimethylphenol		4.81	9.62	19.2	U U
131-11-3	Dimethyl phthalate		1.20	2.40	4.81	U UJ 602
534-52-1	4,6-Dinitro-2-methylphenol		4.81	9.62	19.2	U U
51-28-5	2,4-Dinitrophenol		8.01	24.0	48.1	U U
121-14-2	2,4-Dinitrotoluene		1.20	2.40	4.81	U UJ 602
606-20-2	2,6-Dinitrotoluene		1.20	2.40	4.81	U UJ
117-84-0	Di-n-octylphthalate		1.20	2.40	4.81	U UJ
117-81-7	Bis(2-ethylhexyl)phthalate		1.20	2.40	4.81	U UJ
118-74-1	Hexachlorobenzene		1.20	2.40	4.81	U
87-68-3	Hexachlorobutadiene		1.20	2.40	4.81	U
77-47-4	Hexachlorocyclopentadiene		1.20	4.81	9.62	U
67-72-1	Hexachloroethane		1.20	2.40	4.81	U
78-59-1	Isophorone		1.20	2.40	4.81	U
95-48-7	2-Methylphenol		1.20	2.40	4.81	U U
106-44-5	4-Methylphenol		1.20	2.40	4.81	U U
100-01-6	4-Nitroaniline		4.81	9.62	19.2	U UJ 602
99-09-2	3-Nitroaniline		4.81	9.62	19.2	U
88-74-4	2-Nitroaniline		4.81	9.62	19.2	U
98-95-3	Nitrobenzene		1.20	2.40	4.81	U

ANALYSIS DATA SHEET

LNC-014-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID:	1305125-11	File ID:	0512511.D
Sampled:	05/07/13 14:50	Prepared:	05/13/13 12:35	Analyzed:	05/15/13 23:36
Solids:		Preparation:	EXT 3510	Dilution:	1
Batch:	3E13311	Sequence:	3E14040	Calibration:	2261001
Instrument:	MS-BNA3				

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
100-02-7	4-Nitrophenol		4.81	9.62	19.2	U	U
88-75-5	2-Nitrophenol		1.20	2.40	4.81	U	U
86-30-6	N-Nitrosodiphenylamine		1.20	2.40	4.81	U	UJ 602
621-64-7	N-Nitroso-di-n-propylamine		1.20	2.40	4.81	U	UJ 602
87-86-5	Pentachlorophenol		4.81	9.62	19.2	U	U
108-95-2	Phenol		1.20	2.40	4.81	U	U
95-94-3	1,2,4,5-Tetrachlorobenzene		1.20	2.40	4.81	U	UJ 602
58-90-2	2,3,4,6-Tetrachlorophenol		2.40	4.81	9.62	U	U
88-06-2	2,4,6-Trichlorophenol		1.20	2.40	4.81	U	
95-95-4	2,4,5-Trichlorophenol		1.20	2.40	4.81	U	

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	48.08	22.32	46.4	50 - 110	*
2-Fluorophenol	96.15	29.39	30.6	20 - 110	
Nitrobenzene-d5	48.08	24.70	51.4	40 - 110	
Phenol-d6	96.15	18.00	18.7	0 - 110	
Terphenyl-d14	48.08	19.33	40.2	50 - 135	*
2,4,6-Tribromophenol	96.15	44.65	46.4	40 - 125	

ANALYSIS DATA SHEET

LNC-014-DP-SB2-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Water Laboratory ID: 1305125-11 File ID: 0512511.D
Sampled: 05/07/13 14:50 Prepared: 05/14/13 11:36 Analyzed: 06/04/13 01:35
Solids: Preparation: EXT 3510 Dilution: 1
Batch: 3E14008 Sequence: 3F15509 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		0.0472	0.0943	0.189	U UJ F02
208-96-8	Acenaphthylene		0.0472	0.0943	0.189	U UJ
120-12-7	Anthracene		0.0472	0.0943	0.189	U
56-55-3	Benzo(a)anthracene		0.0472	0.0943	0.189	U
50-32-8	Benzo(a)pyrene		0.0472	0.0943	0.189	U
205-99-2	Benzo(b)fluoranthene		0.0472	0.0943	0.189	U
191-24-2	Benzo(g,h,i)perylene		0.0472	0.0943	0.189	U
207-08-9	Benzo(k)fluoranthene		0.0472	0.0943	0.189	U
123-91-1	1,4-Dioxane		0.118	0.236	0.472	U
218-01-9	Chrysene		0.0472	0.0943	0.189	U
53-70-3	Dibenz(a,h)anthracene		0.0472	0.0943	0.189	U
206-44-0	Fluoranthene		0.0472	0.0943	0.189	U
86-73-7	Fluorene		0.0472	0.0943	0.189	U
193-39-5	Indeno(1,2,3-cd)pyrene		0.0472	0.0943	0.189	U
91-57-6	2-Methylnaphthalene		0.0472	0.0943	0.189	U
91-20-3	Naphthalene		0.0472	0.0943	0.189	U
85-01-8	Phenanthrene		0.0472	0.189	0.377	U
129-00-0	Pyrene		0.0472	0.0943	0.189	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	47.17	17.44	37.0	50 - 110	*
Terphenyl-d14	47.17	12.83	27.2	50 - 135	*
2,4,6-Tribromophenol	94.34	40.90	43.4	40 - 125	X

ANALYSIS DATA SHEET

LNC-014-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-11	File ID:	016F1601.D		
Sampled:	05/07/13 14:50	Prepared:	05/14/13 19:02	Analyzed:	05/21/13 04:48		
Solids:		Preparation:	EXT 3510	Dilution:	1		
Batch:	3E14020	Sequence:	3E14605	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		0.0962	0.0962	0.192	U UJ A01,G02

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.01923	0.005554	28.9	30 - 140	*

ANALYSIS DATA SHEET

LNC-014-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-11	File ID:	007F1101.D
Sampled:	05/07/13 14:50	Prepared:	05/16/13 16:53	Analyzed:	05/16/13 16:53
Solids:		Preparation:	8015GRO	Dilution:	1

Batch:	3E16005	Sequence:	3E14043	Calibration:	3044001	Instrument:	GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q	
8006-61-9	Gasoline Range Organics (C6-C10)		0.0500	0.100	0.150	U	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	0.05000	0.06461	129	50 - 150	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-13RE1	File ID:	0512513R.D
Sampled:	05/08/13 09:55	Prepared:	05/21/13 00:00	Analyzed:	05/21/13 15:59
Solids:	78.90	Preparation:	5035A	Dilution:	1
Batch:	3E21025	Sequence:	3E14204	Calibration:	3140003
Instrument:	MS-VOA3				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	F03
67-64-1	Acetone	26.4	6.24	12.5	25.0		R, F12
71-43-2	Benzene		1.56	3.12	6.24	U	U
74-97-5	Bromochloromethane		1.56	3.12	6.24	U	
75-27-4	Bromodichloromethane		1.56	3.12	6.24	U	
75-25-2	Bromoform		1.56	3.12	6.24	U	
74-83-9	Bromomethane		3.12	6.24	12.5	U	
78-93-3	2-Butanone		3.12	6.24	12.5	U	
75-15-0	Carbon disulfide		1.56	3.12	6.24	U	
56-23-5	Carbon tetrachloride		1.56	3.12	6.24	U	
108-90-7	Chlorobenzene		1.56	3.12	6.24	U	
75-00-3	Chloroethane		3.12	6.24	12.5	U	
67-66-3	Chloroform		1.56	3.12	6.24	U	
74-87-3	Chloromethane		3.12	6.24	12.5	UY UJ	C05
110-82-7	Cyclohexane		1.56	3.12	6.24	U	U
124-48-1	Dibromochloromethane		1.56	3.12	6.24	U	
96-12-8	1,2-Dibromo-3-chloropropane		3.12	6.24	12.5	U	
106-93-4	1,2-Dibromoethane (EDB)		1.56	3.12	6.24	U	
95-50-1	1,2-Dichlorobenzene		1.56	3.12	6.24	U	
541-73-1	1,3-Dichlorobenzene		1.56	3.12	6.24	U	
106-46-7	1,4-Dichlorobenzene		1.56	3.12	6.24	U	
75-71-8	Dichlorodifluoromethane		3.12	6.24	12.5	U	
75-34-3	1,1-Dichloroethane		1.56	3.12	6.24	U	
107-06-2	1,2-Dichloroethane		1.56	3.12	6.24	U	
75-35-4	1,1-Dichloroethene		1.56	3.12	6.24	U	
156-59-2	cis-1,2-Dichloroethene		1.56	3.12	6.24	U	
156-60-5	trans-1,2-Dichloroethene		1.56	3.12	6.24	U	
78-87-5	1,2-Dichloropropane		1.56	3.12	6.24	U	
10061-01-5	cis-1,3-Dichloropropene		1.56	3.12	6.24	U	
10061-02-6	trans-1,3-Dichloropropene		1.56	3.12	6.24	U	
100-41-4	Ethylbenzene		1.56	3.12	6.24	U	
591-78-6	2-Hexanone		3.12	6.24	12.5	U	
98-82-8	Isopropylbenzene		1.56	3.12	6.24	U	
75-09-2	Methylene chloride	290	3.12	6.24	12.5		R, F12
79-20-9	Methyl Acetate		3.12	6.24	12.5	U	U
108-87-2	Methylcyclohexane		1.56	3.12	6.24	U	
108-10-1	4-Methyl-2-pentanone		3.12	6.24	12.5	U	
1634-04-4	Methyl t-Butyl Ether		1.56	3.12	6.24	U	
100-42-5	Styrene		1.56	3.12	6.24	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.56	3.12	6.24	U	
127-18-4	Tetrachloroethene		1.56	3.12	6.24	U	

JV 06/25/2013

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Solid	Laboratory ID:	1305125-13RE1	File ID:	0512513R.D
Sampled:	05/08/13 09:55	Prepared:	05/21/13 00:00	Analyzed:	05/21/13 15:59
Solids:	78.90	Preparation:	5035A	Dilution:	1
Batch:	3E21025	Sequence:	3E14204	Calibration:	3140003	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene		1.56	3.12	6.24	U
87-61-6	1,2,3-Trichlorobenzene		1.56	3.12	6.24	U
120-82-1	1,2,4-Trichlorobenzene		1.56	3.12	6.24	U
79-00-5	1,1,2-Trichloroethane		1.56	3.12	6.24	U
71-55-6	1,1,1-Trichloroethane		1.56	3.12	6.24	U
79-01-6	Trichloroethene		1.56	3.12	6.24	U
75-69-4	Trichlorofluoromethane		3.12	6.24	12.5	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.12	6.24	12.5	U
75-01-4	Vinyl chloride		1.56	3.12	6.24	U
108-38-3/106-42-	m,p-Xylene		3.12	6.24	12.5	U
95-47-6	o-Xylene		1.56	3.12	6.24	U

U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	37.43	36.85	98.5	85 - 120	
Dibromofluoromethane	37.43	39.02	104	80 - 125	
1,2-Dichloroethane-d4	37.43	41.36	110	75 - 140	
Toluene-d8	37.43	39.11	104	85 - 115	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-13	File ID:	0512513.D
Sampled:	05/08/13 09:55	Prepared:	05/21/13 18:30	Analyzed:	05/29/13 21:04
Solids:	78.90	Preparation:	EXT 3546	Dilution:	1
Batch:	3E20013	Sequence:	3E15019	Calibration:	2272005
Instrument:	MS-BNA1				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		100	201	401	UX	U
1912-24-9	Atrazine		100	201	401	UY	UJ COS
100-52-7	Benzaldehyde		100	201	401	U	U
92-52-4	1,1-Biphenyl		100	201	401	U	
101-55-3	4-Bromophenyl-phenylether		100	201	401	U	
85-68-7	Butylbenzylphthalate		100	201	401	U	
105-60-2	Caprolactam		100	201	401	U	
86-74-8	Carbazole		100	201	401	U	
59-50-7	4-Chloro-3-methylphenol		100	201	401	U	
106-47-8	4-Chloroaniline		100	201	401	U	
111-91-1	Bis(2-chloroethoxy)methane		100	201	401	U	
111-44-4	Bis(2-chloroethyl)ether		100	201	401	U	
108-60-1	2,2'-Oxybis-1-chloropropane		100	201	401	U	
91-58-7	2-Chloronaphthalene		100	201	401	U	
95-57-8	2-Chlorophenol		100	201	401	U	
7005-72-3	4-Chlorophenyl phenyl ether		100	201	401	U	
132-64-9	Dibenzofuran		100	201	401	U	
84-74-2	Di-n-butylphthalate		100	201	401	U	
91-94-1	3,3'-Dichlorobenzidine		100	201	401	U	
120-83-2	2,4-Dichlorophenol		100	201	401	U	
84-66-2	Diethylphthalate		100	201	401	U	
105-67-9	2,4-Dimethylphenol		401	804	1600	U	
131-11-3	Dimethyl phthalate		100	201	401	U	
534-52-1	4,6-Dinitro-2-methylphenol		1000	2010	4010	U	
51-28-5	2,4-Dinitrophenol		1000	2010	4010	U	
121-14-2	2,4-Dinitrotoluene		100	201	401	U	
606-20-2	2,6-Dinitrotoluene		100	201	401	U	
117-84-0	Di-n-octylphthalate		100	201	401	U	
117-81-7	Bis(2-ethylhexyl)phthalate		100	201	401	U	
118-74-1	Hexachlorobenzene		100	201	401	U	
87-68-3	Hexachlorobutadiene		100	201	401	U	
77-47-4	Hexachlorocyclopentadiene		100	201	401	U	
67-72-1	Hexachloroethane		100	201	401	U	
78-59-1	Isophorone		100	201	401	UX	
95-48-7	2-Methylphenol		100	201	401	U	
106-44-5	4-Methylphenol		100	201	401	U	
100-01-6	4-Nitroaniline		401	804	1600	U	
99-09-2	3-Nitroaniline		401	804	1600	U	
88-74-4	2-Nitroaniline		401	804	1600	U	
98-95-3	Nitrobenzene		100	201	401	U	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125
Client: SAIC (S732)   Project: Lincoln NE ANG
Matrix: Solid   Laboratory ID: 1305125-13   File ID: 0512513.D
Sampled: 05/08/13 09:55   Prepared: 05/21/13 18:30   Analyzed: 05/29/13 21:04
Solids: 78.90   Preparation: EXT 3546   Dilution: 1
Batch: 3E20013   Sequence: 3E15019   Calibration: 2272005   Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		401	804	1600	U
88-75-5	2-Nitrophenol		100	201	401	U
86-30-6	N-Nitrosodiphenylamine		100	201	401	U
621-64-7	N-Nitroso-di-n-propylamine		100	201	401	UX
87-86-5	Pentachlorophenol		401	804	1600	U
108-95-2	Phenol		100	201	401	U
95-94-3	1,2,4,5-Tetrachlorobenzene		100	201	401	U
58-90-2	2,3,4,6-Tetrachlorophenol		100	201	401	U
88-06-2	2,4,6-Trichlorophenol		100	201	401	U
95-95-4	2,4,5-Trichlorophenol		100	201	401	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4016	2712	67.5	45 - 105	
2-Fluorophenol	8032	5667	70.6	35 - 105	
Nitrobenzene-d5	4016	2722	67.8	35 - 100	
Phenol-d6	8032	5995	74.6	40 - 100	
Terphenyl-d14	4016	3161	78.7	30 - 125	
2,4,6-Tribromophenol	8032	6040	75.2	35 - 125	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Solid Laboratory ID: 1305125-13 File ID: 0512513.D
Sampled: 05/08/13 09:55 Prepared: 05/21/13 18:30 Analyzed: 05/30/13 01:17
Solids: 78.90 Preparation: EXT 3546 Dilution: 1
Batch: 3E20013 Sequence: 3E15018 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene		2.01	4.01	8.04	U	U
208-96-8	Acenaphthylene		2.01	4.01	8.04	U	
120-12-7	Anthracene		2.01	4.01	8.04	U	
56-55-3	Benzo(a)anthracene		2.01	4.01	8.04	U	
50-32-8	Benzo(a)pyrene		2.01	4.01	8.04	U	
205-99-2	Benzo(b)fluoranthene		2.01	4.01	8.04	U	
191-24-2	Benzo(g,h,i)perylene		2.01	4.01	8.04	U	
207-08-9	Benzo(k)fluoranthene		2.01	4.01	8.04	U	
123-91-1	1,4-Dioxane		10.0	20.1	40.1	U	
218-01-9	Chrysene		2.01	4.01	8.04	UQ	
53-70-3	Dibenz(a,h)anthracene		2.01	4.01	8.04	U	
206-44-0	Fluoranthene		2.01	4.01	8.04	U	
86-73-7	Fluorene		2.01	4.01	8.04	U	
193-39-5	Indeno(1,2,3-cd)pyrene		2.01	4.01	8.04	U	
91-57-6	2-Methylnaphthalene		2.01	4.01	8.04	U	
91-20-3	Naphthalene		2.01	4.01	8.04	U	
85-01-8	Phenanthrene		2.01	4.01	8.04	U	
129-00-0	Pyrene		2.01	4.01	8.04	U	

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4016	3602	89.7	45 - 105	
Terphenyl-d14	4016	3703	92.2	30 - 125	
2,4,6-Tribromophenol	8032	7423	92.4	35 - 125	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-13	File ID:	024F2401.D		
Sampled:	05/08/13 09:55	Prepared:	05/20/13 12:19	Analyzed:	05/23/13 06:13		
Solids:	78.90	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E17023	Sequence:	3E14606	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.28	8.28	16.4	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.648	1.245	75.6	35 - 140	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125
Client: SAIC (S732)   Project: Lincoln NE ANG
Matrix: Solid   Laboratory ID: 1305125-13   File ID: 009F0901.D
Sampled: 05/08/13 09:55   Prepared: 05/18/13 17:28   Analyzed: 05/18/13 23:13
Solids: 78.90   Preparation: 8015GRO   Dilution: 1
Batch: 3E18011   Sequence: 3E14307   Calibration: 3044001   Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.16	6.31	9.47	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.156	3.766	119	50 - 150	X

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-14RE1	File ID:	0512514R.D
Sampled:	05/08/13 09:55	Prepared:	05/21/13 00:00	Analyzed:	05/21/13 16:28
Solids:	79.77	Preparation:	5035A	Dilution:	1
Batch:	3E21025	Sequence:	3E14204	Calibration:	3140003
Instrument:	MS-VOA3				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone	**36.5**	6.13	12.3	24.5		ZR F11
71-43-2	Benzene		1.53	3.07	6.13	U	U
74-97-5	Bromochloromethane		1.53	3.07	6.13	U	
75-27-4	Bromodichloromethane		1.53	3.07	6.13	U	
75-25-2	Bromoform		1.53	3.07	6.13	U	
74-83-9	Bromomethane		3.07	6.13	12.3	U	
78-93-3	2-Butanone		3.07	6.13	12.3	U	
75-15-0	Carbon disulfide		1.53	3.07	6.13	U	
56-23-5	Carbon tetrachloride		1.53	3.07	6.13	U	
108-90-7	Chlorobenzene		1.53	3.07	6.13	U	
75-00-3	Chloroethane		3.07	6.13	12.3	U	
67-66-3	Chloroform		1.53	3.07	6.13	U	
74-87-3	Chloromethane		3.07	6.13	12.3	UY (UJ	C05
110-82-7	Cyclohexane		1.53	3.07	6.13	U	U
124-48-1	Dibromochloromethane		1.53	3.07	6.13	U	
96-12-8	1,2-Dibromo-3-chloropropane		3.07	6.13	12.3	U	
106-93-4	1,2-Dibromoethane (EDB)		1.53	3.07	6.13	U	
95-50-1	1,2-Dichlorobenzene		1.53	3.07	6.13	U	
541-73-1	1,3-Dichlorobenzene		1.53	3.07	6.13	U	
106-46-7	1,4-Dichlorobenzene		1.53	3.07	6.13	U	
75-71-8	Dichlorodifluoromethane		3.07	6.13	12.3	U	
75-34-3	1,1-Dichloroethane		1.53	3.07	6.13	U	
107-06-2	1,2-Dichloroethane		1.53	3.07	6.13	U	
75-35-4	1,1-Dichloroethene		1.53	3.07	6.13	U	
156-59-2	cis-1,2-Dichloroethene		1.53	3.07	6.13	U	
156-60-5	trans-1,2-Dichloroethene		1.53	3.07	6.13	U	
78-87-5	1,2-Dichloropropane		1.53	3.07	6.13	U	
10061-01-5	cis-1,3-Dichloropropene		1.53	3.07	6.13	U	
10061-02-6	trans-1,3-Dichloropropene		1.53	3.07	6.13	U	
100-41-4	Ethylbenzene		1.53	3.07	6.13	U	
591-78-6	2-Hexanone		3.07	6.13	12.3	U	
98-82-8	Isopropylbenzene		1.53	3.07	6.13	U	
75-09-2	Methylene chloride	**450**	3.07	6.13	12.3		ZR F12
79-20-9	Methyl Acetate		3.07	6.13	12.3	U	U
108-87-2	Methylcyclohexane		1.53	3.07	6.13	U	
108-10-1	4-Methyl-2-pentanone		3.07	6.13	12.3	U	
1634-04-4	Methyl t-Butyl Ether		1.53	3.07	6.13	U	
100-42-5	Styrene		1.53	3.07	6.13	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.53	3.07	6.13	U	
127-18-4	Tetrachloroethene		1.53	3.07	6.13	U	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-14RE1	File ID:	0512514R.D		
Sampled:	05/08/13 09:55	Prepared:	05/21/13 00:00	Analyzed:	05/21/13 16:28		
Solids:	79.77	Preparation:	5035A	Dilution:	1		
Batch:	3E21025	Sequence:	3E14204	Calibration:	3140003	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene		1.53	3.07	6.13	U
87-61-6	1,2,3-Trichlorobenzene		1.53	3.07	6.13	U
120-82-1	1,2,4-Trichlorobenzene		1.53	3.07	6.13	U
79-00-5	1,1,2-Trichloroethane		1.53	3.07	6.13	U
71-55-6	1,1,1-Trichloroethane		1.53	3.07	6.13	U
79-01-6	Trichloroethene		1.53	3.07	6.13	U
75-69-4	Trichlorofluoromethane		3.07	6.13	12.3	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.07	6.13	12.3	U
75-01-4	Vinyl chloride		1.53	3.07	6.13	U
108-38-3/106-42-	m,p-Xylene		3.07	6.13	12.3	U
95-47-6	o-Xylene		1.53	3.07	6.13	U

U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	36.80	35.99	97.8	85 - 120	
Dibromofluoromethane	36.80	38.62	105	80 - 125	
1,2-Dichloroethane-d4	36.80	39.39	107	75 - 140	
Toluene-d8	36.80	38.68	105	85 - 115	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-14	File ID:	0512514.D
Sampled:	05/08/13 09:55	Prepared:	05/21/13 18:30	Analyzed:	05/29/13 21:31
Solids:	79.77	Preparation:	EXT 3546	Dilution:	1

Batch: 3E20013 Sequence: 3E15019 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		102	204	407	UX	U
1912-24-9	Atrazine		102	204	407	UY	UJ cos
100-52-7	Benzaldehyde		102	204	407	U	U
92-52-4	1,1-Biphenyl		102	204	407	U	
101-55-3	4-Bromophenyl-phenylether		102	204	407	U	
85-68-7	Butylbenzylphthalate		102	204	407	U	
105-60-2	Caprolactam		102	204	407	U	
86-74-8	Carbazole		102	204	407	U	
59-50-7	4-Chloro-3-methylphenol		102	204	407	U	
106-47-8	4-Chloroaniline		102	204	407	U	
111-91-1	Bis(2-chloroethoxy)methane		102	204	407	U	
111-44-4	Bis(2-chloroethyl)ether		102	204	407	U	
108-60-1	2,2'-Oxybis-1-chloropropane		102	204	407	U	
91-58-7	2-Chloronaphthalene		102	204	407	U	
95-57-8	2-Chlorophenol		102	204	407	U	
7005-72-3	4-Chlorophenyl phenyl ether		102	204	407	U	
132-64-9	Dibenzofuran		102	204	407	U	
84-74-2	Di-n-butylphthalate		102	204	407	U	
91-94-1	3,3'-Dichlorobenzidine		102	204	407	U	
120-83-2	2,4-Dichlorophenol		102	204	407	U	
84-66-2	Diethylphthalate		102	204	407	U	
105-67-9	2,4-Dimethylphenol		407	814	1620	U	
131-11-3	Dimethyl phthalate		102	204	407	U	
534-52-1	4,6-Dinitro-2-methylphenol		1020	2040	4070	U	
51-28-5	2,4-Dinitrophenol		1020	2040	4070	U	
121-14-2	2,4-Dinitrotoluene		102	204	407	U	
606-20-2	2,6-Dinitrotoluene		102	204	407	U	
117-84-0	Di-n-octylphthalate		102	204	407	U	
117-81-7	Bis(2-ethylhexyl)phthalate		102	204	407	U	
118-74-1	Hexachlorobenzene		102	204	407	U	
87-68-3	Hexachlorobutadiene		102	204	407	U	
77-47-4	Hexachlorocyclopentadiene		102	204	407	U	
67-72-1	Hexachloroethane		102	204	407	U	
78-59-1	Isophorone		102	204	407	UX	
95-48-7	2-Methylphenol		102	204	407	U	
106-44-5	4-Methylphenol		102	204	407	U	
100-01-6	4-Nitroaniline		407	814	1620	U	
99-09-2	3-Nitroaniline		407	814	1620	U	
88-74-4	2-Nitroaniline		407	814	1620	U	
98-95-3	Nitrobenzene		102	204	407	U	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-14	File ID:	0512514.D
Sampled:	05/08/13 09:55	Prepared:	05/21/13 18:30	Analyzed:	05/29/13 21:31
Solids:	79.77	Preparation:	EXT 3546	Dilution:	1

Batch: 3E20013 Sequence: 3E15019 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		407	814	1620	U
88-75-5	2-Nitrophenol		102	204	407	U
86-30-6	N-Nitrosodiphenylamine		102	204	407	U
621-64-7	N-Nitroso-di-n-propylamine		102	204	407	UX
87-86-5	Pentachlorophenol		407	814	1620	U
108-95-2	Phenol		102	204	407	U
95-94-3	1,2,4,5-Tetrachlorobenzene		102	204	407	U
58-90-2	2,3,4,6-Tetrachlorophenol		102	204	407	U
88-06-2	2,4,6-Trichlorophenol		102	204	407	U
95-95-4	2,4,5-Trichlorophenol		102	204	407	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4070	2982	73.3	45 - 105	
2-Fluorophenol	8141	6215	76.3	35 - 105	
Nitrobenzene-d5	4070	3095	76.0	35 - 100	
Phenol-d6	8141	6483	79.6	40 - 100	
Terphenyl-d14	4070	3406	83.7	30 - 125	
2,4,6-Tribromophenol	8141	6138	75.4	35 - 125	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-14	File ID:	0512514.D		
Sampled:	05/08/13 09:55	Prepared:	05/21/13 18:30	Analyzed:	05/30/13 01:45		
Solids:	79.77	Preparation:	EXT_3546	Dilution:	1		
Batch:	3E20013	Sequence:	3E15018	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		2.04	4.07	8.14	U
208-96-8	Acenaphthylene		2.04	4.07	8.14	U
120-12-7	Anthracene		2.04	4.07	8.14	U
56-55-3	Benzo(a)anthracene		2.04	4.07	8.14	U
50-32-8	Benzo(a)pyrene		2.04	4.07	8.14	U
205-99-2	Benzo(b)fluoranthene		2.04	4.07	8.14	U
191-24-2	Benzo(g,h,i)perylene		2.04	4.07	8.14	U
207-08-9	Benzo(k)fluoranthene		2.04	4.07	8.14	U
123-91-1	1,4-Dioxane		10.2	20.4	40.7	U
218-01-9	Chrysene		2.04	4.07	8.14	UQ
53-70-3	Dibenz(a,h)anthracene		2.04	4.07	8.14	U
206-44-0	Fluoranthene		2.04	4.07	8.14	U
86-73-7	Fluorene		2.04	4.07	8.14	U
193-39-5	Indeno(1,2,3-cd)pyrene		2.04	4.07	8.14	U
91-57-6	2-Methylnaphthalene		2.04	4.07	8.14	U
91-20-3	Naphthalene		2.04	4.07	8.14	U
85-01-8	Phenanthrene		2.04	4.07	8.14	U
129-00-0	Pyrene		2.04	4.07	8.14	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4070	3667	90.1	45 - 105	
Terphenyl-d14	4070	3809	93.6	30 - 125	
2,4,6-Tribromophenol	8141	7684	94.4	35 - 125	

U

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-14	File ID:	025F2501.D		
Sampled:	05/08/13 09:55	Prepared:	05/20/13 12:19	Analyzed:	05/23/13 06:46		
Solids:	79.77	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E17023	Sequence:	3E14606	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.40	8.40	16.7	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.672	1.426	85.3	35 - 140	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-01DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-14	File ID:	010F1001.D		
Sampled:	05/08/13 09:55	Prepared:	05/18/13 17:28	Analyzed:	05/18/13 23:53		
Solids:	79.77	Preparation:	8015GRO	Dilution:	1		
Batch:	3E18011	Sequence:	3E14307	Calibration:	3044001	Instrument:	GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.03	6.06	9.09	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.031	3.745	124	50 - 150	X

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID: 1305125-17	File ID:	0512517.D	
Sampled:	05/08/13 11:36	Prepared: 05/20/13 00:00	Analyzed:	05/21/13 05:58	
Solids:		Preparation: 5030B	Dilution:	1	
Batch:	3E20019	Sequence: 3E14102	Calibration:	3140001	Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
67-64-1	Acetone		2.50	5.00	10.0	U	U
71-43-2	Benzene	2.89	0.250	0.500	1.00		=
74-97-5	Bromochloromethane		0.250	0.500	1.00	U	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U	
75-25-2	Bromoform		0.250	0.500	1.00	U	
74-83-9	Bromomethane		0.500	1.00	2.00	U	
78-93-3	2-Butanone		2.50	5.00	10.0	U	
75-15-0	Carbon disulfide		0.250	0.500	1.00	U	
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U	
108-90-7	Chlorobenzene		0.250	0.500	1.00	U	
75-00-3	Chloroethane		0.500	1.00	2.00	U	
67-66-3	Chloroform		0.250	0.500	1.00	U	
74-87-3	Chloromethane		0.250	0.500	1.00	UY UJ	COS
110-82-7	Cyclohexane	4.60	0.250	0.500	1.00		=
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U	
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U	
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U	
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U	
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U	
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U	
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U	
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U	
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U	
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U	
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U	
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U	
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U	
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U	
100-41-4	Ethylbenzene	2.73	0.250	0.500	1.00		=
591-78-6	2-Hexanone		1.25	2.50	5.00	U	U
98-82-8	Isopropylbenzene	0.710	0.250	0.500	1.00	J	J
75-09-2	Methylene chloride		0.500	1.00	2.00	U	U
79-20-9	Methyl Acetate		0.500	1.00	2.00	U	U
108-87-2	Methylcyclohexane	4.82	0.250	0.500	1.00		=
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U	
100-42-5	Styrene		0.250	0.500	1.00	U	
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U	
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Water Laboratory ID: 1305125-17 File ID: 0512517.D

Sampled: 05/08/13 11:36 Prepared: 05/20/13 00:00 Analyzed: 05/21/13 05:58

Solids: Preparation: 5030B Dilution: 1

Batch: 3E20019 Sequence: 3E14102 Calibration: 3140001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
108-88-3	Toluene	**3.50**	0.250	0.500	1.00	
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		0.500	1.00	2.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene	**19.2**	0.500	1.00	2.00	
95-47-6	o-Xylene	**6.98**	0.250	0.500	1.00	

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.99	103	75 - 120	
Dibromofluoromethane	30.00	33.68	112	85 - 115	
1,2-Dichloroethane-d4	30.00	31.02	103	70 - 120	
Toluene-d8	30.00	30.07	100	85 - 120	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID:	1305125-17	File ID:	0512517.D
Sampled:	05/08/13 11:36	Prepared:	05/15/13 18:15	Analyzed:	05/20/13 11:44
Solids:		Preparation:	EXT 3510	Dilution:	1
Batch:	3E15016	Sequence:	3E14505	Calibration:	2261001
Instrument:	MS-BNA3				

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		1.20	2.40	4.81	U	U
1912-24-9	Atrazine		1.20	2.40	4.81	UY	UJ COS
100-52-7	Benzaldehyde		1.20	2.40	4.81	U	U
92-52-4	1,1-Biphenyl		1.20	2.40	4.81	U	
101-55-3	4-Bromophenyl-phenylether		1.20	2.40	4.81	U	
85-68-7	Butylbenzylphthalate		1.20	2.40	4.81	U	
105-60-2	Caprolactam		1.20	2.40	4.81	U	
86-74-8	Carbazole		1.20	2.40	4.81	U	
59-50-7	4-Chloro-3-methylphenol		1.20	2.40	4.81	U	
106-47-8	4-Chloroaniline		1.20	2.40	4.81	U	
111-91-1	Bis(2-chloroethoxy)methane		1.20	2.40	4.81	U	
111-44-4	Bis(2-chloroethyl)ether		1.20	2.40	4.81	U	
108-60-1	2,2'-Oxybis-1-chloropropane		1.20	2.40	4.81	U	
91-58-7	2-Chloronaphthalene		1.20	2.40	4.81	U	
95-57-8	2-Chlorophenol		1.20	2.40	4.81	U	
7005-72-3	4-Chlorophenyl phenyl ether		1.20	2.40	4.81	U	
132-64-9	Dibenzofuran		1.20	2.40	4.81	U	
84-74-2	Di-n-butylphthalate		1.20	2.40	4.81	U	
91-94-1	3,3'-Dichlorobenzidine		1.20	2.40	4.81	U	
120-83-2	2,4-Dichlorophenol		1.20	2.40	4.81	U	
84-66-2	Diethylphthalate		1.20	2.40	4.81	U	
105-67-9	2,4-Dimethylphenol		4.81	9.62	19.2	U	
131-11-3	Dimethyl phthalate		1.20	2.40	4.81	U	
534-52-1	4,6-Dinitro-2-methylphenol		4.81	9.62	19.2	U	
51-28-5	2,4-Dinitrophenol		8.01	24.0	48.1	U	
121-14-2	2,4-Dinitrotoluene		1.20	2.40	4.81	U	
606-20-2	2,6-Dinitrotoluene		1.20	2.40	4.81	U	
117-84-0	Di-n-octylphthalate		1.20	2.40	4.81	U	
117-81-7	Bis(2-ethylhexyl)phthalate		1.20	2.40	4.81	U	
118-74-1	Hexachlorobenzene		1.20	2.40	4.81	U	
87-68-3	Hexachlorobutadiene		1.20	2.40	4.81	U	
77-47-4	Hexachlorocyclopentadiene		1.20	4.81	9.62	U	
67-72-1	Hexachloroethane		1.20	2.40	4.81	U	
78-59-1	Isophorone		1.20	2.40	4.81	U	
95-48-7	2-Methylphenol		1.20	2.40	4.81	U	
106-44-5	4-Methylphenol		1.20	2.40	4.81	U	
100-01-6	4-Nitroaniline		4.81	9.62	19.2	U	
99-09-2	3-Nitroaniline		4.81	9.62	19.2	U	
88-74-4	2-Nitroaniline		4.81	9.62	19.2	U	
98-95-3	Nitrobenzene		1.20	2.40	4.81	U	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-17	File ID:	0512517.D		
Sampled:	05/08/13 11:36	Prepared:	05/15/13 18:15	Analyzed:	05/20/13 11:44		
Solids:		Preparation:	EXT 3510	Dilution:	1		
Batch:	3E15016	Sequence:	3E14505	Calibration:	2261001	Instrument:	MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		4.81	9.62	19.2	U
88-75-5	2-Nitrophenol		1.20	2.40	4.81	U
86-30-6	N-Nitrosodiphenylamine		1.20	2.40	4.81	U
621-64-7	N-Nitroso-di-n-propylamine		1.20	2.40	4.81	U
87-86-5	Pentachlorophenol		4.81	9.62	19.2	U
108-95-2	Phenol		1.20	2.40	4.81	U
95-94-3	1,2,4,5-Tetrachlorobenzene		1.20	2.40	4.81	U
58-90-2	2,3,4,6-Tetrachlorophenol		2.40	4.81	9.62	U
88-06-2	2,4,6-Trichlorophenol		1.20	2.40	4.81	U
95-95-4	2,4,5-Trichlorophenol		1.20	2.40	4.81	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	48.08	36.67	76.3	50 - 110	
2-Fluorophenol	96.15	34.08	35.4	20 - 110	
Nitrobenzene-d5	48.08	36.09	75.1	40 - 110	
Phenol-d6	96.15	19.15	19.9	0 - 110	
Terphenyl-d14	48.08	30.32	63.1	50 - 135	
2,4,6-Tribromophenol	96.15	72.00	74.9	40 - 125	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-17	File ID:	0512517.D		
Sampled:	05/08/13 11:36	Prepared:	05/15/13 18:15	Analyzed:	06/15/13 20:42		
Solids:		Preparation:	EXT 3510	Dilution:	1		
Batch:	3E15016	Sequence:	3F16823	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene		0.0481	0.0962	0.192	U	U
208-96-8	Acenaphthylene		0.0481	0.0962	0.192	U	
120-12-7	Anthracene		0.0481	0.0962	0.192	U	
56-55-3	Benzo(a)anthracene		0.0481	0.0962	0.192	U	
50-32-8	Benzo(a)pyrene		0.0481	0.0962	0.192	U	
205-99-2	Benzo(b)fluoranthene		0.0481	0.0962	0.192	U	
191-24-2	Benzo(g,h,i)perylene		0.0481	0.0962	0.192	U	
207-08-9	Benzo(k)fluoranthene		0.0481	0.0962	0.192	U	
123-91-1	1,4-Dioxane		0.120	0.240	0.481	U	
218-01-9	Chrysene		0.0481	0.0962	0.192	U	
53-70-3	Dibenz(a,h)anthracene		0.0481	0.0962	0.192	U	
206-44-0	Fluoranthene		0.0481	0.0962	0.192	U	
86-73-7	Fluorene		0.0481	0.0962	0.192	U	
193-39-5	Indeno(1,2,3-cd)pyrene		0.0481	0.0962	0.192	U	
91-57-6	2-Methylnaphthalene	5.88	0.0481	0.0962	0.192		=
91-20-3	Naphthalene	2.46	0.0481	0.0962	0.192		=
85-01-8	Phenanthrene		0.0481	0.192	0.385	U	U
129-00-0	Pyrene		0.0481	0.0962	0.192	U	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	48.08	38.70	80.5	50 - 110	
Terphenyl-d14	48.08	29.25	60.8	50 - 135	
2,4,6-Tribromophenol	96.15	84.65	88.0	40 - 125	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Water   Laboratory ID: 1305125-17   File ID: 018F1801.D

Sampled: 05/08/13 11:36   Prepared: 05/14/13 19:02   Analyzed: 05/21/13 05:54

Solids: Preparation: EXT 3510   Dilution: 1

Batch: 3E14020   Sequence: 3E14605   Calibration: 3143004   Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		0.0962	0.0962	0.192	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.01923	0.01083	56.3	30 - 140	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-17	File ID:	009F1301.D
Sampled:	05/08/13 11:36	Prepared:	05/16/13 18:11	Analyzed:	05/16/13 18:11
Solids:		Preparation:	8015GRO	Dilution:	1

Batch: 3E16005 Sequence: 3E14043 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)	**0.196**	0.0500	0.100	0.150	

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	0.05000	0.05764	115	50 - 150	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-18	File ID:	0512518.D
Sampled:	05/08/13 11:36	Prepared:	05/21/13 18:22	Analyzed:	05/21/13 18:22
Solids:		Preparation:	5030B	Dilution:	1
Batch:	3E21015	Sequence:	3E14209	Calibration:	3140001
Instrument:	MS-VOA4				

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
67-64-1	Acetone	**4.57**	2.50	5.00	10.0	J	J
71-43-2	Benzene	**14.8**	0.250	0.500	1.00		=
74-97-5	Bromochloromethane		0.250	0.500	1.00	U	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U	
75-25-2	Bromoform		0.250	0.500	1.00	U	
74-83-9	Bromomethane		0.500	1.00	2.00	U	
78-93-3	2-Butanone		2.50	5.00	10.0	UX	
75-15-0	Carbon disulfide		0.250	0.500	1.00	U	
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U	
108-90-7	Chlorobenzene		0.250	0.500	1.00	U	
75-00-3	Chloroethane		0.500	1.00	2.00	U	
67-66-3	Chloroform		0.250	0.500	1.00	U	
74-87-3	Chloromethane		0.250	0.500	1.00	U	
110-82-7	Cyclohexane	**23.4**	0.250	0.500	1.00		=
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U	
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U	
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U	
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U	
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U	
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U	
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U	
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U	
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U	
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U	
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U	
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U	
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U	
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U	
100-41-4	Ethylbenzene	**15.6**	0.250	0.500	1.00		=
591-78-6	2-Hexanone		1.25	2.50	5.00	UX	U
98-82-8	Isopropylbenzene	**3.67**	0.250	0.500	1.00		=
75-09-2	Methylene chloride		0.500	1.00	2.00	U	U
79-20-9	Methyl Acetate		0.500	1.00	2.00	U	U
108-87-2	Methylcyclohexane	**25.8**	0.250	0.500	1.00		=
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	UX	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U	
100-42-5	Styrene		0.250	0.500	1.00	U	
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U	
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01DUP

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID: 1305125-18	File ID:	0512518.D	
Sampled:	05/08/13 11:36	Prepared: 05/21/13 18:22	Analyzed:	05/21/13 18:22	
Solids:		Preparation: 5030B	Dilution:	1	
Batch:	3E21015	Sequence: 3E14209	Calibration:	3140001	Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
108-88-3	Toluene	**20.1**	0.250	0.500	1.00		=
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U	
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U	
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U	
79-01-6	Trichloroethene		0.250	0.500	1.00	U	
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		0.500	1.00	2.00	U	
75-01-4	Vinyl chloride		0.250	0.500	1.00	U	
108-38-3/106-42-	m,p-Xylene	**109**	0.500	1.00	2.00		=
95-47-6	o-Xylene	**38.6**	0.250	0.500	1.00		=

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.52	105	75 - 120	
Dibromofluoromethane	30.00	32.17	107	85 - 115	
1,2-Dichloroethane-d4	30.00	30.41	101	70 - 120	
Toluene-d8	30.00	29.92	99.7	85 - 120	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01DUP

Laboratory: Empirical Laboratories, LLC | SDG: 1305125

Client: SAIC (S732) | Project: Lincoln NE ANG

Matrix: Water | Laboratory ID: 1305125-18 | File ID: 0512518.D

Sampled: 05/08/13 11:36 | Prepared: 05/15/13 18:15 | Analyzed: 05/20/13 12:12

Solids: | Preparation: EXT 3510 | Dilution: 1

Batch: 3E15016 | Sequence: 3E14505 | Calibration: 2261001 | Instrument: MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		1.16	2.31	4.63	U	U
1912-24-9	Atrazine		1.16	2.31	4.63	UY	(UJ) COS
100-52-7	Benzaldehyde		1.16	2.31	4.63	U	U
92-52-4	1,1-Biphenyl		1.16	2.31	4.63	U	
101-55-3	4-Bromophenyl-phenylether		1.16	2.31	4.63	U	
85-68-7	Butylbenzylphthalate		1.16	2.31	4.63	U	
105-60-2	Caprolactam		1.16	2.31	4.63	U	
86-74-8	Carbazole		1.16	2.31	4.63	U	
59-50-7	4-Chloro-3-methylphenol		1.16	2.31	4.63	U	
106-47-8	4-Chloroaniline		1.16	2.31	4.63	U	
111-91-1	Bis(2-chloroethoxy)methane		1.16	2.31	4.63	U	
111-44-4	Bis(2-chloroethyl)ether		1.16	2.31	4.63	U	
108-60-1	2,2'-Oxybis-1-chloropropane		1.16	2.31	4.63	U	
91-58-7	2-Chloronaphthalene		1.16	2.31	4.63	U	
95-57-8	2-Chlorophenol		1.16	2.31	4.63	U	
7005-72-3	4-Chlorophenyl phenyl ether		1.16	2.31	4.63	U	
132-64-9	Dibenzofuran		1.16	2.31	4.63	U	
84-74-2	Di-n-butylphthalate		1.16	2.31	4.63	U	
91-94-1	3,3'-Dichlorobenzidine		1.16	2.31	4.63	U	
120-83-2	2,4-Dichlorophenol		1.16	2.31	4.63	U	
84-66-2	Diethylphthalate		1.16	2.31	4.63	U	
105-67-9	2,4-Dimethylphenol		4.63	9.26	18.5	U	
131-11-3	Dimethyl phthalate		1.16	2.31	4.63	U	
534-52-1	4,6-Dinitro-2-methylphenol		4.63	9.26	18.5	U	
51-28-5	2,4-Dinitrophenol		7.71	23.1	46.3	U	
121-14-2	2,4-Dinitrotoluene		1.16	2.31	4.63	U	
606-20-2	2,6-Dinitrotoluene		1.16	2.31	4.63	U	
117-84-0	Di-n-octylphthalate		1.16	2.31	4.63	U	
117-81-7	Bis(2-ethylhexyl)phthalate		1.16	2.31	4.63	U	
118-74-1	Hexachlorobenzene		1.16	2.31	4.63	U	
87-68-3	Hexachlorobutadiene		1.16	2.31	4.63	U	
77-47-4	Hexachlorocyclopentadiene		1.16	4.63	9.26	U	
67-72-1	Hexachloroethane		1.16	2.31	4.63	U	
78-59-1	Isophorone		1.16	2.31	4.63	U	
95-48-7	2-Methylphenol		1.16	2.31	4.63	U	
106-44-5	4-Methylphenol		1.16	2.31	4.63	U	
100-01-6	4-Nitroaniline		4.63	9.26	18.5	U	
99-09-2	3-Nitroaniline		4.63	9.26	18.5	U	
88-74-4	2-Nitroaniline		4.63	9.26	18.5	U	
98-95-3	Nitrobenzene		1.16	2.31	4.63	U	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01DUP

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Water Laboratory ID: 1305125-18 File ID: 0512518.D

Sampled: 05/08/13 11:36 Prepared: 05/15/13 18:15 Analyzed: 05/20/13 12:12

Solids: Preparation: EXT 3510 Dilution: 1

Batch: 3E15016 Sequence: 3E14505 Calibration: 2261001 Instrument: MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		4.63	9.26	18.5	U
88-75-5	2-Nitrophenol		1.16	2.31	4.63	U
86-30-6	N-Nitrosodiphenylamine		1.16	2.31	4.63	U
621-64-7	N-Nitroso-di-n-propylamine		1.16	2.31	4.63	U
87-86-5	Pentachlorophenol		4.63	9.26	18.5	U
108-95-2	Phenol		1.16	2.31	4.63	U
95-94-3	1,2,4,5-Tetrachlorobenzene		1.16	2.31	4.63	U
58-90-2	2,3,4,6-Tetrachlorophenol		2.31	4.63	9.26	U
88-06-2	2,4,6-Trichlorophenol		1.16	2.31	4.63	U
95-95-4	2,4,5-Trichlorophenol		1.16	2.31	4.63	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	37.90	81.9	50 - 110	
2-Fluorophenol	92.59	39.10	42.2	20 - 110	
Nitrobenzene-d5	46.30	39.44	85.2	40 - 110	
Phenol-d6	92.59	21.47	23.2	0 - 110	
Terphenyl-d14	46.30	33.15	71.6	50 - 135	
2,4,6-Tribromophenol	92.59	78.88	85.2	40 - 125	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01DUP

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Water   Laboratory ID: 1305125-18   File ID: 0512518.D

Sampled: 05/08/13 11:36   Prepared: 05/15/13 18:15   Analyzed: 06/15/13 21:10

Solids: Preparation: EXT 3510   Dilution: 1

Batch: 3E15016   Sequence: 3F16823   Calibration: 3122001   Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene		0.0463	0.0926	0.185	U	U
208-96-8	Acenaphthylene		0.0463	0.0926	0.185	U	
120-12-7	Anthracene		0.0463	0.0926	0.185	U	
56-55-3	Benzo(a)anthracene		0.0463	0.0926	0.185	U	
50-32-8	Benzo(a)pyrene		0.0463	0.0926	0.185	U	
205-99-2	Benzo(b)fluoranthene		0.0463	0.0926	0.185	U	
191-24-2	Benzo(g,h,i)perylene		0.0463	0.0926	0.185	U	
207-08-9	Benzo(k)fluoranthene		0.0463	0.0926	0.185	U	
123-91-1	1,4-Dioxane		0.116	0.231	0.463	U	
218-01-9	Chrysene		0.0463	0.0926	0.185	U	
53-70-3	Dibenz(a,h)anthracene		0.0463	0.0926	0.185	U	
206-44-0	Fluoranthene		0.0463	0.0926	0.185	U	
86-73-7	Fluorene		0.0463	0.0926	0.185	U	
193-39-5	Indeno(1,2,3-cd)pyrene		0.0463	0.0926	0.185	U	
91-57-6	2-Methylnaphthalene	**2.65**	0.0463	0.0926	0.185		=
91-20-3	Naphthalene	**1.14**	0.0463	0.0926	0.185		=
85-01-8	Phenanthrene		0.0463	0.185	0.370	U	U
129-00-0	Pyrene	**0.0472**	0.0463	0.0926	0.185	J	J

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	35.77	77.3	50 - 110	
Terphenyl-d14	46.30	28.06	60.6	50 - 135	
2,4,6-Tribromophenol	92.59	80.89	87.4	40 - 125	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-18	File ID:	019F1901.D		
Sampled:	05/08/13 11:36	Prepared:	05/14/13 19:02	Analyzed:	05/21/13 06:28		
Solids:		Preparation:	EXT 3510	Dilution:	1		
Batch:	3E14020	Sequence:	3E14605	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)	**0.142**	0.0980	0.0980	0.196	J

Total Target Analytes Reported: 1

J

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.01961	0.009579	48.9	30 - 140	

ANALYSIS DATA SHEET

LNC-015-DP-SB1-01DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-18	File ID:	010F1401.D
Sampled:	05/08/13 11:36	Prepared:	05/16/13 18:50	Analyzed:	05/16/13 18:50
Solids:		Preparation:	8015GRO	Dilution:	1
Batch:	3E16005	Sequence:	3E14043	Calibration:	3044001
Instrument:	GL-GCVOA2				

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)	**0.122**	0.0500	0.100	0.150	J

J

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	0.05000	0.06258	125	50 - 150	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02

Laboratory: Empirical Laboratories, LLC | SDG: 1305125
Client: SAIC (S732) | Project: Lincoln NE ANG
Matrix: Solid | Laboratory ID: 1305125-15 | File ID: 0512515C.D
Sampled: 05/08/13 10:20 | Prepared: 05/20/13 00:00 | Analyzed: 05/20/13 16:29
Solids: 79.56 | Preparation: 5035A | Dilution: 100
Batch: 3E20008 | Sequence: 3E14106 | Calibration: 3140003 | Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone		622	1240	2490	UX	U
71-43-2	Benzene		156	311	622	U	
74-97-5	Bromochloromethane		156	311	622	U	
75-27-4	Bromodichloromethane		156	311	622	U	
75-25-2	Bromoform		156	311	622	U	
74-83-9	Bromomethane		311	622	1240	U	
78-93-3	2-Butanone		311	622	1240	UX	
75-15-0	Carbon disulfide		156	311	622	U	
56-23-5	Carbon tetrachloride		156	311	622	U	
108-90-7	Chlorobenzene		156	311	622	U	
75-00-3	Chloroethane		311	622	1240	U	
67-66-3	Chloroform		156	311	622	U	
74-87-3	Chloromethane		311	622	1240	U	
110-82-7	Cyclohexane		156	311	622	U	
124-48-1	Dibromochloromethane		156	311	622	U	
96-12-8	1,2-Dibromo-3-chloropropane		311	622	1240	U	
106-93-4	1,2-Dibromoethane (EDB)		156	311	622	U	
95-50-1	1,2-Dichlorobenzene		156	311	622	U	
541-73-1	1,3-Dichlorobenzene		156	311	622	U	
106-46-7	1,4-Dichlorobenzene		156	311	622	U	
75-71-8	Dichlorodifluoromethane		311	622	1240	U	
75-34-3	1,1-Dichloroethane		156	311	622	U	
107-06-2	1,2-Dichloroethane		156	311	622	U	
75-35-4	1,1-Dichloroethene		156	311	622	U	
156-59-2	cis-1,2-Dichloroethene		156	311	622	U	
156-60-5	trans-1,2-Dichloroethene		156	311	622	U	
78-87-5	1,2-Dichloropropane		156	311	622	U	
10061-01-5	cis-1,3-Dichloropropene		156	311	622	U	
10061-02-6	trans-1,3-Dichloropropene		156	311	622	U	
100-41-4	Ethylbenzene	312	156	311	622	JD	J
591-78-6	2-Hexanone		311	622	1240	UXO	U
98-82-8	Isopropylbenzene		156	311	622	U	U
75-09-2	Methylene chloride	378	311	622	1240	JD	JR F12
79-20-9	Methyl Acetate		311	622	1240	U	U
108-87-2	Methylcyclohexane	315	156	311	622	JD	J
108-10-1	4-Methyl-2-pentanone		311	622	1240	U	U
1634-04-4	Methyl t-Butyl Ether		156	311	622	U	
100-42-5	Styrene		156	311	622	U	
79-34-5	1,1,2,2-Tetrachloroethane		156	311	622	U	
127-18-4	Tetrachloroethene		156	311	622	U	

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ANALYSIS DATA SHEET

LNC-015-DS-SB1-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-15	File ID:	0512515C.D		
Sampled:	05/08/13 10:20	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 16:29		
Solids:	79.56	Preparation:	5035A	Dilution:	100		
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene		156	311	622	U
87-61-6	1,2,3-Trichlorobenzene		156	311	622	U
120-82-1	1,2,4-Trichlorobenzene		156	311	622	U
79-00-5	1,1,2-Trichloroethane		156	311	622	U
71-55-6	1,1,1-Trichloroethane		156	311	622	U
79-01-6	Trichloroethene		156	311	622	U
75-69-4	Trichlorofluoromethane		311	622	1240	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		311	622	1240	U
75-01-4	Vinyl chloride		156	311	622	U
108-38-3/106-42-	m,p-Xylene	2560	311	622	1240	D
95-47-6	o-Xylene	922	156	311	622	D

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	37.34	38.74	104	85 - 120	
Dibromofluoromethane	37.34	39.15	105	80 - 125	
1,2-Dichloroethane-d4	37.34	39.10	105	75 - 140	
Toluene-d8	37.34	37.24	99.7	85 - 115	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-15	File ID:	0512515.D
Sampled:	05/08/13 10:20	Prepared:	05/21/13 18:30	Analyzed:	05/29/13 21:58
Solids:	79.56	Preparation:	EXT 3546	Dilution:	1
Batch:	3E20013	Sequence:	3E15019	Calibration:	2272005
Instrument:	MS-BNA1				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		102	205	409	UX	U
1912-24-9	Atrazine		102	205	409	UY	UJ C05
100-52-7	Benzaldehyde		102	205	409	U	U
92-52-4	1,1-Biphenyl		102	205	409	U	
101-55-3	4-Bromophenyl-phenylether		102	205	409	U	
85-68-7	Butylbenzylphthalate		102	205	409	U	
105-60-2	Caprolactam		102	205	409	U	
86-74-8	Carbazole		102	205	409	U	
59-50-7	4-Chloro-3-methylphenol		102	205	409	U	
106-47-8	4-Chloroaniline		102	205	409	U	
111-91-1	Bis(2-chloroethoxy)methane		102	205	409	U	
111-44-4	Bis(2-chloroethyl)ether		102	205	409	U	
108-60-1	2,2'-Oxybis-1-chloropropane		102	205	409	U	
91-58-7	2-Chloronaphthalene		102	205	409	U	
95-57-8	2-Chlorophenol		102	205	409	U	
7005-72-3	4-Chlorophenyl phenyl ether		102	205	409	U	
132-64-9	Dibenzofuran		102	205	409	U	
84-74-2	Di-n-butylphthalate		102	205	409	U	
91-94-1	3,3'-Dichlorobenzidine		102	205	409	U	
120-83-2	2,4-Dichlorophenol		102	205	409	U	
84-66-2	Diethylphthalate		102	205	409	U	
105-67-9	2,4-Dimethylphenol		409	818	1630	U	
131-11-3	Dimethyl phthalate		102	205	409	U	
534-52-1	4,6-Dinitro-2-methylphenol		1020	2050	4090	U	
51-28-5	2,4-Dinitrophenol		1020	2050	4090	U	
121-14-2	2,4-Dinitrotoluene		102	205	409	U	
606-20-2	2,6-Dinitrotoluene		102	205	409	U	
117-84-0	Di-n-octylphthalate	328	102	205	409	J	J
117-81-7	Bis(2-ethylhexyl)phthalate	2650	102	205	409		=
118-74-1	Hexachlorobenzene		102	205	409	U	U
87-68-3	Hexachlorobutadiene		102	205	409	U	
77-47-4	Hexachlorocyclopentadiene		102	205	409	U	
67-72-1	Hexachloroethane		102	205	409	UX	
78-59-1	Isophorone		102	205	409	U	
95-48-7	2-Methylphenol		102	205	409	U	
106-44-5	4-Methylphenol		102	205	409	U	
100-01-6	4-Nitroaniline		409	818	1630	U	
99-09-2	3-Nitroaniline		409	818	1630	U	
88-74-4	2-Nitroaniline		409	818	1630	U	
98-95-3	Nitrobenzene		102	205	409	U	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-15	File ID:	0512515.D		
Sampled:	05/08/13 10:20	Prepared:	05/21/13 18:30	Analyzed:	05/29/13 21:58		
Solids:	79.56	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E20013	Sequence:	3E15019	Calibration:	2272005	Instrument:	MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		409	818	1630	U
88-75-5	2-Nitrophenol		102	205	409	U
86-30-6	N-Nitrosodiphenylamine		102	205	409	U
621-64-7	N-Nitroso-di-n-propylamine		102	205	409	UX
87-86-5	Pentachlorophenol		409	818	1630	U
108-95-2	Phenol		102	205	409	U
95-94-3	1,2,4,5-Tetrachlorobenzene		102	205	409	U
58-90-2	2,3,4,6-Tetrachlorophenol		102	205	409	U
88-06-2	2,4,6-Trichlorophenol		102	205	409	U
95-95-4	2,4,5-Trichlorophenol		102	205	409	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4089	2621	64.1	45 - 105	
2-Fluorophenol	8178	5336	65.3	35 - 105	
Nitrobenzene-d5	4089	2415	59.1	35 - 100	
Phenol-d6	8178	5539	67.7	40 - 100	
Terphenyl-d14	4089	3209	78.5	30 - 125	
2,4,6-Tribromophenol	8178	6157	75.3	35 - 125	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-15 File ID: 0512515R.D

Sampled: 05/08/13 10:20 Prepared: 05/21/13 18:30 Analyzed: 05/30/13 09:08

Solids: 79.56 Preparation: EXT_3546 Dilution: 1

Batch: 3E20013 Sequence: 3E15034 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene	**29.3**	2.05	4.09	8.18		=
208-96-8	Acenaphthylene	**21.7**	2.05	4.09	8.18		=
120-12-7	Anthracene	**26.1**	2.05	4.09	8.18		=
56-55-3	Benzo(a)anthracene	**23.3** •	2.05	4.09	8.18		=
50-32-8	Benzo(a)pyrene	**4.79**	2.05	4.09	8.18	J	J
205-99-2	Benzo(b)fluoranthene	**4.44**	2.05	4.09	8.18	J	J
191-24-2	Benzo(g,h,i)perylene	**6.21**	2.05	4.09	8.18	J	J
207-08-9	Benzo(k)fluoranthene	**3.08** •	2.05	4.09	8.18	J	J
123-91-1	1,4-Dioxane		10.2	20.5	40.9	U	U
218-01-9	Chrysene	**22.6** •	2.05	4.09	8.18	Q	J COS,AI
53-70-3	Dibenz(a,h)anthracene		2.05	4.09	8.18	U	U
206-44-0	Fluoranthene	**18.4**	2.05	4.09	8.18		=
86-73-7	Fluorene		2.05	4.09	8.18	U	U
193-39-5	Indeno(1,2,3-cd)pyrene	**2.26** •	2.05	4.09	8.18	J	J
91-57-6	2-Methylnaphthalene	**1820**	2.05	4.09	8.18		=
91-20-3	Naphthalene	**94.3**	2.05	4.09	8.18		=
85-01-8	Phenanthrene	**94.3**	2.05	4.09	8.18		=
129-00-0	Pyrene	**41.1**	2.05	4.09	8.18		=

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4089	3044	74.4	45 - 105	
Terphenyl-d14	4089	3382	82.7	30 - 125	
2,4,6-Tribromophenol	8178	7036	86.0	35 - 125	

JW
09/04/2013

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-15 File ID: 026F2601.D

Sampled: 05/08/13 10:20 Prepared: 05/20/13 12:19 Analyzed: 05/23/13 07:19

Solids: 79.56 Preparation: EXT 3546 Dilution: 1

Batch: 3E17023 Sequence: 3E14606 Calibration: 3143004 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)	**120**	8.02	8.02	15.9	

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.595	1.293	81.1	35 - 140	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02

Laboratory: Empirical Laboratories, LLC

SDG: 1305125

Client: SAIC (S732)

Project: Lincoln NE ANG

Matrix: Solid

Laboratory ID: 1305125-15

File ID: 011F1101.D

Sampled: 05/08/13 10:20

Prepared: 05/18/13 17:28

Analyzed: 05/19/13 00:32

Solids: 79.56

Preparation: 8015GRO

Dilution: 1

Batch: 3E18011

Sequence: 3E14307

Calibration: 3044001

Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)	**19.3**	3.11	6.22	9.33	

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.111	3.167	102	50 - 150	X

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-16	File ID:	0512516C.D		
Sampled:	05/08/13 10:20	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 16:58		
Solids:	75.11	Preparation:	5035A	Dilution:	100		
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone		681	1360	2720	UX	U
71-43-2	Benzene		170	340	681	U	
74-97-5	Bromochloromethane		170	340	681	U	
75-27-4	Bromodichloromethane		170	340	681	U	
75-25-2	Bromoform		170	340	681	U	
74-83-9	Bromomethane		340	681	1360	U	
78-93-3	2-Butanone		340	681	1360	UX	
75-15-0	Carbon disulfide		170	340	681	U	
56-23-5	Carbon tetrachloride		170	340	681	U	
108-90-7	Chlorobenzene		170	340	681	U	
75-00-3	Chloroethane		340	681	1360	U	
67-66-3	Chloroform		170	340	681	U	
74-87-3	Chloromethane		340	681	1360	U	
110-82-7	Cyclohexane		170	340	681	U	
124-48-1	Dibromochloromethane		170	340	681	U	
96-12-8	1,2-Dibromo-3-chloropropane		340	681	1360	U	
106-93-4	1,2-Dibromoethane (EDB)		170	340	681	U	
95-50-1	1,2-Dichlorobenzene		170	340	681	U	
541-73-1	1,3-Dichlorobenzene		170	340	681	U	
106-46-7	1,4-Dichlorobenzene		170	340	681	U	
75-71-8	Dichlorodifluoromethane		340	681	1360	U	
75-34-3	1,1-Dichloroethane		170	340	681	U	
107-06-2	1,2-Dichloroethane		170	340	681	U	
75-35-4	1,1-Dichloroethene		170	340	681	U	
156-59-2	cis-1,2-Dichloroethene		170	340	681	U	
156-60-5	trans-1,2-Dichloroethene		170	340	681	U	
78-87-5	1,2-Dichloropropane		170	340	681	U	
10061-01-5	cis-1,3-Dichloropropene		170	340	681	U	
10061-02-6	trans-1,3-Dichloropropene		170	340	681	U	
100-41-4	Ethylbenzene	192	170	340	681	JD	J
591-78-6	2-Hexanone		340	681	1360	UXO	U
98-82-8	Isopropylbenzene		170	340	681	U	
75-09-2	Methylene chloride		340	681	1360	U	
79-20-9	Methyl Acetate		340	681	1360	U	
108-87-2	Methylcyclohexane	378	170	340	681	JD	J
108-10-1	4-Methyl-2-pentanone		340	681	1360	U	U
1634-04-4	Methyl t-Butyl Ether		170	340	681	U	
100-42-5	Styrene		170	340	681	U	
79-34-5	1,1,2,2-Tetrachloroethane		170	340	681	U	
127-18-4	Tetrachloroethene		170	340	681	U	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-16	File ID:	0512516C.D
Sampled:	05/08/13 10:20	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 16:58
Solids:	75.11	Preparation:	5035A	Dilution:	100
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003
Instrument:	MS-VOA3				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
108-88-3	Toluene		170	340	681	U	U
87-61-6	1,2,3-Trichlorobenzene		170	340	681	U	
120-82-1	1,2,4-Trichlorobenzene		170	340	681	U	
79-00-5	1,1,2-Trichloroethane		170	340	681	U	
71-55-6	1,1,1-Trichloroethane		170	340	681	U	
79-01-6	Trichloroethene		170	340	681	U	
75-69-4	Trichlorofluoromethane		340	681	1360	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		340	681	1360	U	
75-01-4	Vinyl chloride		170	340	681	U	
108-38-3/106-42-	m,p-Xylene	1510	340	681	1360	D	
95-47-6	o-Xylene	551	170	340	681	JD	J

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	40.84	41.86	102	85 - 120	
Dibromofluoromethane	40.84	42.30	104	80 - 125	
1,2-Dichloroethane-d4	40.84	42.35	104	75 - 140	
Toluene-d8	40.84	41.51	102	85 - 115	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02DUP

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Solid   Laboratory ID: 1305125-16   File ID: 0512516.D

Sampled: 05/08/13 10:20   Prepared: 05/21/13 18:30   Analyzed: 05/29/13 22:26

Solids: 75.11   Preparation: EXT 3546   Dilution: 1

Batch: 3E20013   Sequence: 3E15019   Calibration: 2272005   Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
98-86-2	Acetophenone		106	212	423	UX U
1912-24-9	Atrazine		106	212	423	UY UJ COS
100-52-7	Benzaldehyde		106	212	423	U U
92-52-4	1,1-Biphenyl		106	212	423	U
101-55-3	4-Bromophenyl-phenylether		106	212	423	U
85-68-7	Butylbenzylphthalate		106	212	423	U
105-60-2	Caprolactam		106	212	423	U
86-74-8	Carbazole		106	212	423	U
59-50-7	4-Chloro-3-methylphenol		106	212	423	U
106-47-8	4-Chloroaniline		106	212	423	U
111-91-1	Bis(2-chloroethoxy)methane		106	212	423	U
111-44-4	Bis(2-chloroethyl)ether		106	212	423	U
108-60-1	2,2'-Oxybis-1-chloropropane		106	212	423	U
91-58-7	2-Chloronaphthalene		106	212	423	U
95-57-8	2-Chlorophenol		106	212	423	U
7005-72-3	4-Chlorophenyl phenyl ether		106	212	423	U
132-64-9	Dibenzofuran		106	212	423	U
84-74-2	Di-n-butylphthalate		106	212	423	U
91-94-1	3,3'-Dichlorobenzidine		106	212	423	U
120-83-2	2,4-Dichlorophenol		106	212	423	U
84-66-2	Diethylphthalate		106	212	423	U
105-67-9	2,4-Dimethylphenol		423	847	1690	U
131-11-3	Dimethyl phthalate		106	212	423	U
534-52-1	4,6-Dinitro-2-methylphenol		1060	2120	4230	U
51-28-5	2,4-Dinitrophenol		1060	2120	4230	U
121-14-2	2,4-Dinitrotoluene		106	212	423	U
606-20-2	2,6-Dinitrotoluene		106	212	423	U
117-84-0	Di-n-octylphthalate		106	212	423	U
117-81-7	Bis(2-ethylhexyl)phthalate		106	212	423	U
118-74-1	Hexachlorobenzene		106	212	423	U
87-68-3	Hexachlorobutadiene		106	212	423	U
77-47-4	Hexachlorocyclopentadiene		106	212	423	U
67-72-1	Hexachloroethane		106	212	423	UX
78-59-1	Isophorone		106	212	423	U
95-48-7	2-Methylphenol		106	212	423	U
106-44-5	4-Methylphenol		106	212	423	U
100-01-6	4-Nitroaniline		423	847	1690	U
99-09-2	3-Nitroaniline		423	847	1690	U
88-74-4	2-Nitroaniline		423	847	1690	U
98-95-3	Nitrobenzene		106	212	423	U

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02DUP

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Solid	Laboratory ID: 1305125-16		File ID:	0512516.D
Sampled:	05/08/13 10:20	Prepared: 05/21/13 18:30		Analyzed:	05/29/13 22:26
Solids:	75.11	Preparation: EXT 3546		Dilution:	1
Batch:	3E20013	Sequence: 3E15019	Calibration: 2272005	Instrument:	MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		423	847	1690	U
88-75-5	2-Nitrophenol		106	212	423	U
86-30-6	N-Nitrosodiphenylamine		106	212	423	U
621-64-7	N-Nitroso-di-n-propylamine		106	212	423	UX
87-86-5	Pentachlorophenol		423	847	1690	U
108-95-2	Phenol		106	212	423	U
95-94-3	1,2,4,5-Tetrachlorobenzene		106	212	423	U
58-90-2	2,3,4,6-Tetrachlorophenol		106	212	423	U
88-06-2	2,4,6-Trichlorophenol		106	212	423	U
95-95-4	2,4,5-Trichlorophenol		106	212	423	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4232	3172	74.9	45 - 105	
2-Fluorophenol	8464	6621	78.2	35 - 105	
Nitrobenzene-d5	4232	3200	75.6	35 - 100	
Phenol-d6	8464	6973	82.4	40 - 100	
Terphenyl-d14	4232	3546	83.8	30 - 125	
2.4.6-Tribromophenol	8464	6879	81.3	35 - 125	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02DUP

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-16	File ID:	0512516.D		
Sampled:	05/08/13 10:20	Prepared:	05/21/13 18:30	Analyzed:	05/30/13 02:40		
Solids:	75.11	Preparation:	EXT_3546	Dilution:	1		
Batch:	3E20013	Sequence:	3E15018	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene	**2.76** •	2.12	4.23	8.47	J	J
208-96-8	Acenaphthylene		2.12	4.23	8.47	U	U
120-12-7	Anthracene		2.12	4.23	8.47	U	
56-55-3	Benzo(a)anthracene		2.12	4.23	8.47	U	
50-32-8	Benzo(a)pyrene		2.12	4.23	8.47	U	
205-99-2	Benzo(b)fluoranthene		2.12	4.23	8.47	U	
191-24-2	Benzo(g,h,i)perylene		2.12	4.23	8.47	U	
207-08-9	Benzo(k)fluoranthene		2.12	4.23	8.47	U	
123-91-1	1,4-Dioxane		10.6	21.2	42.3	U	
218-01-9	Chrysene		2.12	4.23	8.47	UQ	
53-70-3	Dibenz(a,h)anthracene		2.12	4.23	8.47	U	
206-44-0	Fluoranthene		2.12	4.23	8.47	U	
86-73-7	Fluorene		2.12	4.23	8.47	U	
193-39-5	Indeno(1,2,3-cd)pyrene		2.12	4.23	8.47	U	
91-57-6	2-Methylnaphthalene	**668**	2.12	4.23	8.47		=
91-20-3	Naphthalene	**154**	2.12	4.23	8.47		=
85-01-8	Phenanthrene	**3.32** •	2.12	4.23	8.47	J	J
129-00-0	Pyrene		2.12	4.23	8.47	U	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4232	3664	86.6	45 - 105	
Terphenyl-d14	4232	3790	89.6	30 - 125	
2,4,6-Tribromophenol	8464	7915	93.5	35 - 125	

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09/04/2013

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02DUP

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Solid   Laboratory ID: 1305125-16   File ID: 027F2701.D

Sampled: 05/08/13 10:20   Prepared: 05/20/13 12:19   Analyzed: 05/23/13 07:52

Solids: 75.11   Preparation: EXT 3546   Dilution: 1

Batch: 3E17023   Sequence: 3E14606   Calibration: 3143004   Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)	9.48	8.53	8.53	16.9	J

J

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.698	1.394	82.1	35 - 140	

ANALYSIS DATA SHEET

LNC-015-DS-SB1-02DUP

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Solid Laboratory ID: 1305125-16 File ID: 012F1201.D
Sampled: 05/08/13 10:20 Prepared: 05/18/13 17:28 Analyzed: 05/19/13 01:12
Solids: 75.11 Preparation: 8015GRO Dilution: 1
Batch: 3E18011 Sequence: 3E14307 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)	13.7	3.40	6.81	10.2	

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.403	3.552	104	50 - 150	X

ANALYSIS DATA SHEET

LNC-015-RN-SB1-01

Laboratory: Empirical Laboratories, LLC
SDG: 1305125
Client: SAIC (S732)
Project: Lincoln NE ANG
Matrix: Water
Laboratory ID: 1305125-12RE1
File ID: 0512512R.D
Sampled: 05/08/13 08:10
Prepared: 05/21/13 16:29
Analyzed: 05/21/13 16:29
Solids:
Preparation: 5030B
Dilution: 1
Batch: 3E21015
Sequence: 3E14209
Calibration: 3140001
Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	2.74	2.50	5.00	10.0	J
71-43-2	Benzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	UX
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
110-82-7	Cyclohexane		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	UX
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
79-20-9	Methyl Acetate		0.500	1.00	2.00	U
108-87-2	Methylcyclohexane		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	UX
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U

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ANALYSIS DATA SHEET

LNC-015-RN-SB1-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID: 1305125-12RE1	File ID:	0512512R.D	
Sampled:	05/08/13 08:10	Prepared: 05/21/13 16:29	Analyzed:	05/21/13 16:29	
Solids:		Preparation: 5030B	Dilution:	1	
Batch:	3E21015	Sequence: 3E14209	Calibration:	3140001	Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
108-88-3	Toluene	**0.330**	0.250	0.500	1.00	J ~~U~~ ~~foz~~ J
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		0.500	1.00	2.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	30.17	101	75 - 120	
Dibromofluoromethane	30.00	31.98	107	85 - 115	
1,2-Dichloroethane-d4	30.00	31.09	104	70 - 120	
Toluene-d8	30.00	29.76	99.2	85 - 120	

JW
06/25/2013

ANALYSIS DATA SHEET

LNC-015-RN-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-12	File ID:	0512512.D
Sampled:	05/08/13 08:10	Prepared:	05/15/13 18:15	Analyzed:	05/20/13 11:16
Solids:		Preparation:	EXT 3510	Dilution:	1

Batch: 3E15016 Sequence: 3E14505 Calibration: 2261001 Instrument: MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		1.18	2.36	4.72	U	U
1912-24-9	Atrazine		1.18	2.36	4.72	UY	UJ COS
100-52-7	Benzaldehyde		1.18	2.36	4.72	U	U
92-52-4	1,1-Biphenyl		1.18	2.36	4.72	U	
101-55-3	4-Bromophenyl-phenylether		1.18	2.36	4.72	U	
85-68-7	Butylbenzylphthalate		1.18	2.36	4.72	U	
105-60-2	Caprolactam		1.18	2.36	4.72	U	
86-74-8	Carbazole		1.18	2.36	4.72	U	
59-50-7	4-Chloro-3-methylphenol		1.18	2.36	4.72	U	
106-47-8	4-Chloroaniline		1.18	2.36	4.72	U	
111-91-1	Bis(2-chloroethoxy)methane		1.18	2.36	4.72	U	
111-44-4	Bis(2-chloroethyl)ether		1.18	2.36	4.72	U	
108-60-1	2,2'-Oxybis-1-chloropropane		1.18	2.36	4.72	U	
91-58-7	2-Chloronaphthalene		1.18	2.36	4.72	U	
95-57-8	2-Chlorophenol		1.18	2.36	4.72	U	
7005-72-3	4-Chlorophenyl phenyl ether		1.18	2.36	4.72	U	
132-64-9	Dibenzofuran		1.18	2.36	4.72	U	
84-74-2	Di-n-butylphthalate		1.18	2.36	4.72	U	
91-94-1	3,3'-Dichlorobenzidine		1.18	2.36	4.72	U	
120-83-2	2,4-Dichlorophenol		1.18	2.36	4.72	U	
84-66-2	Diethylphthalate		1.18	2.36	4.72	U	
105-67-9	2,4-Dimethylphenol		4.72	9.43	18.9	U	
131-11-3	Dimethyl phthalate		1.18	2.36	4.72	U	
534-52-1	4,6-Dinitro-2-methylphenol		4.72	9.43	18.9	U	
51-28-5	2,4-Dinitrophenol		7.86	23.6	47.2	U	
121-14-2	2,4-Dinitrotoluene		1.18	2.36	4.72	U	
606-20-2	2,6-Dinitrotoluene		1.18	2.36	4.72	U	
117-84-0	Di-n-octylphthalate		1.18	2.36	4.72	U	
117-81-7	Bis(2-ethylhexyl)phthalate		1.18	2.36	4.72	U	
118-74-1	Hexachlorobenzene		1.18	2.36	4.72	U	
87-68-3	Hexachlorobutadiene		1.18	2.36	4.72	U	
77-47-4	Hexachlorocyclopentadiene		1.18	4.72	9.43	U	
67-72-1	Hexachloroethane		1.18	2.36	4.72	U	
78-59-1	Isophorone		1.18	2.36	4.72	U	
95-48-7	2-Methylphenol		1.18	2.36	4.72	U	
106-44-5	4-Methylphenol		1.18	2.36	4.72	U	
100-01-6	4-Nitroaniline		4.72	9.43	18.9	U	
99-09-2	3-Nitroaniline		4.72	9.43	18.9	U	
88-74-4	2-Nitroaniline		4.72	9.43	18.9	U	
98-95-3	Nitrobenzene		1.18	2.36	4.72	U	

ANALYSIS DATA SHEET

LNC-015-RN-SB1-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Water Laboratory ID: 1305125-12 File ID: 0512512.D

Sampled: 05/08/13 08:10 Prepared: 05/15/13 18:15 Analyzed: 05/20/13 11:16

Solids: Preparation: EXT 3510 Dilution: 1

Batch: 3E15016 Sequence: 3E14505 Calibration: 2261001 Instrument: MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		4.72	9.43	18.9	U
88-75-5	2-Nitrophenol		1.18	2.36	4.72	U
86-30-6	N-Nitrosodiphenylamine		1.18	2.36	4.72	U
621-64-7	N-Nitroso-di-n-propylamine		1.18	2.36	4.72	U
87-86-5	Pentachlorophenol		4.72	9.43	18.9	U
108-95-2	Phenol		1.18	2.36	4.72	U
95-94-3	1,2,4,5-Tetrachlorobenzene		1.18	2.36	4.72	U
58-90-2	2,3,4,6-Tetrachlorophenol		2.36	4.72	9.43	U
88-06-2	2,4,6-Trichlorophenol		1.18	2.36	4.72	U
95-95-4	2,4,5-Trichlorophenol		1.18	2.36	4.72	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	47.17	30.29	64.2	50 - 110	
2-Fluorophenol	94.34	31.24	33.1	20 - 110	
Nitrobenzene-d5	47.17	29.81	63.2	40 - 110	
Phenol-d6	94.34	18.70	19.8	0 - 110	
Terphenyl-d14	47.17	40.29	85.4	50 - 135	
2,4,6-Tribromophenol	94.34	70.46	74.7	40 - 125	

ANALYSIS DATA SHEET

LNC-015-RN-SB1-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Water Laboratory ID: 1305125-12 File ID: 0512512.D

Sampled: 05/08/13 08:10 Prepared: 05/15/13 18:15 Analyzed: 06/15/13 20:14

Solids: Preparation: EXT 3510 Dilution: 1

Batch: 3E15016 Sequence: 3F16823 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene		0.0472	0.0943	0.189	U	U
208-96-8	Acenaphthylene		0.0472	0.0943	0.189	U	
120-12-7	Anthracene		0.0472	0.0943	0.189	U	
56-55-3	Benzo(a)anthracene		0.0472	0.0943	0.189	U	
50-32-8	Benzo(a)pyrene		0.0472	0.0943	0.189	U	
205-99-2	Benzo(b)fluoranthene		0.0472	0.0943	0.189	U	
191-24-2	Benzo(g,h,i)perylene		0.0472	0.0943	0.189	U	
207-08-9	Benzo(k)fluoranthene		0.0472	0.0943	0.189	U	
123-91-1	1,4-Dioxane		0.118	0.236	0.472	U	
218-01-9	Chrysene		0.0472	0.0943	0.189	U	
53-70-3	Dibenz(a,h)anthracene		0.0472	0.0943	0.189	U	
206-44-0	Fluoranthene		0.0472	0.0943	0.189	U	
86-73-7	Fluorene		0.0472	0.0943	0.189	U	
193-39-5	Indeno(1,2,3-cd)pyrene		0.0472	0.0943	0.189	U	
91-57-6	2-Methylnaphthalene		0.0472	0.0943	0.189	U	
91-20-3	Naphthalene	**0.0787**	0.0472	0.0943	0.189	J U	F02
85-01-8	Phenanthrene		0.0472	0.189	0.377	U	U
129-00-0	Pyrene		0.0472	0.0943	0.189	U	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	47.17	30.78	65.3	50 - 110	
Terphenyl-d14	47.17	36.07	76.5	50 - 135	
2,4,6-Tribromophenol	94.34	74.97	79.5	40 - 125	

ANALYSIS DATA SHEET

LNC-015-RN-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-12	File ID:	017F1701.D		
Sampled:	05/08/13 08:10	Prepared:	05/14/13 19:02	Analyzed:	05/21/13 05:21		
Solids:		Preparation:	EXT 3510	Dilution:	1		
Batch:	3E14020	Sequence:	3E14605	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		0.111	0.111	0.222	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.02222	0.01838	82.7	30 - 140	

ANALYSIS DATA SHEET

LNC-015-RN-SB1-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Water Laboratory ID: 1305125-12 File ID: 008F1201.D
Sampled: 05/08/13 08:10 Prepared: 05/16/13 17:32 Analyzed: 05/16/13 17:32
Solids: Preparation: 8015GRO Dilution: 1
Batch: 3E16005 Sequence: 3E14043 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		0.0500	0.100	0.150	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	0.05000	0.06453	129	50 - 150	

ANALYSIS DATA SHEET

LNC-015-DS-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-19	File ID:	0512519C.D
Sampled:	05/08/13 13:18	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 17:27
Solids:	77.32	Preparation:	5035A	Dilution:	100
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003
Instrument:	MS-VOA3				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone		645	1290	2580	UX	U
71-43-2	Benzene		161	323	645	U	
74-97-5	Bromochloromethane		161	323	645	U	
75-27-4	Bromodichloromethane		161	323	645	U	
75-25-2	Bromoform		161	323	645	U	
74-83-9	Bromomethane		323	645	1290	U	
78-93-3	2-Butanone		323	645	1290	UX	
75-15-0	Carbon disulfide		161	323	645	U	
56-23-5	Carbon tetrachloride		161	323	645	U	
108-90-7	Chlorobenzene		161	323	645	U	
75-00-3	Chloroethane		323	645	1290	U	
67-66-3	Chloroform		161	323	645	U	
74-87-3	Chloromethane		323	645	1290	U	
110-82-7	Cyclohexane	9670	161	323	645	D J	601
124-48-1	Dibromochloromethane		161	323	645	U	U
96-12-8	1,2-Dibromo-3-chloropropane		323	645	1290	U	
106-93-4	1,2-Dibromoethane (EDB)		161	323	645	U	
95-50-1	1,2-Dichlorobenzene		161	323	645	U	
541-73-1	1,3-Dichlorobenzene		161	323	645	U	
106-46-7	1,4-Dichlorobenzene		161	323	645	U	
75-71-8	Dichlorodifluoromethane		323	645	1290	U	
75-34-3	1,1-Dichloroethane		161	323	645	U	
107-06-2	1,2-Dichloroethane		161	323	645	U	
75-35-4	1,1-Dichloroethene		161	323	645	U	
156-59-2	cis-1,2-Dichloroethene		161	323	645	U	
156-60-5	trans-1,2-Dichloroethene		161	323	645	U	
78-87-5	1,2-Dichloropropane		161	323	645	U	
10061-01-5	cis-1,3-Dichloropropene		161	323	645	U	
10061-02-6	trans-1,3-Dichloropropene		161	323	645	U	
100-41-4	Ethylbenzene	4410	161	323	645	D J	601
591-78-6	2-Hexanone		323	645	1290	UXO	U
98-82-8	Isopropylbenzene	3160	161	323	645	D J	601
75-09-2	Methylene chloride		323	645	1290	U	U
79-20-9	Methyl Acetate		323	645	1290	U	U
108-87-2	Methylcyclohexane	29800	161	323	645	D J	601
108-10-1	4-Methyl-2-pentanone		323	645	1290	U	U
1634-04-4	Methyl t-Butyl Ether		161	323	645	U	
100-42-5	Styrene		161	323	645	U	
79-34-5	1,1,2,2-Tetrachloroethane		161	323	645	U	
127-18-4	Tetrachloroethene		161	323	645	U	

ANALYSIS DATA SHEET

LNC-015-DS-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-19	File ID:	0512519C.D		
Sampled:	05/08/13 13:18	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 17:27		
Solids:	77.32	Preparation:	5035A	Dilution:	100		
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene	**315**	161	323	645	JD J G01
87-61-6	1,2,3-Trichlorobenzene		161	323	645	U U
120-82-1	1,2,4-Trichlorobenzene		161	323	645	U
79-00-5	1,1,2-Trichloroethane		161	323	645	U
71-55-6	1,1,1-Trichloroethane		161	323	645	U
79-01-6	Trichloroethene		161	323	645	U
75-69-4	Trichlorofluoromethane		323	645	1290	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		323	645	1290	U
75-01-4	Vinyl chloride		161	323	645	U
108-38-3/106-42-	m,p-Xylene	**34100**	323	645	1290	D J G01
95-47-6	o-Xylene	**10100**	161	323	645	D J G01

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	38.72	46.83	121	85 - 120	*
Dibromofluoromethane	38.72	38.67	99.9	80 - 125	
1,2-Dichloroethane-d4	38.72	39.60	102	75 - 140	
Toluene-d8	38.72	39.90	103	85 - 115	

ANALYSIS DATA SHEET

LNC-015-DS-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-19	File ID:	0512519.D
Sampled:	05/08/13 13:18	Prepared:	05/21/13 18:30	Analyzed:	05/29/13 22:53
Solids:	77.32	Preparation:	EXT 3546	Dilution:	1
Batch:	3E20013	Sequence:	3E15019	Calibration:	2272005
Instrument:	MS-BNA1				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		105	211	420	UX	U
1912-24-9	Atrazine		105	211	420	UY	UJ COS
100-52-7	Benzaldehyde		105	211	420	U	U
92-52-4	1,1-Biphenyl		105	211	420	U	
101-55-3	4-Bromophenyl-phenylether		105	211	420	U	
85-68-7	Butylbenzylphthalate		105	211	420	U	
105-60-2	Caprolactam		105	211	420	U	
86-74-8	Carbazole		105	211	420	U	
59-50-7	4-Chloro-3-methylphenol		105	211	420	U	
106-47-8	4-Chloroaniline		105	211	420	U	
111-91-1	Bis(2-chloroethoxy)methane		105	211	420	U	
111-44-4	Bis(2-chloroethyl)ether		105	211	420	U	
108-60-1	2,2'-Oxybis-1-chloropropane		105	211	420	U	
91-58-7	2-Chloronaphthalene		105	211	420	U	
95-57-8	2-Chlorophenol		105	211	420	U	
7005-72-3	4-Chlorophenyl phenyl ether		105	211	420	U	
132-64-9	Dibenzofuran		105	211	420	U	
84-74-2	Di-n-butylphthalate		105	211	420	U	
91-94-1	3,3'-Dichlorobenzidine		105	211	420	U	
120-83-2	2,4-Dichlorophenol		105	211	420	U	
84-66-2	Diethylphthalate		105	211	420	U	
105-67-9	2,4-Dimethylphenol		420	841	1680	U	
131-11-3	Dimethyl phthalate		105	211	420	U	
534-52-1	4,6-Dinitro-2-methylphenol		1050	2110	4200	U	
51-28-5	2,4-Dinitrophenol		1050	2110	4200	U	
121-14-2	2,4-Dinitrotoluene		105	211	420	U	
606-20-2	2,6-Dinitrotoluene		105	211	420	U	
117-84-0	Di-n-octylphthalate	306	105	211	420	J	J
117-81-7	Bis(2-ethylhexyl)phthalate	770	105	211	420		=
118-74-1	Hexachlorobenzene		105	211	420	U	U
87-68-3	Hexachlorobutadiene		105	211	420	U	
77-47-4	Hexachlorocyclopentadiene		105	211	420	U	
67-72-1	Hexachloroethane		105	211	420	UX	
78-59-1	Isophorone		105	211	420	U	
95-48-7	2-Methylphenol		105	211	420	U	
106-44-5	4-Methylphenol		105	211	420	U	
100-01-6	4-Nitroaniline		420	841	1680	U	
99-09-2	3-Nitroaniline		420	841	1680	U	
88-74-4	2-Nitroaniline		420	841	1680	U	
98-95-3	Nitrobenzene		105	211	420	U	

ANALYSIS DATA SHEET

LNC-015-DS-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-19	File ID:	0512519.D
Sampled:	05/08/13 13:18	Prepared:	05/21/13 18:30	Analyzed:	05/29/13 22:53
Solids:	77.32	Preparation:	EXT 3546	Dilution:	1

Batch: 3E20013 Sequence: 3E15019 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		420	841	1680	U
88-75-5	2-Nitrophenol		105	211	420	U
86-30-6	N-Nitrosodiphenylamine		105	211	420	U
621-64-7	N-Nitroso-di-n-propylamine		105	211	420	UX
87-86-5	Pentachlorophenol		420	841	1680	U
108-95-2	Phenol		105	211	420	U
95-94-3	1,2,4,5-Tetrachlorobenzene		105	211	420	U
58-90-2	2,3,4,6-Tetrachlorophenol		105	211	420	U
88-06-2	2,4,6-Trichlorophenol		105	211	420	U
95-95-4	2,4,5-Trichlorophenol		105	211	420	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4202	2739	65.2	45 - 105	
2-Fluorophenol	8404	5855	69.7	35 - 105	
Nitrobenzene-d5	4202	3018	71.8	35 - 100	
Phenol-d6	8404	6097	72.6	40 - 100	
Terphenyl-d14	4202	3296	78.4	30 - 125	
2,4,6-Tribromophenol	8404	6446	76.7	35 - 125	

ANALYSIS DATA SHEET

LNC-015-DS-SB2-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Solid	Laboratory ID:	1305125-19	File ID:	0512519.D
Sampled:	05/08/13 13:18	Prepared:	05/21/13 18:30	Analyzed:	05/30/13 03:08
Solids:	77.32	Preparation:	EXT_3546	Dilution:	1

Batch: 3E20013 Sequence: 3E15018 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene	**8.21**	2.11	4.20	8.41	J	J
208-96-8	Acenaphthylene	**6.74**	2.11	4.20	8.41	J	
120-12-7	Anthracene	**6.42**	2.11	4.20	8.41	J	
56-55-3	Benzo(a)anthracene	**3.57** •	2.11	4.20	8.41	J	
50-32-8	Benzo(a)pyrene		2.11	4.20	8.41	U	u
205-99-2	Benzo(b)fluoranthene		2.11	4.20	8.41	U	
191-24-2	Benzo(g,h,i)perylene		2.11	4.20	8.41	U	
207-08-9	Benzo(k)fluoranthene		2.11	4.20	8.41	U	
123-91-1	1,4-Dioxane		10.5	21.1	42.0	U	
218-01-9	Chrysene	**2.75** •	2.11	4.20	8.41	JQ	J ~~LOS~~ PQL JW
53-70-3	Dibenz(a,h)anthracene		2.11	4.20	8.41	U	u
206-44-0	Fluoranthene	**3.64** •	2.11	4.20	8.41	J	J
86-73-7	Fluorene	**18.3**	2.11	4.20	8.41		=
193-39-5	Indeno(1,2,3-cd)pyrene		2.11	4.20	8.41	U	u
91-57-6	2-Methylnaphthalene	**228**	2.11	4.20	8.41		=
91-20-3	Naphthalene	**27.1**	2.11	4.20	8.41		=
85-01-8	Phenanthrene	**24.7**	2.11	4.20	8.41		=
129-00-0	Pyrene	**6.07**	2.11	4.20	8.41	J	J

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4202	3261	77.6	45 - 105	
Terphenyl-d14	4202	3539	84.2	30 - 125	
2,4,6-Tribromophenol	8404	7323	87.1	35 - 125	

JW 09/04/2013

ANALYSIS DATA SHEET

LNC-015-DS-SB2-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Solid Laboratory ID: 1305125-19 File ID: 028F2801.D
Sampled: 05/08/13 13:18 Prepared: 05/20/13 12:19 Analyzed: 05/23/13 08:26
Solids: 77.32 Preparation: EXT 3546 Dilution: 1
Batch: 3E17023 Sequence: 3E14606 Calibration: 3143004 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)	115	8.27	8.27	16.4	

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.646	2.255	137	35 - 140	

JV
06/25/2013

ANALYSIS DATA SHEET

LNC-015-DS-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-19RE1	File ID:	007F0701.D		
Sampled:	05/08/13 13:18	Prepared:	05/22/13 11:48	Analyzed:	05/22/13 16:14		
Solids:	77.32	Preparation:	8015GRO	Dilution:	10		
Batch:	3E22019	Sequence:	3E14701	Calibration:	3044001	Instrument:	GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)	**810**	32.3	64.5	96.8	D J A01, G02

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.227	6.529	202	50 - 150	*X

ANALYSIS DATA SHEET

LNC-015-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-21	File ID:	0512521.D		
Sampled:	05/08/13 14:10	Prepared:	05/21/13 18:50	Analyzed:	05/21/13 18:50		
Solids:		Preparation:	5030B	Dilution:	1		
Batch:	3E21015	Sequence:	3E14209	Calibration:	3140001	Instrument:	MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
67-64-1	Acetone	**5.37**	2.50	5.00	10.0	J	J
71-43-2	Benzene	**1.55**	0.250	0.500	1.00		=
74-97-5	Bromochloromethane		0.250	0.500	1.00	U	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U	
75-25-2	Bromoform		0.250	0.500	1.00	U	
74-83-9	Bromomethane		0.500	1.00	2.00	U	
78-93-3	2-Butanone		2.50	5.00	10.0	UX	
75-15-0	Carbon disulfide		0.250	0.500	1.00	U	
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U	
108-90-7	Chlorobenzene		0.250	0.500	1.00	U	
75-00-3	Chloroethane		0.500	1.00	2.00	U	
67-66-3	Chloroform		0.250	0.500	1.00	U	
74-87-3	Chloromethane		0.250	0.500	1.00	U	
110-82-7	Cyclohexane	**12.2**	0.250	0.500	1.00		=
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U	
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U	
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U	
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U	
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U	
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U	
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U	
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U	
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U	
156-59-2	cis-1,2-Dichloroethene	**0.340**	0.250	0.500	1.00	J	J
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U	
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U	
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U	
100-41-4	Ethylbenzene	**10.2**	0.250	0.500	1.00		=
591-78-6	2-Hexanone		1.25	2.50	5.00	UX	U
98-82-8	Isopropylbenzene	**3.79**	0.250	0.500	1.00		=
75-09-2	Methylene chloride		0.500	1.00	2.00	U	U
79-20-9	Methyl Acetate		0.500	1.00	2.00	U	U
108-87-2	Methylcyclohexane	**21.8**	0.250	0.500	1.00		=
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	UX	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U	
100-42-5	Styrene		0.250	0.500	1.00	U	
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U	
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U	

ANALYSIS DATA SHEET

LNC-015-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-21	File ID:	0512521.D
Sampled:	05/08/13 14:10	Prepared:	05/21/13 18:50	Analyzed:	05/21/13 18:50
Solids:		Preparation:	5030B	Dilution:	1
Batch:	3E21015	Sequence:	3E14209	Calibration:	3140001
Instrument:	MS-VOA4				

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
108-88-3	Toluene	**2.07**	0.250	0.500	1.00	U	F02
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U	
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U	
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U	
79-01-6	Trichloroethene		0.250	0.500	1.00	U	
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		0.500	1.00	2.00	U	
75-01-4	Vinyl chloride		0.250	0.500	1.00	U	
108-38-3/106-42-	m,p-Xylene	**75.3**	0.500	1.00	2.00		
95-47-6	o-Xylene	**24.6**	0.250	0.500	1.00		

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.80	106	75 - 120	
Dibromofluoromethane	30.00	32.47	108	85 - 115	
1,2-Dichloroethane-d4	30.00	30.90	103	70 - 120	
Toluene-d8	30.00	29.68	98.9	85 - 120	

ANALYSIS DATA SHEET

LNC-015-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-21	File ID:	0512521.D		
Sampled:	05/08/13 14:10	Prepared:	05/15/13 18:15	Analyzed:	05/20/13 12:40		
Solids:		Preparation:	EXT 3510	Dilution:	1		
Batch:	3E15016	Sequence:	3E14505	Calibration:	2261001	Instrument:	MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		1.18	2.36	4.72	U	U
1912-24-9	Atrazine		1.18	2.36	4.72	UY	UJ COS
100-52-7	Benzaldehyde		1.18	2.36	4.72	U	U
92-52-4	1,1-Biphenyl		1.18	2.36	4.72	U	
101-55-3	4-Bromophenyl-phenylether		1.18	2.36	4.72	U	
85-68-7	Butylbenzylphthalate		1.18	2.36	4.72	U	
105-60-2	Caprolactam		1.18	2.36	4.72	U	
86-74-8	Carbazole		1.18	2.36	4.72	U	
59-50-7	4-Chloro-3-methylphenol		1.18	2.36	4.72	U	
106-47-8	4-Chloroaniline		1.18	2.36	4.72	U	
111-91-1	Bis(2-chloroethoxy)methane		1.18	2.36	4.72	U	
111-44-4	Bis(2-chloroethyl)ether		1.18	2.36	4.72	U	
108-60-1	2,2'-Oxybis-1-chloropropane		1.18	2.36	4.72	U	
91-58-7	2-Chloronaphthalene		1.18	2.36	4.72	U	
95-57-8	2-Chlorophenol		1.18	2.36	4.72	U	
7005-72-3	4-Chlorophenyl phenyl ether		1.18	2.36	4.72	U	
132-64-9	Dibenzofuran		1.18	2.36	4.72	U	
84-74-2	Di-n-butylphthalate		1.18	2.36	4.72	U	
91-94-1	3,3'-Dichlorobenzidine		1.18	2.36	4.72	U	
120-83-2	2,4-Dichlorophenol		1.18	2.36	4.72	U	
84-66-2	Diethylphthalate		1.18	2.36	4.72	U	
105-67-9	2,4-Dimethylphenol		4.72	9.43	18.9	U	
131-11-3	Dimethyl phthalate		1.18	2.36	4.72	U	
534-52-1	4,6-Dinitro-2-methylphenol		4.72	9.43	18.9	U	
51-28-5	2,4-Dinitrophenol		7.86	23.6	47.2	U	
121-14-2	2,4-Dinitrotoluene		1.18	2.36	4.72	U	
606-20-2	2,6-Dinitrotoluene		1.18	2.36	4.72	U	
117-84-0	Di-n-octylphthalate		1.18	2.36	4.72	U	
117-81-7	Bis(2-ethylhexyl)phthalate		1.18	2.36	4.72	U	
118-74-1	Hexachlorobenzene		1.18	2.36	4.72	U	
87-68-3	Hexachlorobutadiene		1.18	2.36	4.72	U	
77-47-4	Hexachlorocyclopentadiene		1.18	4.72	9.43	U	
67-72-1	Hexachloroethane		1.18	2.36	4.72	U	
78-59-1	Isophorone		1.18	2.36	4.72	U	
95-48-7	2-Methylphenol		1.18	2.36	4.72	U	
106-44-5	4-Methylphenol		1.18	2.36	4.72	U	
100-01-6	4-Nitroaniline		4.72	9.43	18.9	U	
99-09-2	3-Nitroaniline		4.72	9.43	18.9	U	
88-74-4	2-Nitroaniline		4.72	9.43	18.9	U	
98-95-3	Nitrobenzene		1.18	2.36	4.72	U	

ANALYSIS DATA SHEET

LNC-015-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-21	File ID:	0512521.D
Sampled:	05/08/13 14:10	Prepared:	05/15/13 18:15	Analyzed:	05/20/13 12:40
Solids:		Preparation:	EXT 3510	Dilution:	1

Batch: 3E15016 Sequence: 3E14505 Calibration: 2261001 Instrument: MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		4.72	9.43	18.9	U
88-75-5	2-Nitrophenol		1.18	2.36	4.72	U
86-30-6	N-Nitrosodiphenylamine		1.18	2.36	4.72	U
621-64-7	N-Nitroso-di-n-propylamine		1.18	2.36	4.72	U
87-86-5	Pentachlorophenol		4.72	9.43	18.9	U
108-95-2	Phenol		1.18	2.36	4.72	U
95-94-3	1,2,4,5-Tetrachlorobenzene		1.18	2.36	4.72	U
58-90-2	2,3,4,6-Tetrachlorophenol		2.36	4.72	9.43	U
88-06-2	2,4,6-Trichlorophenol		1.18	2.36	4.72	U
95-95-4	2,4,5-Trichlorophenol		1.18	2.36	4.72	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	47.17	35.69	75.7	50 - 110	
2-Fluorophenol	94.34	36.55	38.7	20 - 110	
Nitrobenzene-d5	47.17	35.62	75.5	40 - 110	
Phenol-d6	94.34	20.89	22.1	0 - 110	
Terphenyl-d14	47.17	32.06	68.0	50 - 135	
2,4,6-Tribromophenol	94.34	75.75	80.3	40 - 125	

ANALYSIS DATA SHEET

LNC-015-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID: 1305125-21	File ID:	0512521.D	
Sampled:	05/08/13 14:10	Prepared: 05/15/13 18:15	Analyzed:	06/15/13 21:38	
Solids:		Preparation: EXT 3510	Dilution:	1	
Batch:	3E15016	Sequence: 3F16823	Calibration:	3122001	Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene		0.0472	0.0943	0.189	U	U
208-96-8	Acenaphthylene		0.0472	0.0943	0.189	U	
120-12-7	Anthracene		0.0472	0.0943	0.189	U	
56-55-3	Benzo(a)anthracene		0.0472	0.0943	0.189	U	
50-32-8	Benzo(a)pyrene		0.0472	0.0943	0.189	U	
205-99-2	Benzo(b)fluoranthene		0.0472	0.0943	0.189	U	
191-24-2	Benzo(g,h,i)perylene		0.0472	0.0943	0.189	U	
207-08-9	Benzo(k)fluoranthene		0.0472	0.0943	0.189	U	
123-91-1	1,4-Dioxane		0.118	0.236	0.472	U	
218-01-9	Chrysene		0.0472	0.0943	0.189	U	
53-70-3	Dibenz(a,h)anthracene		0.0472	0.0943	0.189	U	
206-44-0	Fluoranthene		0.0472	0.0943	0.189	U	
86-73-7	Fluorene		0.0472	0.0943	0.189	U	
193-39-5	Indeno(1,2,3-cd)pyrene		0.0472	0.0943	0.189	U	
91-57-6	2-Methylnaphthalene	**2.63**	0.0472	0.0943	0.189		=
91-20-3	Naphthalene	**2.08**	0.0472	0.0943	0.189		=
85-01-8	Phenanthrene		0.0472	0.189	0.377	U	U
129-00-0	Pyrene		0.0472	0.0943	0.189	U	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	47.17	33.07	70.1	50 - 110	
Terphenyl-d14	47.17	26.93	57.1	50 - 135	
2,4,6-Tribromophenol	94.34	75.40	79.9	40 - 125	

ANALYSIS DATA SHEET

LNC-015-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-21	File ID:	020F2001.D
Sampled:	05/08/13 14:10	Prepared:	05/14/13 19:02	Analyzed:	05/21/13 07:01
Solids:		Preparation:	EXT 3510	Dilution:	1

Batch: 3E14020 Sequence: 3E14605 Calibration: 3143004 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)	**0.159**	0.0943	0.0943	0.189	J

J

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.01887	0.006395	33.9	30 - 140	

ANALYSIS DATA SHEET

LNC-015-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-21	File ID:	011F1501.D
Sampled:	05/08/13 14:10	Prepared:	05/16/13 19:29	Analyzed:	05/16/13 19:29
Solids:		Preparation:	8015GRO	Dilution:	1

Batch: 3E16005 Sequence: 3E14043 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)	0.499	0.0500	0.100	0.150	

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	0.05000	0.05551	111	50 - 150	

ANALYSIS DATA SHEET

LNC-015-DS-SB2-02

Laboratory: Empirical Laboratories, LLC   SDG: 1305125
Client: SAIC (S732)   Project: Lincoln NE ANG
Matrix: Solid   Laboratory ID: 1305125-20   File ID: 0512520C.D
Sampled: 05/08/13 13:22   Prepared: 05/20/13 00:00   Analyzed: 05/20/13 17:56
Solids: 80.84   Preparation: 5035A   Dilution: 100
Batch: 3E20008   Sequence: 3E14106   Calibration: 3140003   Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
67-64-1	Acetone		678	1360	2710	UX
71-43-2	Benzene		170	339	678	U
74-97-5	Bromochloromethane		170	339	678	U
75-27-4	Bromodichloromethane		170	339	678	U
75-25-2	Bromoform		170	339	678	U
74-83-9	Bromomethane		339	678	1360	U
78-93-3	2-Butanone		339	678	1360	UX
75-15-0	Carbon disulfide		170	339	678	U
56-23-5	Carbon tetrachloride		170	339	678	U
108-90-7	Chlorobenzene		170	339	678	U
75-00-3	Chloroethane		339	678	1360	U
67-66-3	Chloroform		170	339	678	U
74-87-3	Chloromethane		339	678	1360	U
110-82-7	Cyclohexane	281	170	339	678	JD
124-48-1	Dibromochloromethane		170	339	678	U
96-12-8	1,2-Dibromo-3-chloropropane		339	678	1360	U
106-93-4	1,2-Dibromoethane (EDB)		170	339	678	U
95-50-1	1,2-Dichlorobenzene		170	339	678	U
541-73-1	1,3-Dichlorobenzene		170	339	678	U
106-46-7	1,4-Dichlorobenzene		170	339	678	U
75-71-8	Dichlorodifluoromethane		339	678	1360	U
75-34-3	1,1-Dichloroethane		170	339	678	U
107-06-2	1,2-Dichloroethane		170	339	678	U
75-35-4	1,1-Dichloroethene		170	339	678	U
156-59-2	cis-1,2-Dichloroethene		170	339	678	U
156-60-5	trans-1,2-Dichloroethene		170	339	678	U
78-87-5	1,2-Dichloropropane		170	339	678	U
10061-01-5	cis-1,3-Dichloropropene		170	339	678	U
10061-02-6	trans-1,3-Dichloropropene		170	339	678	U
100-41-4	Ethylbenzene	460	170	339	678	JD
591-78-6	2-Hexanone		339	678	1360	UXO
98-82-8	Isopropylbenzene		170	339	678	U
75-09-2	Methylene chloride		339	678	1360	U
79-20-9	Methyl Acetate		339	678	1360	U
108-87-2	Methylcyclohexane	718	170	339	678	D
108-10-1	4-Methyl-2-pentanone		339	678	1360	U
1634-04-4	Methyl t-Butyl Ether		170	339	678	U
100-42-5	Styrene		170	339	678	U
79-34-5	1,1,2,2-Tetrachloroethane		170	339	678	U
127-18-4	Tetrachloroethene		170	339	678	U

ANALYSIS DATA SHEET

LNC-015-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-20	File ID:	0512520C.D		
Sampled:	05/08/13 13:22	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 17:56		
Solids:	80.84	Preparation:	5035A	Dilution:	100		
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene	201	170	339	678	JD J
87-61-6	1,2,3-Trichlorobenzene		170	339	678	U UJ
120-82-1	1,2,4-Trichlorobenzene		170	339	678	U
79-00-5	1,1,2-Trichloroethane		170	339	678	U
71-55-6	1,1,1-Trichloroethane		170	339	678	U
79-01-6	Trichloroethene		170	339	678	U
75-69-4	Trichlorofluoromethane		339	678	1360	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		339	678	1360	U
75-01-4	Vinyl chloride		170	339	678	U
108-38-3/106-42-	m,p-Xylene	3730	339	678	1360	D =
95-47-6	o-Xylene	1410	170	339	678	D =

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	40.69	42.10	103	85 - 120	
Dibromofluoromethane	40.69	41.12	101	80 - 125	
1,2-Dichloroethane-d4	40.69	43.23	106	75 - 140	
Toluene-d8	40.69	40.51	99.6	85 - 115	

ANALYSIS DATA SHEET

LNC-015-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Solid	Laboratory ID: 1305125-20	File ID:	0512520.D	
Sampled:	05/08/13 13:22	Prepared: 05/21/13 18:30	Analyzed:	05/30/13 00:35	
Solids:	80.84	Preparation: EXT 3546	Dilution:	1	
Batch:	3E20013	Sequence: 3E15026	Calibration:	2272005	Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		98.8	198	395	U	U
1912-24-9	Atrazine		98.8	198	395	UY	UJ C05
100-52-7	Benzaldehyde		98.8	198	395	U	U
92-52-4	1,1-Biphenyl		98.8	198	395	U	
101-55-3	4-Bromophenyl-phenylether		98.8	198	395	U	
85-68-7	Butylbenzylphthalate		98.8	198	395	U	
105-60-2	Caprolactam		98.8	198	395	U	
86-74-8	Carbazole		98.8	198	395	U	
59-50-7	4-Chloro-3-methylphenol		98.8	198	395	U	
106-47-8	4-Chloroaniline		98.8	198	395	U	
111-91-1	Bis(2-chloroethoxy)methane		98.8	198	395	U	
111-44-4	Bis(2-chloroethyl)ether		98.8	198	395	U	
108-60-1	2,2'-Oxybis-1-chloropropane		98.8	198	395	U	
91-58-7	2-Chloronaphthalene		98.8	198	395	U	
95-57-8	2-Chlorophenol		98.8	198	395	U	
7005-72-3	4-Chlorophenyl phenyl ether		98.8	198	395	U	
132-64-9	Dibenzofuran		98.8	198	395	U	
84-74-2	Di-n-butylphthalate		98.8	198	395	U	
91-94-1	3,3'-Dichlorobenzidine		98.8	198	395	U	
120-83-2	2,4-Dichlorophenol		98.8	198	395	U	
84-66-2	Diethylphthalate		98.8	198	395	U	
105-67-9	2,4-Dimethylphenol		395	791	1580	U	
131-11-3	Dimethyl phthalate		98.8	198	395	U	
534-52-1	4,6-Dinitro-2-methylphenol		988	1980	3950	U	
51-28-5	2,4-Dinitrophenol		988	1980	3950	U	
121-14-2	2,4-Dinitrotoluene		98.8	198	395	U	
606-20-2	2,6-Dinitrotoluene		98.8	198	395	U	
117-84-0	Di-n-octylphthalate		98.8	198	395	U	
117-81-7	Bis(2-ethylhexyl)phthalate		98.8	198	395	U	
118-74-1	Hexachlorobenzene		98.8	198	395	U	
87-68-3	Hexachlorobutadiene		98.8	198	395	U	
77-47-4	Hexachlorocyclopentadiene		98.8	198	395	U	
67-72-1	Hexachloroethane		98.8	198	395	UX	
78-59-1	Isophorone		98.8	198	395	U	
95-48-7	2-Methylphenol		98.8	198	395	U	
106-44-5	4-Methylphenol		98.8	198	395	U	
100-01-6	4-Nitroaniline		395	791	1580	U	
99-09-2	3-Nitroaniline		395	791	1580	U	
88-74-4	2-Nitroaniline		395	791	1580	U	
98-95-3	Nitrobenzene		98.8	198	395	U	

ANALYSIS DATA SHEET

LNC-015-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Solid	Laboratory ID: 1305125-20	File ID:	0512520.D	
Sampled:	05/08/13 13:22	Prepared: 05/21/13 18:30	Analyzed:	05/30/13 00:35	
Solids:	80.84	Preparation: EXT 3546	Dilution:	1	
Batch:	3E20013	Sequence: 3E15026	Calibration:	2272005	Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		395	791	1580	U
88-75-5	2-Nitrophenol		98.8	198	395	U
86-30-6	N-Nitrosodiphenylamine		98.8	198	395	U
621-64-7	N-Nitroso-di-n-propylamine		98.8	198	395	UX
87-86-5	Pentachlorophenol		395	791	1580	U
108-95-2	Phenol		98.8	198	395	U
95-94-3	1,2,4,5-Tetrachlorobenzene		98.8	198	395	U
58-90-2	2,3,4,6-Tetrachlorophenol		98.8	198	395	U
88-06-2	2,4,6-Trichlorophenol		98.8	198	395	U
95-95-4	2,4,5-Trichlorophenol		98.8	198	395	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3955	2908	73.5	45 - 105	
2-Fluorophenol	7909	5949	75.2	35 - 105	
Nitrobenzene-d5	3955	2740	69.3	35 - 100	
Phenol-d6	7909	6090	77.0	40 - 100	
Terphenyl-d14	3955	3165	80.0	30 - 125	
2,4,6-Tribromophenol	7909	6283	79.4	35 - 125	

ANALYSIS DATA SHEET

LNC-015-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-20	File ID:	0512520.D		
Sampled:	05/08/13 13:22	Prepared:	05/21/13 18:30	Analyzed:	05/30/13 04:57		
Solids:	80.84	Preparation:	EXT_3546	Dilution:	1		
Batch:	3E20013	Sequence:	3E15034	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene		1.98	3.95	7.91	U	U
208-96-8	Acenaphthylene		1.98	3.95	7.91	U	
120-12-7	Anthracene		1.98	3.95	7.91	U	
56-55-3	Benzo(a)anthracene	3.63	1.98	3.95	7.91	J	J
50-32-8	Benzo(a)pyrene	2.67	1.98	3.95	7.91	J	
205-99-2	Benzo(b)fluoranthene	3.00	1.98	3.95	7.91	J	
191-24-2	Benzo(g,h,i)perylene	2.13	1.98	3.95	7.91	J	
207-08-9	Benzo(k)fluoranthene	3.08	1.98	3.95	7.91	J	
123-91-1	1,4-Dioxane		9.88	19.8	39.5	U	U
218-01-9	Chrysene	4.96	1.98	3.95	7.91	JQ	J C05,P01
53-70-3	Dibenz(a,h)anthracene		1.98	3.95	7.91	U	U
206-44-0	Fluoranthene	7.06	1.98	3.95	7.91	J	J
86-73-7	Fluorene		1.98	3.95	7.91	U	U
193-39-5	Indeno(1,2,3-cd)pyrene	2.17	1.98	3.95	7.91	J	J
91-57-6	2-Methylnaphthalene	40.6	1.98	3.95	7.91		=
91-20-3	Naphthalene	86.1	1.98	3.95	7.91		=
85-01-8	Phenanthrene	4.86	1.98	3.95	7.91	J	J
129-00-0	Pyrene	5.52	1.98	3.95	7.91	J	J

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3955	3344	84.6	45 - 105	
Terphenyl-d14	3955	3496	88.4	30 - 125	
2,4,6-Tribromophenol	7909	7272	91.9	35 - 125	

JV
09/04/2013

ANALYSIS DATA SHEET

LNC-015-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-20	File ID:	029F2901.D		
Sampled:	05/08/13 13:22	Prepared:	05/20/13 12:19	Analyzed:	05/23/13 08:59		
Solids:	80.84	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E17023	Sequence:	3E14606	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)	17.1	7.96	7.96	15.8	

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.585	1.414	89.2	35 - 140	

ANALYSIS DATA SHEET

LNC-015-DS-SB2-02

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Solid   Laboratory ID: 1305125-20RE1   File ID: 008F0801.D

Sampled: 05/08/13 13:22   Prepared: 05/22/13 11:48   Analyzed: 05/22/13 16:54

Solids: 80.84   Preparation: 8015GRO   Dilution: 1

Batch: 3E22019   Sequence: 3E14701   Calibration: 3044001   Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)	15.0	3.39	6.78	10.2	J Ab1

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.391	4.314	127	50 - 150	X

ANALYSIS DATA SHEET

LNC-016-DS-SB1-01

Laboratory: Empirical Laboratories, LLC
Client: SAIC (S732)
Matrix: Solid
Sampled: 05/07/13 11:32
% Solids: 81.36

SDG: 1305125
Project: Lincoln NE ANG
Laboratory ID: 1305125-05
Received: 05/11/13 08:30

CAS NO.	Analyte	Conc. (mg/Kg dry)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-92-1	Lead	14.4	0.186	0.372	0.372	2	D	SW6010B	3E29038	06/05/13 21:12

ANALYSIS DATA SHEET

LNC-016-DS-SB1-01DUP

Laboratory: Empirical Laboratories, LLC

Client: SAIC (S732)

Matrix: Solid

Sampled: 05/07/13 11:32

% Solids: 81.84

SDG: 1305125

Project: Lincoln NE ANG

Laboratory ID: 1305125-06

Received: 05/11/13 08:30

CAS NO.	Analyte	Conc. (mg/Kg dry)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-92-1	Lead	14.3	0.182	0.365	0.365	2	D	SW6010B	3E29038	06/05/13 21:16

ANALYSIS DATA SHEET

LNC-016-RN-SB1-01

Laboratory: Empirical Laboratories, LLC
Client: SAIC (S732)
Matrix: Water
Sampled: 05/07/13 08:55

SDG: 1305125
Project: Lincoln NE ANG
Laboratory ID: 1305125-03
Received: 05/11/13 08:30

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-92-1	Lead		0.375	0.750	0.750	1	U	SW6010B	3E28012	05/30/13 15:53

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ANALYSIS DATA SHEET

LNC-016-DS-SB2-01

Laboratory: Empirical Laboratories, LLC
Client: SAIC (S732)
Matrix: Solid
Sampled: 05/07/13 11:40
% Solids: 81.14

SDG: 1305125
Project: Lincoln NE ANG
Laboratory ID: 1305125-07
Received: 05/11/13 08:30

CAS NO.	Analyte	Conc. (mg/Kg dry)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-92-1	Lead	11.7	0.0924	0.185	0.185	1		SW6010B	3E29038	06/05/13 21:21

ANALYSIS DATA SHEET

LNC-016-DS-SB3-01

Laboratory: Empirical Laboratories, LLC
Client: SAIC (S732)
Matrix: Solid
Sampled: 05/07/13 11:50
% Solids: 81.21

SDG: 1305125
Project: Lincoln NE ANG
Laboratory ID: 1305125-08
Received: 05/11/13 08:30

CAS NO.	Analyte	Conc. (mg/Kg dry)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-92-1	Lead	14.6	0.186	0.371	0.371	2	D	SW6010B	3E29038	06/05/13 21:43

ANALYSIS DATA SHEET

LNC-018-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-29	File ID:	0512529A.D		
Sampled:	05/09/13 10:10	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 15:01		
Solids:	80.37	Preparation:	5035A	Dilution:	1		
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone	13.0	6.65	13.3	26.6	R XJ Ø	C05, F12 F0
71-43-2	Benzene		1.66	3.32	6.65	U	U
74-97-5	Bromochloromethane		1.66	3.32	6.65	U	
75-27-4	Bromodichloromethane		1.66	3.32	6.65	U	
75-25-2	Bromoform		1.66	3.32	6.65	U	
74-83-9	Bromomethane		3.32	6.65	13.3	U	
78-93-3	2-Butanone		3.32	6.65	13.3	UX	
75-15-0	Carbon disulfide		1.66	3.32	6.65	U	
56-23-5	Carbon tetrachloride		1.66	3.32	6.65	U	
108-90-7	Chlorobenzene		1.66	3.32	6.65	U	
75-00-3	Chloroethane		3.32	6.65	13.3	U	
67-66-3	Chloroform		1.66	3.32	6.65	U	
74-87-3	Chloromethane		3.32	6.65	13.3	U	
110-82-7	Cyclohexane		1.66	3.32	6.65	U	
124-48-1	Dibromochloromethane		1.66	3.32	6.65	U	
96-12-8	1,2-Dibromo-3-chloropropane		3.32	6.65	13.3	U	
106-93-4	1,2-Dibromoethane (EDB)		1.66	3.32	6.65	U	
95-50-1	1,2-Dichlorobenzene		1.66	3.32	6.65	U	
541-73-1	1,3-Dichlorobenzene		1.66	3.32	6.65	U	
106-46-7	1,4-Dichlorobenzene		1.66	3.32	6.65	U	
75-71-8	Dichlorodifluoromethane		3.32	6.65	13.3	U	
75-34-3	1,1-Dichloroethane		1.66	3.32	6.65	U	
107-06-2	1,2-Dichloroethane		1.66	3.32	6.65	U	
75-35-4	1,1-Dichloroethene		1.66	3.32	6.65	U	
156-59-2	cis-1,2-Dichloroethene		1.66	3.32	6.65	U	
156-60-5	trans-1,2-Dichloroethene		1.66	3.32	6.65	U	
78-87-5	1,2-Dichloropropane		1.66	3.32	6.65	U	
10061-01-5	cis-1,3-Dichloropropene		1.66	3.32	6.65	U	
10061-02-6	trans-1,3-Dichloropropene		1.66	3.32	6.65	U	
100-41-4	Ethylbenzene		1.66	3.32	6.65	U	
591-78-6	2-Hexanone		3.32	6.65	13.3	UXO	
98-82-8	Isopropylbenzene		1.66	3.32	6.65	U	
75-09-2	Methylene chloride	315	3.32	6.65	13.3		ZR F12
79-20-9	Methyl Acetate		3.32	6.65	13.3	U	U
108-87-2	Methylcyclohexane		1.66	3.32	6.65	U	
108-10-1	4-Methyl-2-pentanone		3.32	6.65	13.3	U	
1634-04-4	Methyl t-Butyl Ether		1.66	3.32	6.65	U	
100-42-5	Styrene		1.66	3.32	6.65	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.66	3.32	6.65	U	
127-18-4	Tetrachloroethene		1.66	3.32	6.65	U	

ANALYSIS DATA SHEET

LNC-018-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-29	File ID:	0512529A.D
Sampled:	05/09/13 10:10	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 15:01
Solids:	80.37	Preparation:	5035A	Dilution:	1

Batch: 3E20008 Sequence: 3E14106 Calibration: 3140003 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene		1.66	3.32	6.65	U
87-61-6	1,2,3-Trichlorobenzene		1.66	3.32	6.65	U
120-82-1	1,2,4-Trichlorobenzene		1.66	3.32	6.65	U
79-00-5	1,1,2-Trichloroethane		1.66	3.32	6.65	U
71-55-6	1,1,1-Trichloroethane		1.66	3.32	6.65	U
79-01-6	Trichloroethene		1.66	3.32	6.65	U
75-69-4	Trichlorofluoromethane		3.32	6.65	13.3	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.32	6.65	13.3	U
75-01-4	Vinyl chloride		1.66	3.32	6.65	U
108-38-3/106-42-	m,p-Xylene		3.32	6.65	13.3	U
95-47-6	o-Xylene		1.66	3.32	6.65	U

U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	39.88	41.34	104	85 - 120	
Dibromofluoromethane	39.88	41.38	104	80 - 125	
1,2-Dichloroethane-d4	39.88	45.54	114	75 - 140	
Toluene-d8	39.88	40.93	103	85 - 115	

ANALYSIS DATA SHEET

LNC-018-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Solid	Laboratory ID: 1305125-29	File ID:	0512529.D	
Sampled:	05/09/13 10:10	Prepared: 05/21/13 14:15	Analyzed:	06/02/13 07:42	
Solids:	80.37	Preparation: EXT 3546	Dilution:	1	
Batch:	3E20014	Sequence: 3F15519	Calibration:	2272005	Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		97.4	195	389	UX	U
1912-24-9	Atrazine		97.4	195	389	U	U
100-52-7	Benzaldehyde		97.4	195	389	UY	UJ C05
92-52-4	1,1-Biphenyl		97.4	195	389	U	U
101-55-3	4-Bromophenyl-phenylether		97.4	195	389	U	
85-68-7	Butylbenzylphthalate		97.4	195	389	U	
105-60-2	Caprolactam		97.4	195	389	U	
86-74-8	Carbazole		97.4	195	389	U	
59-50-7	4-Chloro-3-methylphenol		97.4	195	389	U	
106-47-8	4-Chloroaniline		97.4	195	389	U	
111-91-1	Bis(2-chloroethoxy)methane		97.4	195	389	U	
111-44-4	Bis(2-chloroethyl)ether		97.4	195	389	U	
108-60-1	2,2'-Oxybis-1-chloropropane		97.4	195	389	U	
91-58-7	2-Chloronaphthalene		97.4	195	389	U	
95-57-8	2-Chlorophenol		97.4	195	389	U	
7005-72-3	4-Chlorophenyl phenyl ether		97.4	195	389	U	
132-64-9	Dibenzofuran		97.4	195	389	U	
84-74-2	Di-n-butylphthalate		97.4	195	389	U	
91-94-1	3,3'-Dichlorobenzidine		97.4	195	389	U	
120-83-2	2,4-Dichlorophenol		97.4	195	389	U	
84-66-2	Diethylphthalate		97.4	195	389	U	
105-67-9	2,4-Dimethylphenol		389	780	1560	U	
131-11-3	Dimethyl phthalate		97.4	195	389	U	
534-52-1	4,6-Dinitro-2-methylphenol		974	1950	3890	U	
51-28-5	2,4-Dinitrophenol		974	1950	3890	U	
121-14-2	2,4-Dinitrotoluene		97.4	195	389	U	
606-20-2	2,6-Dinitrotoluene		97.4	195	389	U	
117-84-0	Di-n-octylphthalate		97.4	195	389	U	
117-81-7	Bis(2-ethylhexyl)phthalate		97.4	195	389	U	
118-74-1	Hexachlorobenzene		97.4	195	389	U	
87-68-3	Hexachlorobutadiene		97.4	195	389	U	
77-47-4	Hexachlorocyclopentadiene		97.4	195	389	U	
67-72-1	Hexachloroethane		97.4	195	389	U	
78-59-1	Isophorone		97.4	195	389	UX	
95-48-7	2-Methylphenol		97.4	195	389	U	
106-44-5	4-Methylphenol		97.4	195	389	U	
100-01-6	4-Nitroaniline		389	780	1560	U	
99-09-2	3-Nitroaniline		389	780	1560	U	
88-74-4	2-Nitroaniline		389	780	1560	U	
98-95-3	Nitrobenzene		97.4	195	389	U	

ANALYSIS DATA SHEET

LNC-018-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-29	File ID:	0512529.D
Sampled:	05/09/13 10:10	Prepared:	05/21/13 14:15	Analyzed:	06/02/13 07:42
Solids:	80.37	Preparation:	EXT 3546	Dilution:	1

Batch: 3E20014 Sequence: 3F15519 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		389	780	1560	U
88-75-5	2-Nitrophenol		97.4	195	389	U
86-30-6	N-Nitrosodiphenylamine		97.4	195	389	U
621-64-7	N-Nitroso-di-n-propylamine		97.4	195	389	U
87-86-5	Pentachlorophenol		389	780	1560	U
108-95-2	Phenol		97.4	195	389	U
95-94-3	1,2,4,5-Tetrachlorobenzene		97.4	195	389	U
58-90-2	2,3,4,6-Tetrachlorophenol		97.4	195	389	U
88-06-2	2,4,6-Trichlorophenol		97.4	195	389	U
95-95-4	2,4,5-Trichlorophenol		97.4	195	389	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3898	2628	67.4	45 - 105	
2-Fluorophenol	7796	5688	73.0	35 - 105	
Nitrobenzene-d5	3898	2769	71.0	35 - 100	
Phenol-d6	7796	5924	76.0	40 - 100	
Terphenyl-d14	3898	2951	75.7	30 - 125	
2,4,6-Tribromophenol	7796	5617	72.0	35 - 125	

ANALYSIS DATA SHEET

LNC-018-DS-SB1-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-29 File ID: 0512529.D

Sampled: 05/09/13 10:10 Prepared: 05/21/13 14:15 Analyzed: 06/16/13 01:22

Solids: 80.37 Preparation: EXT 3546 Dilution: 1

Batch: 3E20014 Sequence: 3F16823 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		1.95	3.89	7.80	U
208-96-8	Acenaphthylene		1.95	3.89	7.80	U
120-12-7	Anthracene		1.95	3.89	7.80	U
56-55-3	Benzo(a)anthracene		1.95	3.89	7.80	U
50-32-8	Benzo(a)pyrene		1.95	3.89	7.80	U
205-99-2	Benzo(b)fluoranthene		1.95	3.89	7.80	U
191-24-2	Benzo(g,h,i)perylene		1.95	3.89	7.80	U
207-08-9	Benzo(k)fluoranthene		1.95	3.89	7.80	U
123-91-1	1,4-Dioxane		9.74	19.5	38.9	U
218-01-9	Chrysene		1.95	3.89	7.80	U
53-70-3	Dibenz(a,h)anthracene		1.95	3.89	7.80	U
206-44-0	Fluoranthene		1.95	3.89	7.80	U
86-73-7	Fluorene		1.95	3.89	7.80	U
193-39-5	Indeno(1,2,3-cd)pyrene		1.95	3.89	7.80	U
91-57-6	2-Methylnaphthalene		1.95	3.89	7.80	U
91-20-3	Naphthalene		1.95	3.89	7.80	U
85-01-8	Phenanthrene		1.95	3.89	7.80	U
129-00-0	Pyrene		1.95	3.89	7.80	U

U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3898	3209	82.3	45 - 105	
Terphenyl-d14	3898	3346	85.8	30 - 125	
2,4,6-Tribromophenol	7796	7395	94.8	35 - 125	X

ANALYSIS DATA SHEET

LNC-018-DS-SB1-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125
Client: SAIC (S732)   Project: Lincoln NE ANG
Matrix: Solid   Laboratory ID: 1305125-29   File ID: 039F3901.D
Sampled: 05/09/13 10:10   Prepared: 05/20/13 12:19   Analyzed: 05/23/13 14:33
Solids: 80.37   Preparation: EXT 3546   Dilution: 1
Batch: 3E17023   Sequence: 3E14606   Calibration: 3143004   Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.14	8.14	16.2	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.620	1.550	95.7	35 - 140	

ANALYSIS DATA SHEET

LNC-018-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-29	File ID:	024F2401.D		
Sampled:	05/09/13 10:10	Prepared:	05/18/13 17:28	Analyzed:	05/19/13 09:10		
Solids:	80.37	Preparation:	8015GRO	Dilution:	1		
Batch:	3E18011	Sequence:	3E14307	Calibration:	3044001	Instrument:	GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.07	6.14	9.20	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.068	3.816	124	50 - 150	X

ANALYSIS DATA SHEET

LNC-018-DP-SB1-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Water Laboratory ID: 1305125-36 File ID: 0512536.D
Sampled: 05/09/13 14:35 Prepared: 05/21/13 23:02 Analyzed: 05/21/13 23:02
Solids: Preparation: 5030B Dilution: 1
Batch: 3E21015 Sequence: 3E14209 Calibration: 3140001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	9.95	2.50	5.00	10.0	J
71-43-2	Benzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	UX
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
110-82-7	Cyclohexane		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	UX
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
79-20-9	Methyl Acetate		0.500	1.00	2.00	U
108-87-2	Methylcyclohexane		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	UX
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U

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ANALYSIS DATA SHEET

LNC-018-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-36	File ID:	0512536.D		
Sampled:	05/09/13 14:35	Prepared:	05/21/13 23:02	Analyzed:	05/21/13 23:02		
Solids:		Preparation:	5030B	Dilution:	1		
Batch:	3E21015	Sequence:	3E14209	Calibration:	3140001	Instrument:	MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		0.500	1.00	2.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.25	104	75 - 120	
Dibromofluoromethane	30.00	32.65	109	85 - 115	
1,2-Dichloroethane-d4	30.00	30.19	101	70 - 120	
Toluene-d8	30.00	29.82	99.4	85 - 120	

ANALYSIS DATA SHEET

LNC-018-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-36	File ID:	0512536.D
Sampled:	05/09/13 14:35	Prepared:	05/16/13 12:08	Analyzed:	05/20/13 15:21
Solids:		Preparation:	EXT 3510	Dilution:	1
Batch:	3E16002	Sequence: 3E14804	Calibration: 2272005	Instrument:	MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		1.25	2.50	5.00	UX	U
1912-24-9	Atrazine		1.25	2.50	5.00	UY	UJ C05
100-52-7	Benzaldehyde		1.25	2.50	5.00	U	U
92-52-4	1,1-Biphenyl		1.25	2.50	5.00	U	
101-55-3	4-Bromophenyl-phenylether		1.25	2.50	5.00	U	
85-68-7	Butylbenzylphthalate		1.25	2.50	5.00	U	
105-60-2	Caprolactam		1.25	2.50	5.00	U	
86-74-8	Carbazole		1.25	2.50	5.00	U	
59-50-7	4-Chloro-3-methylphenol		1.25	2.50	5.00	UX	R G03
106-47-8	4-Chloroaniline		1.25	2.50	5.00	U	U
111-91-1	Bis(2-chloroethoxy)methane		1.25	2.50	5.00	U	
111-44-4	Bis(2-chloroethyl)ether		1.25	2.50	5.00	U	
108-60-1	2,2'-Oxybis-1-chloropropane		1.25	2.50	5.00	U	
91-58-7	2-Chloronaphthalene		1.25	2.50	5.00	U	
95-57-8	2-Chlorophenol		1.25	2.50	5.00	U	R G03
7005-72-3	4-Chlorophenyl phenyl ether		1.25	2.50	5.00	U	U
132-64-9	Dibenzofuran		1.25	2.50	5.00	U	
84-74-2	Di-n-butylphthalate		1.25	2.50	5.00	U	
91-94-1	3,3'-Dichlorobenzidine		1.25	2.50	5.00	U	
120-83-2	2,4-Dichlorophenol		1.25	2.50	5.00	U	R G03
84-66-2	Diethylphthalate		1.25	2.50	5.00	U	U
105-67-9	2,4-Dimethylphenol		5.00	10.0	20.0	U	R G03
131-11-3	Dimethyl phthalate		1.25	2.50	5.00	U	U
534-52-1	4,6-Dinitro-2-methylphenol		5.00	10.0	20.0	U	R G03
51-28-5	2,4-Dinitrophenol		8.33	25.0	50.0	U	R G03
121-14-2	2,4-Dinitrotoluene		1.25	2.50	5.00	U	U
606-20-2	2,6-Dinitrotoluene		1.25	2.50	5.00	U	
117-84-0	Di-n-octylphthalate		1.25	2.50	5.00	U	
117-81-7	Bis(2-ethylhexyl)phthalate		1.25	2.50	5.00	U	
118-74-1	Hexachlorobenzene		1.25	2.50	5.00	U	
87-68-3	Hexachlorobutadiene		1.25	2.50	5.00	U	
77-47-4	Hexachlorocyclopentadiene		1.25	5.00	10.0	U	
67-72-1	Hexachloroethane		1.25	2.50	5.00	UX	
78-59-1	Isophorone		1.25	2.50	5.00	U	
95-48-7	2-Methylphenol		1.25	2.50	5.00	U	R G03
106-44-5	4-Methylphenol		1.25	2.50	5.00	U	R G03
100-01-6	4-Nitroaniline		5.00	10.0	20.0	U	U
99-09-2	3-Nitroaniline		5.00	10.0	20.0	U	
88-74-4	2-Nitroaniline		5.00	10.0	20.0	UX	
98-95-3	Nitrobenzene		1.25	2.50	5.00	U	

ANALYSIS DATA SHEET

LNC-018-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-36	File ID:	0512536.D
Sampled:	05/09/13 14:35	Prepared:	05/16/13 12:08	Analyzed:	05/20/13 15:21
Solids:		Preparation:	EXT 3510	Dilution:	1

Batch: 3E16002 Sequence: 3E14804 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
100-02-7	4-Nitrophenol		5.00	10.0	20.0	U R	G03
88-75-5	2-Nitrophenol		1.25	2.50	5.00	U R	G03
86-30-6	N-Nitrosodiphenylamine		1.25	2.50	5.00	U U	
621-64-7	N-Nitroso-di-n-propylamine		1.25	2.50	5.00	UX U	
87-86-5	Pentachlorophenol		5.00	10.0	20.0	U R	G03
108-95-2	Phenol		1.25	2.50	5.00	U R	G03
95-94-3	1,2,4,5-Tetrachlorobenzene		1.25	2.50	5.00	U U	
58-90-2	2,3,4,6-Tetrachlorophenol		2.50	5.00	10.0	U R	G03
88-06-2	2,4,6-Trichlorophenol		1.25	2.50	5.00	U R	G03
95-95-4	2,4,5-Trichlorophenol		1.25	2.50	5.00	U R	G03

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	100.0	60.73	60.7	50 - 110	
2-Fluorophenol	200.0	1.491	0.746	20 - 110	*
Nitrobenzene-d5	100.0	65.30	65.3	40 - 110	
Phenol-d6	200.0	3.806	1.90	0 - 110	
Terphenyl-d14	100.0	44.92	44.9	50 - 135	*
2,4,6-Tribromophenol	200.0	4.459	2.23	40 - 125	*

JW 06/26/2013

ANALYSIS DATA SHEET

LNC-018-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID:	1305125-36	File ID:	0512536.D
Sampled:	05/09/13 14:35	Prepared:	05/16/13 12:08	Analyzed:	06/05/13 05:47
Solids:		Preparation:	EXT 3510	Dilution:	1

Batch: 3E16002 Sequence: 3F15611 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		0.0500	0.100	0.200	U U
208-96-8	Acenaphthylene		0.0500	0.100	0.200	U U
120-12-7	Anthracene		0.0500	0.100	0.200	U U
56-55-3	Benzo(a)anthracene	0.0841	0.0500	0.100	0.200	J J
50-32-8	Benzo(a)pyrene	0.0648	0.0500	0.100	0.200	J J
205-99-2	Benzo(b)fluoranthene	0.0739	0.0500	0.100	0.200	J J
191-24-2	Benzo(g,h,i)perylene		0.0500	0.100	0.200	U U
207-08-9	Benzo(k)fluoranthene	0.0812	0.0500	0.100	0.200	J J
123-91-1	1,4-Dioxane		0.125	0.250	0.500	U U
218-01-9	Chrysene	0.116	0.0500	0.100	0.200	J J
53-70-3	Dibenz(a,h)anthracene		0.0500	0.100	0.200	U U
206-44-0	Fluoranthene	0.245	0.0500	0.100	0.200	=
86-73-7	Fluorene		0.0500	0.100	0.200	U U
193-39-5	Indeno(1,2,3-cd)pyrene	0.0611	0.0500	0.100	0.200	J J
91-57-6	2-Methylnaphthalene		0.0500	0.100	0.200	U U
91-20-3	Naphthalene		0.0500	0.100	0.200	U U
85-01-8	Phenanthrene	0.179	0.0500	0.200	0.400	J J
129-00-0	Pyrene	0.189	0.0500	0.100	0.200	J J

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	100.0	63.75	63.7	50 - 110	
Terphenyl-d14	100.0	43.30	43.3	50 - 135	*
2,4,6-Tribromophenol	200.0	5.750	2.88	40 - 125	*

ANALYSIS DATA SHEET

LNC-018-DP-SB1-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Water Laboratory ID: 1305125-36 File ID: 043F4301.D

Sampled: 05/09/13 14:35 Prepared: 05/16/13 17:00 Analyzed: 05/21/13 19:53

Solids: Preparation: EXT_3510 Dilution: 1

Batch: 3E16035 Sequence: 3E14605 Calibration: 3143004 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		0.100	0.100	0.200	U UJ A01

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.02000	0.01388	69.4	30 - 140	

ANALYSIS DATA SHEET

LNC-018-DP-SB1-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Water Laboratory ID: 1305125-36 File ID: 014F1801.D

Sampled: 05/09/13 14:35 Prepared: 05/16/13 21:26 Analyzed: 05/16/13 21:26

Solids: Preparation: 8015GRO Dilution: 1

Batch: 3E16005 Sequence: 3E14043 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		0.0500	0.100	0.150	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	0.05000	0.06532	131	50 - 150	

ANALYSIS DATA SHEET

LNC-018-DS-SB1-02

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Solid   Laboratory ID: 1305125-30   File ID: 0512530A.D

Sampled: 05/09/13 10:30   Prepared: 05/20/13 00:00   Analyzed: 05/20/13 23:14

Solids: 82.37   Preparation: 5035A   Dilution: 1

Batch: 3E20017   Sequence: 3E14116   Calibration: 3140003   Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone		5.88	11.8	23.5	U	U
71-43-2	Benzene		1.47	2.94	5.88	U	
74-97-5	Bromochloromethane		1.47	2.94	5.88	U	
75-27-4	Bromodichloromethane		1.47	2.94	5.88	U	
75-25-2	Bromoform		1.47	2.94	5.88	U	
74-83-9	Bromomethane		2.94	5.88	11.8	U	
78-93-3	2-Butanone		2.94	5.88	11.8	U	
75-15-0	Carbon disulfide		1.47	2.94	5.88	U	
56-23-5	Carbon tetrachloride		1.47	2.94	5.88	U	
108-90-7	Chlorobenzene		1.47	2.94	5.88	U	
75-00-3	Chloroethane		2.94	5.88	11.8	U	
67-66-3	Chloroform		1.47	2.94	5.88	U	
74-87-3	Chloromethane		2.94	5.88	11.8	U	
110-82-7	Cyclohexane		1.47	2.94	5.88	U	
124-48-1	Dibromochloromethane		1.47	2.94	5.88	U	
96-12-8	1,2-Dibromo-3-chloropropane		2.94	5.88	11.8	U	
106-93-4	1,2-Dibromoethane (EDB)		1.47	2.94	5.88	U	
95-50-1	1,2-Dichlorobenzene		1.47	2.94	5.88	U	
541-73-1	1,3-Dichlorobenzene		1.47	2.94	5.88	U	
106-46-7	1,4-Dichlorobenzene		1.47	2.94	5.88	U	
75-71-8	Dichlorodifluoromethane		2.94	5.88	11.8	UY UJ	COS
75-34-3	1,1-Dichloroethane		1.47	2.94	5.88	U	U
107-06-2	1,2-Dichloroethane		1.47	2.94	5.88	U	
75-35-4	1,1-Dichloroethene		1.47	2.94	5.88	U	
156-59-2	cis-1,2-Dichloroethene		1.47	2.94	5.88	U	
156-60-5	trans-1,2-Dichloroethene		1.47	2.94	5.88	U	
78-87-5	1,2-Dichloropropane		1.47	2.94	5.88	U	
10061-01-5	cis-1,3-Dichloropropene		1.47	2.94	5.88	U	
10061-02-6	trans-1,3-Dichloropropene		1.47	2.94	5.88	U	
100-41-4	Ethylbenzene		1.47	2.94	5.88	U	
591-78-6	2-Hexanone		2.94	5.88	11.8	U	
98-82-8	Isopropylbenzene		1.47	2.94	5.88	U	
75-09-2	Methylene chloride	219	2.94	5.88	11.8		Z R F12
79-20-9	Methyl Acetate		2.94	5.88	11.8	U	U
108-87-2	Methylcyclohexane		1.47	2.94	5.88	U	
108-10-1	4-Methyl-2-pentanone		2.94	5.88	11.8	U	
1634-04-4	Methyl t-Butyl Ether		1.47	2.94	5.88	U	
100-42-5	Styrene		1.47	2.94	5.88	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.47	2.94	5.88	U	
127-18-4	Tetrachloroethene		1.47	2.94	5.88	U	

JV 06/25/2013

ANALYSIS DATA SHEET

LNC-018-DS-SB1-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-30	File ID:	0512530A.D
Sampled:	05/09/13 10:30	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 23:14
Solids:	82.37	Preparation:	5035A	Dilution:	1
Batch:	3E20017	Sequence:	3E14116	Calibration:	3140003
				Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
108-88-3	Toluene		1.47	2.94	5.88	U	U
87-61-6	1,2,3-Trichlorobenzene		1.47	2.94	5.88	U	
120-82-1	1,2,4-Trichlorobenzene		1.47	2.94	5.88	U	
79-00-5	1,1,2-Trichloroethane		1.47	2.94	5.88	U	
71-55-6	1,1,1-Trichloroethane		1.47	2.94	5.88	U	
79-01-6	Trichloroethene		1.47	2.94	5.88	U	
75-69-4	Trichlorofluoromethane		2.94	5.88	11.8	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		2.94	5.88	11.8	U	
75-01-4	Vinyl chloride		1.47	2.94	5.88	UY	UJ CO5
108-38-3/106-42-	m,p-Xylene		2.94	5.88	11.8	U	U
95-47-6	o-Xylene		1.47	2.94	5.88	U	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	35.29	34.56	97.9	85 - 120	
Dibromofluoromethane	35.29	38.27	108	80 - 125	
1,2-Dichloroethane-d4	35.29	40.16	114	75 - 140	
Toluene-d8	35.29	36.40	103	85 - 115	

ANALYSIS DATA SHEET

LNC-018-DS-SB1-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-30	File ID:	0512530.D
Sampled:	05/09/13 10:30	Prepared:	05/21/13 14:15	Analyzed:	06/02/13 08:10
Solids:	82.37	Preparation:	EXT 3546	Dilution:	1

Batch: 3E20014 Sequence: 3F15519 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		95.5	191	382	UX	U
1912-24-9	Atrazine		95.5	191	382	U	U
100-52-7	Benzaldehyde		95.5	191	382	UY UJ	C05
92-52-4	1,1-Biphenyl		95.5	191	382	U	U
101-55-3	4-Bromophenyl-phenylether		95.5	191	382	U	
85-68-7	Butylbenzylphthalate		95.5	191	382	U	
105-60-2	Caprolactam		95.5	191	382	U	
86-74-8	Carbazole		95.5	191	382	U	
59-50-7	4-Chloro-3-methylphenol		95.5	191	382	U	
106-47-8	4-Chloroaniline		95.5	191	382	U	
111-91-1	Bis(2-chloroethoxy)methane		95.5	191	382	U	
111-44-4	Bis(2-chloroethyl)ether		95.5	191	382	U	
108-60-1	2,2'-Oxybis-1-chloropropane		95.5	191	382	U	
91-58-7	2-Chloronaphthalene		95.5	191	382	U	
95-57-8	2-Chlorophenol		95.5	191	382	U	
7005-72-3	4-Chlorophenyl phenyl ether		95.5	191	382	U	
132-64-9	Dibenzofuran		95.5	191	382	U	
84-74-2	Di-n-butylphthalate		95.5	191	382	U	
91-94-1	3,3'-Dichlorobenzidine		95.5	191	382	U	
120-83-2	2,4-Dichlorophenol		95.5	191	382	U	
84-66-2	Diethylphthalate		95.5	191	382	U	
105-67-9	2,4-Dimethylphenol		382	764	1520	U	
131-11-3	Dimethyl phthalate		95.5	191	382	U	
534-52-1	4,6-Dinitro-2-methylphenol		955	1910	3820	U	
51-28-5	2,4-Dinitrophenol		955	1910	3820	U	
121-14-2	2,4-Dinitrotoluene		95.5	191	382	U	
606-20-2	2,6-Dinitrotoluene		95.5	191	382	U	
117-84-0	Di-n-octylphthalate		95.5	191	382	U	
117-81-7	Bis(2-ethylhexyl)phthalate		95.5	191	382	U	
118-74-1	Hexachlorobenzene		95.5	191	382	U	
87-68-3	Hexachlorobutadiene		95.5	191	382	U	
77-47-4	Hexachlorocyclopentadiene		95.5	191	382	U	
67-72-1	Hexachloroethane		95.5	191	382	UX	
78-59-1	Isophorone		95.5	191	382	U	
95-48-7	2-Methylphenol		95.5	191	382	U	
106-44-5	4-Methylphenol		95.5	191	382	U	
100-01-6	4-Nitroaniline		382	764	1520	U	
99-09-2	3-Nitroaniline		382	764	1520	U	
88-74-4	2-Nitroaniline		382	764	1520	U	
98-95-3	Nitrobenzene		95.5	191	382	U	

ANALYSIS DATA SHEET

LNC-018-DS-SB1-02

Laboratory:	Empirical Laboratories, LLC	SDG:	1305125		
Client:	SAIC (S732)	Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-30	File ID:	0512530.D
Sampled:	05/09/13 10:30	Prepared:	05/21/13 14:15	Analyzed:	06/02/13 08:10
Solids:	82.37	Preparation:	EXT 3546	Dilution:	1

Batch: 3E20014 Sequence: 3F15519 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		382	764	1520	U
88-75-5	2-Nitrophenol		95.5	191	382	U
86-30-6	N-Nitrosodiphenylamine		95.5	191	382	U
621-64-7	N-Nitroso-di-n-propylamine		95.5	191	382	U
87-86-5	Pentachlorophenol		382	764	1520	U
108-95-2	Phenol		95.5	191	382	U
95-94-3	1,2,4,5-Tetrachlorobenzene		95.5	191	382	U
58-90-2	2,3,4,6-Tetrachlorophenol		95.5	191	382	U
88-06-2	2,4,6-Trichlorophenol		95.5	191	382	U
95-95-4	2,4,5-Trichlorophenol		95.5	191	382	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3820	2333	61.1	45 - 105	
2-Fluorophenol	7641	4946	64.7	35 - 105	
Nitrobenzene-d5	3820	2459	64.4	35 - 100	
Phenol-d6	7641	4986	65.3	40 - 100	
Terphenyl-d14	3820	2629	68.8	30 - 125	
2,4,6-Tribromophenol	7641	4903	64.2	35 - 125	

ANALYSIS DATA SHEET

LNC-018-DS-SB1-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Solid Laboratory ID: 1305125-30 File ID: 0512530.D
Sampled: 05/09/13 10:30 Prepared: 05/21/13 14:15 Analyzed: 06/16/13 01:50
Solids: 82.37 Preparation: EXT 3546 Dilution: 1
Batch: 3E20014 Sequence: 3F16823 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		1.91	3.82	7.64	U
208-96-8	Acenaphthylene		1.91	3.82	7.64	U
120-12-7	Anthracene		1.91	3.82	7.64	U
56-55-3	Benzo(a)anthracene		1.91	3.82	7.64	U
50-32-8	Benzo(a)pyrene		1.91	3.82	7.64	U
205-99-2	Benzo(b)fluoranthene		1.91	3.82	7.64	U
191-24-2	Benzo(g,h,i)perylene		1.91	3.82	7.64	U
207-08-9	Benzo(k)fluoranthene		1.91	3.82	7.64	U
123-91-1	1,4-Dioxane		9.55	19.1	38.2	U
218-01-9	Chrysene		1.91	3.82	7.64	U
53-70-3	Dibenz(a,h)anthracene		1.91	3.82	7.64	U
206-44-0	Fluoranthene		1.91	3.82	7.64	U
86-73-7	Fluorene		1.91	3.82	7.64	U
193-39-5	Indeno(1,2,3-cd)pyrene		1.91	3.82	7.64	U
91-57-6	2-Methylnaphthalene		1.91	3.82	7.64	U
91-20-3	Naphthalene		1.91	3.82	7.64	U
85-01-8	Phenanthrene		1.91	3.82	7.64	U
129-00-0	Pyrene		1.91	3.82	7.64	U

U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3820	2832	74.1	45 - 105	
Terphenyl-d14	3820	3025	79.2	30 - 125	
2,4,6-Tribromophenol	7641	6210	81.3	35 - 125	X

ANALYSIS DATA SHEET

LNC-018-DS-SB1-02

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Solid   Laboratory ID: 1305125-30   File ID: 040F4001.D

Sampled: 05/09/13 10:30   Prepared: 05/20/13 12:19   Analyzed: 05/23/13 15:07

Solids: 82.37   Preparation: EXT 3546   Dilution: 1

Batch: 3E17023   Sequence: 3E14606   Calibration: 3143004   Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.04	8.04	16.0	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.600	1.496	93.5	35 - 140	

ANALYSIS DATA SHEET

LNC-018-DS-SB1-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-30 File ID: 025F2501.D

Sampled: 05/09/13 10:30 Prepared: 05/18/13 17:28 Analyzed: 05/19/13 09:51

Solids: 82.37 Preparation: 8015GRO Dilution: 1

Batch: 3E18011 Sequence: 3E14307 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.10	6.19	9.29	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.097	4.448	144	50 - 150	X

ANALYSIS DATA SHEET

LNC-018-DS-SB2-01

Laboratory: Empirical Laboratories, LLC — SDG: 1305125
Client: SAIC (S732) — Project: Lincoln NE ANG
Matrix: Solid — Laboratory ID: 1305125-31 — File ID: 0512531A.D
Sampled: 05/09/13 11:25 — Prepared: 05/20/13 00:00 — Analyzed: 05/20/13 23:43
Solids: 77.70 — Preparation: 5035A — Dilution: 1
Batch: 3E20017 — Sequence: 3E14116 — Calibration: 3140003 — Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone		6.63	13.3	26.5	U	U
71-43-2	Benzene		1.66	3.32	6.63	U	
74-97-5	Bromochloromethane		1.66	3.32	6.63	U	
75-27-4	Bromodichloromethane		1.66	3.32	6.63	U	
75-25-2	Bromoform		1.66	3.32	6.63	U	
74-83-9	Bromomethane		3.32	6.63	13.3	U	
78-93-3	2-Butanone		3.32	6.63	13.3	U	
75-15-0	Carbon disulfide		1.66	3.32	6.63	U	
56-23-5	Carbon tetrachloride		1.66	3.32	6.63	U	
108-90-7	Chlorobenzene		1.66	3.32	6.63	U	
75-00-3	Chloroethane		3.32	6.63	13.3	U	
67-66-3	Chloroform		1.66	3.32	6.63	U	
74-87-3	Chloromethane		3.32	6.63	13.3	U	
110-82-7	Cyclohexane		1.66	3.32	6.63	U	
124-48-1	Dibromochloromethane		1.66	3.32	6.63	U	
96-12-8	1,2-Dibromo-3-chloropropane		3.32	6.63	13.3	U	
106-93-4	1,2-Dibromoethane (EDB)		1.66	3.32	6.63	U	
95-50-1	1,2-Dichlorobenzene		1.66	3.32	6.63	U	
541-73-1	1,3-Dichlorobenzene		1.66	3.32	6.63	U	
106-46-7	1,4-Dichlorobenzene		1.66	3.32	6.63	U	
75-71-8	Dichlorodifluoromethane		3.32	6.63	13.3	UY UJ	C05
75-34-3	1,1-Dichloroethane		1.66	3.32	6.63	U	U
107-06-2	1,2-Dichloroethane		1.66	3.32	6.63	U	
75-35-4	1,1-Dichloroethene		1.66	3.32	6.63	U	
156-59-2	cis-1,2-Dichloroethene		1.66	3.32	6.63	U	
156-60-5	trans-1,2-Dichloroethene		1.66	3.32	6.63	U	
78-87-5	1,2-Dichloropropane		1.66	3.32	6.63	U	
10061-01-5	cis-1,3-Dichloropropene		1.66	3.32	6.63	U	
10061-02-6	trans-1,3-Dichloropropene		1.66	3.32	6.63	U	
100-41-4	Ethylbenzene		1.66	3.32	6.63	U	
591-78-6	2-Hexanone		3.32	6.63	13.3	U	
98-82-8	Isopropylbenzene		1.66	3.32	6.63	U	
75-09-2	Methylene chloride	34.3	3.32	6.63	13.3		R F12
79-20-9	Methyl Acetate		3.32	6.63	13.3	U	U
108-87-2	Methylcyclohexane		1.66	3.32	6.63	U	
108-10-1	4-Methyl-2-pentanone		3.32	6.63	13.3	U	
1634-04-4	Methyl t-Butyl Ether		1.66	3.32	6.63	U	
100-42-5	Styrene		1.66	3.32	6.63	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.66	3.32	6.63	U	
127-18-4	Tetrachloroethene		1.66	3.32	6.63	U	

06/25/2013

ANALYSIS DATA SHEET

LNC-018-DS-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-31	File ID:	0512531A.D
Sampled:	05/09/13 11:25	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 23:43
Solids:	77.70	Preparation:	5035A	Dilution:	1
Batch:	3E20017	Sequence:	3E14116	Calibration:	3140003
Instrument:	MS-VOA3				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
108-88-3	Toluene		1.66	3.32	6.63	U	U
87-61-6	1,2,3-Trichlorobenzene		1.66	3.32	6.63	U	
120-82-1	1,2,4-Trichlorobenzene		1.66	3.32	6.63	U	
79-00-5	1,1,2-Trichloroethane		1.66	3.32	6.63	U	
71-55-6	1,1,1-Trichloroethane		1.66	3.32	6.63	U	
79-01-6	Trichloroethene		1.66	3.32	6.63	U	
75-69-4	Trichlorofluoromethane		3.32	6.63	13.3	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.32	6.63	13.3	U	
75-01-4	Vinyl chloride		1.66	3.32	6.63	UY UJ	C05
108-38-3/106-42-	m,p-Xylene		3.32	6.63	13.3	U	U
95-47-6	o-Xylene		1.66	3.32	6.63	U	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	39.80	40.49	102	85 - 120	
Dibromofluoromethane	39.80	42.36	106	80 - 125	
1,2-Dichloroethane-d4	39.80	44.54	112	75 - 140	
Toluene-d8	39.80	41.20	104	85 - 115	

ANALYSIS DATA SHEET

LNC-018-DS-SB2-01

Laboratory: Empirical Laboratories, LLC | SDG: 1305125
Client: SAIC (S732) | Project: Lincoln NE ANG
Matrix: Solid | Laboratory ID: 1305125-31 | File ID: 0512531.D
Sampled: 05/09/13 11:25 | Prepared: 05/21/13 14:15 | Analyzed: 06/02/13 08:37
Solids: 77.70 | Preparation: EXT_3546 | Dilution: 1
Batch: 3E20014 | Sequence: 3F15519 | Calibration: 2272005 | Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		102	205	409	UX	U
1912-24-9	Atrazine		102	205	409	U	U
100-52-7	Benzaldehyde		102	205	409	UY UJ	C05
92-52-4	1,1-Biphenyl		102	205	409	U	U
101-55-3	4-Bromophenyl-phenylether		102	205	409	U	
85-68-7	Butylbenzylphthalate		102	205	409	U	
105-60-2	Caprolactam		102	205	409	U	
86-74-8	Carbazole		102	205	409	U	
59-50-7	4-Chloro-3-methylphenol		102	205	409	U	
106-47-8	4-Chloroaniline		102	205	409	U	
111-91-1	Bis(2-chloroethoxy)methane		102	205	409	U	
111-44-4	Bis(2-chloroethyl)ether		102	205	409	U	
108-60-1	2,2'-Oxybis-1-chloropropane		102	205	409	U	
91-58-7	2-Chloronaphthalene		102	205	409	U	
95-57-8	2-Chlorophenol		102	205	409	U	
7005-72-3	4-Chlorophenyl phenyl ether		102	205	409	U	
132-64-9	Dibenzofuran		102	205	409	U	
84-74-2	Di-n-butylphthalate		102	205	409	U	
91-94-1	3,3'-Dichlorobenzidine		102	205	409	U	
120-83-2	2,4-Dichlorophenol		102	205	409	U	
84-66-2	Diethylphthalate		102	205	409	U	
105-67-9	2,4-Dimethylphenol		409	819	1630	U	
131-11-3	Dimethyl phthalate		102	205	409	U	
534-52-1	4,6-Dinitro-2-methylphenol		1020	2050	4090	U	
51-28-5	2,4-Dinitrophenol		1020	2050	4090	U	
121-14-2	2,4-Dinitrotoluene		102	205	409	U	
606-20-2	2,6-Dinitrotoluene		102	205	409	U	
117-84-0	Di-n-octylphthalate		102	205	409	U	
117-81-7	Bis(2-ethylhexyl)phthalate		102	205	409	U	
118-74-1	Hexachlorobenzene		102	205	409	U	
87-68-3	Hexachlorobutadiene		102	205	409	U	
77-47-4	Hexachlorocyclopentadiene		102	205	409	U	
67-72-1	Hexachloroethane		102	205	409	UX	
78-59-1	Isophorone		102	205	409	U	
95-48-7	2-Methylphenol		102	205	409	U	
106-44-5	4-Methylphenol		102	205	409	U	
100-01-6	4-Nitroaniline		409	819	1630	U	
99-09-2	3-Nitroaniline		409	819	1630	U	
88-74-4	2-Nitroaniline		409	819	1630	U	
98-95-3	Nitrobenzene		102	205	409	U	

1305125

ANALYSIS DATA SHEET

LNC-018-DS-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-31	File ID:	0512531.D
Sampled:	05/09/13 11:25	Prepared:	05/21/13 14:15	Analyzed:	06/02/13 08:37
Solids:	77.70	Preparation:	EXT 3546	Dilution:	1

Batch: 3E20014 Sequence: 3F15519 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		409	819	1630	U
88-75-5	2-Nitrophenol		102	205	409	U
86-30-6	N-Nitrosodiphenylamine		102	205	409	U
621-64-7	N-Nitroso-di-n-propylamine		102	205	409	U
87-86-5	Pentachlorophenol		409	819	1630	U
108-95-2	Phenol		102	205	409	U
95-94-3	1,2,4,5-Tetrachlorobenzene		102	205	409	U
58-90-2	2,3,4,6-Tetrachlorophenol		102	205	409	U
88-06-2	2,4,6-Trichlorophenol		102	205	409	U
95-95-4	2,4,5-Trichlorophenol		102	205	409	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4091	2672	65.3	45 - 105	
2-Fluorophenol	8182	5527	67.6	35 - 105	
Nitrobenzene-d5	4091	2596	63.5	35 - 100	
Phenol-d6	8182	5768	70.5	40 - 100	
Terphenyl-d14	4091	2968	72.6	30 - 125	
2,4,6-Tribromophenol	8182	5712	69.8	35 - 125	

ANALYSIS DATA SHEET

LNC-018-DS-SB2-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Solid Laboratory ID: 1305125-31 File ID: 0512531.D
Sampled: 05/09/13 11:25 Prepared: 05/21/13 14:15 Analyzed: 06/16/13 02:18
Solids: 77.70 Preparation: EXT 3546 Dilution: 1
Batch: 3E20014 Sequence: 3F16823 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		2.05	4.09	8.19	U
208-96-8	Acenaphthylene		2.05	4.09	8.19	U
120-12-7	Anthracene		2.05	4.09	8.19	U
56-55-3	Benzo(a)anthracene		2.05	4.09	8.19	U
50-32-8	Benzo(a)pyrene		2.05	4.09	8.19	U
205-99-2	Benzo(b)fluoranthene		2.05	4.09	8.19	U
191-24-2	Benzo(g,h,i)perylene		2.05	4.09	8.19	U
207-08-9	Benzo(k)fluoranthene		2.05	4.09	8.19	U
123-91-1	1,4-Dioxane		10.2	20.5	40.9	U
218-01-9	Chrysene		2.05	4.09	8.19	U
53-70-3	Dibenz(a,h)anthracene		2.05	4.09	8.19	U
206-44-0	Fluoranthene		2.05	4.09	8.19	U
86-73-7	Fluorene		2.05	4.09	8.19	U
193-39-5	Indeno(1,2,3-cd)pyrene		2.05	4.09	8.19	U
91-57-6	2-Methylnaphthalene		2.05	4.09	8.19	U
91-20-3	Naphthalene		2.05	4.09	8.19	U
85-01-8	Phenanthrene		2.05	4.09	8.19	U
129-00-0	Pyrene		2.05	4.09	8.19	U

Total Target Analytes Reported: 18

U

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4091	3324	81.2	45 - 105	
Terphenyl-d14	4091	3608	88.2	30 - 125	
2,4,6-Tribromophenol	8182	7760	94.8	35 - 125	X

ANALYSIS DATA SHEET

LNC-018-DS-SB2-01

Laboratory: Empirical Laboratories, LLC — SDG: 1305125

Client: SAIC (S732) — Project: Lincoln NE ANG

Matrix: Solid — Laboratory ID: 1305125-31 — File ID: 041F4101.D

Sampled: 05/09/13 11:25 — Prepared: 05/20/13 12:19 — Analyzed: 05/23/13 15:40

Solids: 77.70 — Preparation: EXT 3546 — Dilution: 1

Batch: 3E17023 — Sequence: 3E14606 — Calibration: 3143004 — Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.20	8.20	16.3	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.632	1.499	91.8	35 - 140	

ANALYSIS DATA SHEET

LNC-018-DS-SB2-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125
Client: SAIC (S732)   Project: Lincoln NE ANG
Matrix: Solid   Laboratory ID: 1305125-31   File ID: 026F2601.D
Sampled: 05/09/13 11:25   Prepared: 05/18/13 17:28   Analyzed: 05/19/13 10:32
Solids: 77.70   Preparation: 8015GRO   Dilution: 1
Batch: 3E18011   Sequence: 3E14307   Calibration: 3044001   Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.30	6.61	9.91	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.303	4.290	130	50 - 150	X

ANALYSIS DATA SHEET

LNC-018-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-38	File ID:	0512538.D
Sampled:	05/09/13 15:55	Prepared:	05/22/13 00:00	Analyzed:	05/22/13 13:38
Solids:		Preparation:	5030B	Dilution:	1
Batch:	3E22012	Sequence:	3E14301	Calibration:	3140001
Instrument:	MS-VOA4				

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
67-64-1	Acetone	**3.12**	2.50	5.00	10.0	J	J
71-43-2	Benzene		0.250	0.500	1.00	U	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U	
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U	
75-25-2	Bromoform		0.250	0.500	1.00	U	
74-83-9	Bromomethane		0.500	1.00	2.00	U	
78-93-3	2-Butanone		2.50	5.00	10.0	U	
75-15-0	Carbon disulfide	**5.88**	0.250	0.500	1.00		=
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	UX	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U	
75-00-3	Chloroethane		0.500	1.00	2.00	U	
67-66-3	Chloroform		0.250	0.500	1.00	U	
74-87-3	Chloromethane		0.250	0.500	1.00	UY	(UJ COS
110-82-7	Cyclohexane	**0.570**	0.250	0.500	1.00	J	J
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U	
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U	
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U	
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U	
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U	
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U	
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U	
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U	
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U	
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U	
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U	
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U	
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U	
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U	
100-41-4	Ethylbenzene	**42.3**	0.250	0.500	1.00		=
591-78-6	2-Hexanone		1.25	2.50	5.00	U	U
98-82-8	Isopropylbenzene	**13.0**	0.250	0.500	1.00		=
75-09-2	Methylene chloride		0.500	1.00	2.00	U	U
79-20-9	Methyl Acetate		0.500	1.00	2.00	U	
108-87-2	Methylcyclohexane		0.250	0.500	1.00	U	
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U	
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U	
100-42-5	Styrene		0.250	0.500	1.00	U	
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U	
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U	

ANALYSIS DATA SHEET

LNC-018-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-38	File ID:	0512538.D		
Sampled:	05/09/13 15:55	Prepared:	05/22/13 00:00	Analyzed:	05/22/13 13:38		
Solids:		Preparation:	5030B	Dilution:	1		
Batch:	3E22012	Sequence:	3E14301	Calibration:	3140001	Instrument:	MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		0.500	1.00	2.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene	15.0	0.500	1.00	2.00	
95-47-6	o-Xylene		0.250	0.500	1.00	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.97	107	75 - 120	
Dibromofluoromethane	30.00	32.86	110	85 - 115	
1,2-Dichloroethane-d4	30.00	30.38	101	70 - 120	
Toluene-d8	30.00	29.29	97.6	85 - 120	

ANALYSIS DATA SHEET

LNC-018-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-38	File ID:	0512538.D
Sampled:	05/09/13 15:55	Prepared:	05/16/13 12:08	Analyzed:	05/20/13 16:16
Solids:		Preparation:	EXT 3510	Dilution:	1
Batch:	3E16002	Sequence:	3E14804	Calibration:	2272005
Instrument:	MS-BNA1				

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		1.25	2.50	5.00	UX	U
1912-24-9	Atrazine		1.25	2.50	5.00	UY	UJ 05
100-52-7	Benzaldehyde		1.25	2.50	5.00	U	U
92-52-4	1,1-Biphenyl		1.25	2.50	5.00	U	
101-55-3	4-Bromophenyl-phenylether		1.25	2.50	5.00	U	
85-68-7	Butylbenzylphthalate		1.25	2.50	5.00	U	
105-60-2	Caprolactam		1.25	2.50	5.00	U	
86-74-8	Carbazole		1.25	2.50	5.00	U	
59-50-7	4-Chloro-3-methylphenol		1.25	2.50	5.00	UX	
106-47-8	4-Chloroaniline		1.25	2.50	5.00	U	
111-91-1	Bis(2-chloroethoxy)methane		1.25	2.50	5.00	U	
111-44-4	Bis(2-chloroethyl)ether		1.25	2.50	5.00	U	
108-60-1	2,2'-Oxybis-1-chloropropane		1.25	2.50	5.00	U	
91-58-7	2-Chloronaphthalene		1.25	2.50	5.00	U	
95-57-8	2-Chlorophenol		1.25	2.50	5.00	U	
7005-72-3	4-Chlorophenyl phenyl ether		1.25	2.50	5.00	U	
132-64-9	Dibenzofuran		1.25	2.50	5.00	U	
84-74-2	Di-n-butylphthalate		1.25	2.50	5.00	U	
91-94-1	3,3'-Dichlorobenzidine		1.25	2.50	5.00	U	
120-83-2	2,4-Dichlorophenol		1.25	2.50	5.00	U	
84-66-2	Diethylphthalate		1.25	2.50	5.00	U	
105-67-9	2,4-Dimethylphenol		5.00	10.0	20.0	U	
131-11-3	Dimethyl phthalate		1.25	2.50	5.00	U	
534-52-1	4,6-Dinitro-2-methylphenol		5.00	10.0	20.0	U	
51-28-5	2,4-Dinitrophenol		8.33	25.0	50.0	U	
121-14-2	2,4-Dinitrotoluene		1.25	2.50	5.00	U	
606-20-2	2,6-Dinitrotoluene		1.25	2.50	5.00	U	
117-84-0	Di-n-octylphthalate		1.25	2.50	5.00	U	
117-81-7	Bis(2-ethylhexyl)phthalate		1.25	2.50	5.00	U	
118-74-1	Hexachlorobenzene		1.25	2.50	5.00	U	
87-68-3	Hexachlorobutadiene		1.25	2.50	5.00	U	
77-47-4	Hexachlorocyclopentadiene		1.25	5.00	10.0	U	
67-72-1	Hexachloroethane		1.25	2.50	5.00	UX	
78-59-1	Isophorone		1.25	2.50	5.00	U	
95-48-7	2-Methylphenol		1.25	2.50	5.00	U	
106-44-5	4-Methylphenol		1.25	2.50	5.00	U	
100-01-6	4-Nitroaniline		5.00	10.0	20.0	U	
99-09-2	3-Nitroaniline		5.00	10.0	20.0	U	
88-74-4	2-Nitroaniline		5.00	10.0	20.0	UX	
98-95-3	Nitrobenzene		1.25	2.50	5.00	U	

ANALYSIS DATA SHEET

LNC-018-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC	SDG:	1305125		
Client:	SAIC (S732)	Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-38	File ID:	0512538.D
Sampled:	05/09/13 15:55	Prepared:	05/16/13 12:08	Analyzed:	05/20/13 16:16
Solids:		Preparation:	EXT 3510	Dilution:	1

Batch: 3E16002 Sequence: 3E14804 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		5.00	10.0	20.0	U
88-75-5	2-Nitrophenol		1.25	2.50	5.00	U
86-30-6	N-Nitrosodiphenylamine		1.25	2.50	5.00	U
621-64-7	N-Nitroso-di-n-propylamine		1.25	2.50	5.00	UX
87-86-5	Pentachlorophenol		5.00	10.0	20.0	U
108-95-2	Phenol		1.25	2.50	5.00	U
95-94-3	1,2,4,5-Tetrachlorobenzene		1.25	2.50	5.00	U
58-90-2	2,3,4,6-Tetrachlorophenol		2.50	5.00	10.0	U
88-06-2	2,4,6-Trichlorophenol		1.25	2.50	5.00	U
95-95-4	2,4,5-Trichlorophenol		1.25	2.50	5.00	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	100.0	63.95	64.0	50 - 110	
2-Fluorophenol	200.0	62.58	31.3	20 - 110	
Nitrobenzene-d5	100.0	72.45	72.4	40 - 110	
Phenol-d6	200.0	39.05	19.5	0 - 110	
Terphenyl-d14	100.0	58.19	58.2	50 - 135	
2,4,6-Tribromophenol	200.0	155.0	77.5	40 - 125	

ANALYSIS DATA SHEET

LNC-018-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID:	1305125-38	File ID:	0512538.D
Sampled:	05/09/13 15:55	Prepared:	05/16/13 12:08	Analyzed:	06/05/13 06:40
Solids:		Preparation:	EXT 3510	Dilution:	1

Batch: 3E16002 Sequence: 3F15611 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene	0.0758	0.0500	0.100	0.200	J	J
208-96-8	Acenaphthylene		0.0500	0.100	0.200	U	U
120-12-7	Anthracene		0.0500	0.100	0.200	U	
56-55-3	Benzo(a)anthracene		0.0500	0.100	0.200	U	
50-32-8	Benzo(a)pyrene		0.0500	0.100	0.200	U	
205-99-2	Benzo(b)fluoranthene		0.0500	0.100	0.200	U	
191-24-2	Benzo(g,h,i)perylene		0.0500	0.100	0.200	U	
207-08-9	Benzo(k)fluoranthene		0.0500	0.100	0.200	U	
123-91-1	1,4-Dioxane		0.125	0.250	0.500	U	
218-01-9	Chrysene		0.0500	0.100	0.200	U	
53-70-3	Dibenz(a,h)anthracene		0.0500	0.100	0.200	U	
206-44-0	Fluoranthene	0.0516	0.0500	0.100	0.200	J	J
86-73-7	Fluorene	0.0544	0.0500	0.100	0.200	J	J
193-39-5	Indeno(1,2,3-cd)pyrene		0.0500	0.100	0.200	U	U
91-57-6	2-Methylnaphthalene	1.89	0.0500	0.100	0.200		=
91-20-3	Naphthalene	8.88	0.0500	0.100	0.200		=
85-01-8	Phenanthrene	0.0990	0.0500	0.200	0.400	J	J
129-00-0	Pyrene		0.0500	0.100	0.200	U	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	100.0	70.34	70.3	50 - 110	
Terphenyl-d14	100.0	58.23	58.2	50 - 135	
2,4,6-Tribromophenol	200.0	169.1	84.5	40 - 125	

ANALYSIS DATA SHEET

LNC-018-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-38	File ID:	045F4501.D		
Sampled:	05/09/13 15:55	Prepared:	05/16/13 17:00	Analyzed:	05/21/13 20:59		
Solids:		Preparation:	EXT_3510	Dilution:	1		
Batch:	3E16035	Sequence:	3E14605	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)	**0.657**	0.100	0.100	0.200	

=

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.02000	0.01530	76.5	30 - 140	

ANALYSIS DATA SHEET

LNC-018-DP-SB2-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Water   Laboratory ID: 1305125-38RE1   File ID: 007F0701.D

Sampled: 05/09/13 15:55   Prepared: 05/20/13 00:28   Analyzed: 05/20/13 00:28

Solids: Preparation: 8015GRO   Dilution: 1

Batch: 3E19001   Sequence: 3E14310   Calibration: 3044001   Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)	**0.363**	0.0500	0.100	0.150	

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	0.05000	0.06359	127	50 - 150	X

ANALYSIS DATA SHEET

LNC-018-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Solid	Laboratory ID: 1305125-32		File ID:	0512532A.D
Sampled:	05/09/13 11:52	Prepared: 05/20/13 00:00		Analyzed:	05/21/13 00:12
Solids:	80.14	Preparation: 5035A		Dilution:	1
Batch:	3E20017	Sequence: 3E14116	Calibration:	3140003	Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone	40.4	6.68	13.4	26.7		≠R F12
71-43-2	Benzene		1.67	3.34	6.68	U	U
74-97-5	Bromochloromethane		1.67	3.34	6.68	U	
75-27-4	Bromodichloromethane		1.67	3.34	6.68	U	
75-25-2	Bromoform		1.67	3.34	6.68	U	
74-83-9	Bromomethane		3.34	6.68	13.4	U	
78-93-3	2-Butanone	5.34	3.34	6.68	13.4	J	J
75-15-0	Carbon disulfide		1.67	3.34	6.68	U	U
56-23-5	Carbon tetrachloride		1.67	3.34	6.68	U	
108-90-7	Chlorobenzene		1.67	3.34	6.68	U	
75-00-3	Chloroethane		3.34	6.68	13.4	U	
67-66-3	Chloroform		1.67	3.34	6.68	U	
74-87-3	Chloromethane		3.34	6.68	13.4	U	
110-82-7	Cyclohexane		1.67	3.34	6.68	U	
124-48-1	Dibromochloromethane		1.67	3.34	6.68	U	
96-12-8	1,2-Dibromo-3-chloropropane		3.34	6.68	13.4	U	
106-93-4	1,2-Dibromoethane (EDB)		1.67	3.34	6.68	U	
95-50-1	1,2-Dichlorobenzene		1.67	3.34	6.68	U	
541-73-1	1,3-Dichlorobenzene		1.67	3.34	6.68	U	
106-46-7	1,4-Dichlorobenzene		1.67	3.34	6.68	U	
75-71-8	Dichlorodifluoromethane		3.34	6.68	13.4	UY	UJ C05
75-34-3	1,1-Dichloroethane		1.67	3.34	6.68	U	U
107-06-2	1,2-Dichloroethane		1.67	3.34	6.68	U	
75-35-4	1,1-Dichloroethene		1.67	3.34	6.68	U	
156-59-2	cis-1,2-Dichloroethene		1.67	3.34	6.68	U	
156-60-5	trans-1,2-Dichloroethene		1.67	3.34	6.68	U	
78-87-5	1,2-Dichloropropane		1.67	3.34	6.68	U	
10061-01-5	cis-1,3-Dichloropropene		1.67	3.34	6.68	U	
10061-02-6	trans-1,3-Dichloropropene		1.67	3.34	6.68	U	
100-41-4	Ethylbenzene		1.67	3.34	6.68	U	
591-78-6	2-Hexanone		3.34	6.68	13.4	U	
98-82-8	Isopropylbenzene		1.67	3.34	6.68	U	
75-09-2	Methylene chloride	324	3.34	6.68	13.4		≠R F12
79-20-9	Methyl Acetate		3.34	6.68	13.4	U	U
108-87-2	Methylcyclohexane		1.67	3.34	6.68	U	
108-10-1	4-Methyl-2-pentanone		3.34	6.68	13.4	U	
1634-04-4	Methyl t-Butyl Ether		1.67	3.34	6.68	U	
100-42-5	Styrene		1.67	3.34	6.68	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.67	3.34	6.68	U	
127-18-4	Tetrachloroethene		1.67	3.34	6.68	U	

N 06/25/2013

ANALYSIS DATA SHEET

LNC-018-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-32	File ID:	0512532A.D
Sampled:	05/09/13 11:52	Prepared:	05/20/13 00:00	Analyzed:	05/21/13 00:12
Solids:	80.14	Preparation:	5035A	Dilution:	1

Batch: 3E20017 Sequence: 3E14116 Calibration: 3140003 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
108-88-3	Toluene		1.67	3.34	6.68	U	U
87-61-6	1,2,3-Trichlorobenzene		1.67	3.34	6.68	U	
120-82-1	1,2,4-Trichlorobenzene		1.67	3.34	6.68	U	
79-00-5	1,1,2-Trichloroethane		1.67	3.34	6.68	U	
71-55-6	1,1,1-Trichloroethane		1.67	3.34	6.68	U	
79-01-6	Trichloroethene		1.67	3.34	6.68	U	
75-69-4	Trichlorofluoromethane		3.34	6.68	13.4	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.34	6.68	13.4	U	
75-01-4	Vinyl chloride		1.67	3.34	6.68	UY	UJ C05
108-38-3/106-42-	m,p-Xylene		3.34	6.68	13.4	U	U
95-47-6	o-Xylene		1.67	3.34	6.68	U	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	40.08	42.78	107	85 - 120	
Dibromofluoromethane	40.08	41.85	104	80 - 125	
1,2-Dichloroethane-d4	40.08	44.79	112	75 - 140	
Toluene-d8	40.08	40.85	102	85 - 115	

ANALYSIS DATA SHEET

LNC-018-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Solid	Laboratory ID: 1305125-32	File ID:	0512532.D	
Sampled:	05/09/13 11:52	Prepared: 05/21/13 14:15	Analyzed:	06/02/13 09:04	
Solids:	80.14	Preparation: EXT 3546	Dilution:	1	
Batch:	3E20014	Sequence: 3F15519	Calibration:	2272005	Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
98-86-2	Acetophenone		99.1	199	396	UX U
1912-24-9	Atrazine		99.1	199	396	U U
100-52-7	Benzaldehyde		99.1	199	396	UY UJ C05
92-52-4	1,1-Biphenyl		99.1	199	396	U U
101-55-3	4-Bromophenyl-phenylether		99.1	199	396	U
85-68-7	Butylbenzylphthalate		99.1	199	396	U
105-60-2	Caprolactam		99.1	199	396	U
86-74-8	Carbazole		99.1	199	396	U
59-50-7	4-Chloro-3-methylphenol		99.1	199	396	U
106-47-8	4-Chloroaniline		99.1	199	396	U
111-91-1	Bis(2-chloroethoxy)methane		99.1	199	396	U
111-44-4	Bis(2-chloroethyl)ether		99.1	199	396	U
108-60-1	2,2'-Oxybis-1-chloropropane		99.1	199	396	U
91-58-7	2-Chloronaphthalene		99.1	199	396	U
95-57-8	2-Chlorophenol		99.1	199	396	U
7005-72-3	4-Chlorophenyl phenyl ether		99.1	199	396	U
132-64-9	Dibenzofuran		99.1	199	396	U
84-74-2	Di-n-butylphthalate		99.1	199	396	U
91-94-1	3,3'-Dichlorobenzidine		99.1	199	396	U
120-83-2	2,4-Dichlorophenol		99.1	199	396	U
84-66-2	Diethylphthalate		99.1	199	396	U
105-67-9	2,4-Dimethylphenol		396	793	1580	U
131-11-3	Dimethyl phthalate		99.1	199	396	U
534-52-1	4,6-Dinitro-2-methylphenol		991	1990	3960	U
51-28-5	2,4-Dinitrophenol		991	1990	3960	U
121-14-2	2,4-Dinitrotoluene		99.1	199	396	U
606-20-2	2,6-Dinitrotoluene		99.1	199	396	U
117-84-0	Di-n-octylphthalate		99.1	199	396	U
117-81-7	Bis(2-ethylhexyl)phthalate		99.1	199	396	U
118-74-1	Hexachlorobenzene		99.1	199	396	U
87-68-3	Hexachlorobutadiene		99.1	199	396	U
77-47-4	Hexachlorocyclopentadiene		99.1	199	396	U
67-72-1	Hexachloroethane		99.1	199	396	UX
78-59-1	Isophorone		99.1	199	396	U
95-48-7	2-Methylphenol		99.1	199	396	U
106-44-5	4-Methylphenol		99.1	199	396	U
100-01-6	4-Nitroaniline		396	793	1580	U
99-09-2	3-Nitroaniline		396	793	1580	U
88-74-4	2-Nitroaniline		396	793	1580	U
98-95-3	Nitrobenzene		99.1	199	396	U

ANALYSIS DATA SHEET

LNC-018-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-32	File ID:	0512532.D
Sampled:	05/09/13 11:52	Prepared:	05/21/13 14:15	Analyzed:	06/02/13 09:04
Solids:	80.14	Preparation:	EXT 3546	Dilution:	1

Batch: 3E20014 Sequence: 3F15519 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		396	793	1580	U
88-75-5	2-Nitrophenol		99.1	199	396	U
86-30-6	N-Nitrosodiphenylamine		99.1	199	396	U
621-64-7	N-Nitroso-di-n-propylamine		99.1	199	396	U
87-86-5	Pentachlorophenol		396	793	1580	U
108-95-2	Phenol		99.1	199	396	U
95-94-3	1,2,4,5-Tetrachlorobenzene		99.1	199	396	U
58-90-2	2,3,4,6-Tetrachlorophenol		99.1	199	396	U
88-06-2	2,4,6-Trichlorophenol		99.1	199	396	U
95-95-4	2,4,5-Trichlorophenol		99.1	199	396	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3964	2330	58.8	45 - 105	
2-Fluorophenol	7927	4841	61.1	35 - 105	
Nitrobenzene-d5	3964	2440	61.6	35 - 100	
Phenol-d6	7927	5060	63.8	40 - 100	
Terphenyl-d14	3964	2624	66.2	30 - 125	
2,4,6-Tribromophenol	7927	5091	64.2	35 - 125	

ANALYSIS DATA SHEET

LNC-018-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-32	File ID:	0512532.D		
Sampled:	05/09/13 11:52	Prepared:	05/21/13 14:15	Analyzed:	06/16/13 02:46		
Solids:	80.14	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E20014	Sequence:	3F16823	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		1.99	3.96	7.93	U
208-96-8	Acenaphthylene		1.99	3.96	7.93	U
120-12-7	Anthracene		1.99	3.96	7.93	U
56-55-3	Benzo(a)anthracene		1.99	3.96	7.93	U
50-32-8	Benzo(a)pyrene		1.99	3.96	7.93	U
205-99-2	Benzo(b)fluoranthene		1.99	3.96	7.93	U
191-24-2	Benzo(g,h,i)perylene		1.99	3.96	7.93	U
207-08-9	Benzo(k)fluoranthene		1.99	3.96	7.93	U
123-91-1	1,4-Dioxane		9.91	19.9	39.6	U
218-01-9	Chrysene		1.99	3.96	7.93	U
53-70-3	Dibenz(a,h)anthracene		1.99	3.96	7.93	U
206-44-0	Fluoranthene		1.99	3.96	7.93	U
86-73-7	Fluorene		1.99	3.96	7.93	U
193-39-5	Indeno(1,2,3-cd)pyrene		1.99	3.96	7.93	U
91-57-6	2-Methylnaphthalene		1.99	3.96	7.93	U
91-20-3	Naphthalene		1.99	3.96	7.93	U
85-01-8	Phenanthrene		1.99	3.96	7.93	U
129-00-0	Pyrene		1.99	3.96	7.93	U

U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3964	2831	71.4	45 - 105	
Terphenyl-d14	3964	2991	75.5	30 - 125	
2,4,6-Tribromophenol	7927	6754	85.2	35 - 125	X

ANALYSIS DATA SHEET

LNC-018-DS-SB2-02

Laboratory: Empirical Laboratories, LLC   SDG: 1305125
Client: SAIC (S732)   Project: Lincoln NE ANG
Matrix: Solid   Laboratory ID: 1305125-32   File ID: 042F4201.D
Sampled: 05/09/13 11:52   Prepared: 05/20/13 12:19   Analyzed: 05/23/13 16:13
Solids: 80.14   Preparation: EXT 3546   Dilution: 1
Batch: 3E17023   Sequence: 3E14606   Calibration: 3143004   Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.07	8.07	16.0	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.607	1.442	89.8	35 - 140	

ANALYSIS DATA SHEET

LNC-018-DS-SB2-02

Laboratory: Empirical Laboratories, LLC
SDG: 1305125
Client: SAIC (S732)
Project: Lincoln NE ANG
Matrix: Solid
Laboratory ID: 1305125-32
File ID: 027F2701.D
Sampled: 05/09/13 11:52
Prepared: 05/18/13 17:28
Analyzed: 05/19/13 11:14
Solids: 80.14
Preparation: 8015GRO
Dilution: 1
Batch: 3E18011
Sequence: 3E14307
Calibration: 3044001
Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.03	6.06	9.09	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.029	4.000	132	50 - 150	X

ANALYSIS DATA SHEET

LNC-018-DS-SB3-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-33 File ID: 0512533A.D

Sampled: 05/09/13 12:45 Prepared: 05/20/13 00:00 Analyzed: 05/21/13 00:41

Solids: 79.68 Preparation: 5035A Dilution: 1

Batch: 3E20017 Sequence: 3E14116 Calibration: 3140003 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone		6.84	13.7	27.3	U	U
71-43-2	Benzene		1.71	3.42	6.84	U	
74-97-5	Bromochloromethane		1.71	3.42	6.84	U	
75-27-4	Bromodichloromethane		1.71	3.42	6.84	U	
75-25-2	Bromoform		1.71	3.42	6.84	U	
74-83-9	Bromomethane		3.42	6.84	13.7	U	
78-93-3	2-Butanone		3.42	6.84	13.7	U	
75-15-0	Carbon disulfide		1.71	3.42	6.84	U	
56-23-5	Carbon tetrachloride		1.71	3.42	6.84	U	
108-90-7	Chlorobenzene		1.71	3.42	6.84	U	
75-00-3	Chloroethane		3.42	6.84	13.7	U	
67-66-3	Chloroform		1.71	3.42	6.84	U	
74-87-3	Chloromethane		3.42	6.84	13.7	U	
110-82-7	Cyclohexane		1.71	3.42	6.84	U	
124-48-1	Dibromochloromethane		1.71	3.42	6.84	U	
96-12-8	1,2-Dibromo-3-chloropropane		3.42	6.84	13.7	U	
106-93-4	1,2-Dibromoethane (EDB)		1.71	3.42	6.84	U	
95-50-1	1,2-Dichlorobenzene		1.71	3.42	6.84	U	
541-73-1	1,3-Dichlorobenzene		1.71	3.42	6.84	U	
106-46-7	1,4-Dichlorobenzene		1.71	3.42	6.84	U	
75-71-8	Dichlorodifluoromethane		3.42	6.84	13.7	UY UJ	C05
75-34-3	1,1-Dichloroethane		1.71	3.42	6.84	U	U
107-06-2	1,2-Dichloroethane		1.71	3.42	6.84	U	
75-35-4	1,1-Dichloroethene		1.71	3.42	6.84	U	
156-59-2	cis-1,2-Dichloroethene		1.71	3.42	6.84	U	
156-60-5	trans-1,2-Dichloroethene		1.71	3.42	6.84	U	
78-87-5	1,2-Dichloropropane		1.71	3.42	6.84	U	
10061-01-5	cis-1,3-Dichloropropene		1.71	3.42	6.84	U	
10061-02-6	trans-1,3-Dichloropropene		1.71	3.42	6.84	U	
100-41-4	Ethylbenzene		1.71	3.42	6.84	U	
591-78-6	2-Hexanone		3.42	6.84	13.7	U	
98-82-8	Isopropylbenzene		1.71	3.42	6.84	U	
75-09-2	Methylene chloride	245	3.42	6.84	13.7		Z R F12
79-20-9	Methyl Acetate		3.42	6.84	13.7	U	U
108-87-2	Methylcyclohexane		1.71	3.42	6.84	U	
108-10-1	4-Methyl-2-pentanone		3.42	6.84	13.7	U	
1634-04-4	Methyl t-Butyl Ether		1.71	3.42	6.84	U	
100-42-5	Styrene		1.71	3.42	6.84	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.71	3.42	6.84	U	
127-18-4	Tetrachloroethene		1.71	3.42	6.84	U	

JW 06/25/2013

ANALYSIS DATA SHEET

LNC-018-DS-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-33	File ID:	0512533A.D
Sampled:	05/09/13 12:45	Prepared:	05/20/13 00:00	Analyzed:	05/21/13 00:41
Solids:	79.68	Preparation:	5035A	Dilution:	1

Batch: 3E20017 Sequence: 3E14116 Calibration: 3140003 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
108-88-3	Toluene		1.71	3.42	6.84	U	U
87-61-6	1,2,3-Trichlorobenzene		1.71	3.42	6.84	U	
120-82-1	1,2,4-Trichlorobenzene		1.71	3.42	6.84	U	
79-00-5	1,1,2-Trichloroethane		1.71	3.42	6.84	U	
71-55-6	1,1,1-Trichloroethane		1.71	3.42	6.84	U	
79-01-6	Trichloroethene		1.71	3.42	6.84	U	
75-69-4	Trichlorofluoromethane		3.42	6.84	13.7	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.42	6.84	13.7	U	
75-01-4	Vinyl chloride		1.71	3.42	6.84	UY UJ	C05
108-38-3/106-42-	m,p-Xylene		3.42	6.84	13.7	U	U
95-47-6	o-Xylene		1.71	3.42	6.84	U	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	41.01	39.30	95.8	85 - 120	
Dibromofluoromethane	41.01	44.59	109	80 - 125	
1,2-Dichloroethane-d4	41.01	45.33	111	75 - 140	
Toluene-d8	41.01	41.94	102	85 - 115	

ANALYSIS DATA SHEET

LNC-018-DS-SB3-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Solid	Laboratory ID:	1305125-33	File ID:	0512533.D
Sampled:	05/09/13 12:45	Prepared:	05/21/13 14:15	Analyzed:	06/03/13 13:46
Solids:	79.68	Preparation:	EXT 3546	Dilution:	1
Batch:	3E20014	Sequence: 3F15517	Calibration: 2272005	Instrument:	MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
98-86-2	Acetophenone		99.0	198	396	UX
1912-24-9	Atrazine		99.0	198	396	U
100-52-7	Benzaldehyde		99.0	198	396	U
92-52-4	1,1-Biphenyl		99.0	198	396	U
101-55-3	4-Bromophenyl-phenylether		99.0	198	396	U
85-68-7	Butylbenzylphthalate		99.0	198	396	U
105-60-2	Caprolactam		99.0	198	396	U
86-74-8	Carbazole		99.0	198	396	U
59-50-7	4-Chloro-3-methylphenol		99.0	198	396	U
106-47-8	4-Chloroaniline		99.0	198	396	U
111-91-1	Bis(2-chloroethoxy)methane		99.0	198	396	U
111-44-4	Bis(2-chloroethyl)ether		99.0	198	396	U
108-60-1	2,2'-Oxybis-1-chloropropane		99.0	198	396	U
91-58-7	2-Chloronaphthalene		99.0	198	396	U
95-57-8	2-Chlorophenol		99.0	198	396	U
7005-72-3	4-Chlorophenyl phenyl ether		99.0	198	396	U
132-64-9	Dibenzofuran		99.0	198	396	U
84-74-2	Di-n-butylphthalate		99.0	198	396	U
91-94-1	3,3'-Dichlorobenzidine		99.0	198	396	U
120-83-2	2,4-Dichlorophenol		99.0	198	396	U
84-66-2	Diethylphthalate		99.0	198	396	U
105-67-9	2,4-Dimethylphenol		396	793	1580	U
131-11-3	Dimethyl phthalate		99.0	198	396	U
534-52-1	4,6-Dinitro-2-methylphenol		990	1980	3960	U
51-28-5	2,4-Dinitrophenol		990	1980	3960	U
121-14-2	2,4-Dinitrotoluene		99.0	198	396	U
606-20-2	2,6-Dinitrotoluene		99.0	198	396	U
117-84-0	Di-n-octylphthalate		99.0	198	396	U
117-81-7	Bis(2-ethylhexyl)phthalate		99.0	198	396	U
118-74-1	Hexachlorobenzene		99.0	198	396	U
87-68-3	Hexachlorobutadiene		99.0	198	396	U
77-47-4	Hexachlorocyclopentadiene		99.0	198	396	U
67-72-1	Hexachloroethane		99.0	198	396	U
78-59-1	Isophorone		99.0	198	396	U
95-48-7	2-Methylphenol		99.0	198	396	U
106-44-5	4-Methylphenol		99.0	198	396	U
100-01-6	4-Nitroaniline		396	793	1580	U
99-09-2	3-Nitroaniline		396	793	1580	U
88-74-4	2-Nitroaniline		396	793	1580	U
98-95-3	Nitrobenzene		99.0	198	396	U

ANALYSIS DATA SHEET

LNC-018-DS-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-33	File ID:	0512533.D		
Sampled:	05/09/13 12:45	Prepared:	05/21/13 14:15	Analyzed:	06/03/13 13:46		
Solids:	79.68	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E20014	Sequence:	3F15517	Calibration:	2272005	Instrument:	MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		396	793	1580	U
88-75-5	2-Nitrophenol		99.0	198	396	U
86-30-6	N-Nitrosodiphenylamine		99.0	198	396	U
621-64-7	N-Nitroso-di-n-propylamine		99.0	198	396	U
87-86-5	Pentachlorophenol		396	793	1580	U
108-95-2	Phenol		99.0	198	396	U
95-94-3	1,2,4,5-Tetrachlorobenzene		99.0	198	396	U
58-90-2	2,3,4,6-Tetrachlorophenol		99.0	198	396	U
88-06-2	2,4,6-Trichlorophenol		99.0	198	396	U
95-95-4	2,4,5-Trichlorophenol		99.0	198	396	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3961	2500	63.1	45 - 105	
2-Fluorophenol	7923	5093	64.3	35 - 105	
Nitrobenzene-d5	3961	2422	61.1	35 - 100	
Phenol-d6	7923	5099	64.4	40 - 100	
Terphenyl-d14	3961	2508	63.3	30 - 125	
2,4,6-Tribromophenol	7923	4409	55.7	35 - 125	

ANALYSIS DATA SHEET

LNC-018-DS-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-33	File ID:	0512533.D
Sampled:	05/09/13 12:45	Prepared:	05/21/13 14:15	Analyzed:	06/16/13 03:14
Solids:	79.68	Preparation:	EXT 3546	Dilution:	1
Batch:	3E20014	Sequence:	3F16823	Calibration:	3122001
Instrument:	MS-BNA4				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		1.98	3.96	7.93	U
208-96-8	Acenaphthylene		1.98	3.96	7.93	U
120-12-7	Anthracene		1.98	3.96	7.93	U
56-55-3	Benzo(a)anthracene		1.98	3.96	7.93	U
50-32-8	Benzo(a)pyrene		1.98	3.96	7.93	U
205-99-2	Benzo(b)fluoranthene		1.98	3.96	7.93	U
191-24-2	Benzo(g,h,i)perylene		1.98	3.96	7.93	U
207-08-9	Benzo(k)fluoranthene		1.98	3.96	7.93	U
123-91-1	1,4-Dioxane		9.90	19.8	39.6	U
218-01-9	Chrysene		1.98	3.96	7.93	U
53-70-3	Dibenz(a,h)anthracene		1.98	3.96	7.93	U
206-44-0	Fluoranthene		1.98	3.96	7.93	U
86-73-7	Fluorene		1.98	3.96	7.93	U
193-39-5	Indeno(1,2,3-cd)pyrene		1.98	3.96	7.93	U
91-57-6	2-Methylnaphthalene		1.98	3.96	7.93	U
91-20-3	Naphthalene		1.98	3.96	7.93	U
85-01-8	Phenanthrene		1.98	3.96	7.93	U
129-00-0	Pyrene		1.98	3.96	7.93	U

U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3961	2838	71.6	45 - 105	
Terphenyl-d14	3961	2891	73.0	30 - 125	
2,4,6-Tribromophenol	7923	6226	78.6	35 - 125	X

ANALYSIS DATA SHEET

LNC-018-DS-SB3-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Solid   Laboratory ID: 1305125-33   File ID: 043F4301.D

Sampled: 05/09/13 12:45   Prepared: 05/20/13 12:19   Analyzed: 05/23/13 16:46

Solids: 79.68   Preparation: EXT 3546   Dilution: 1

Batch: 3E17023   Sequence: 3E14606   Calibration: 3143004   Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.13	8.13	16.1	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.617	1.491	92.2	35 - 140	

ANALYSIS DATA SHEET

LNC-018-DS-SB3-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Solid Laboratory ID: 1305125-33 File ID: 028F2801.D
Sampled: 05/09/13 12:45 Prepared: 05/18/13 17:28 Analyzed: 05/19/13 11:54
Solids: 79.68 Preparation: 8015GRO Dilution: 1
Batch: 3E18011 Sequence: 3E14307 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.28	6.56	9.85	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.282	4.459	136	50 - 150	X

ANALYSIS DATA SHEET

LNC-018-DP-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-37	File ID:	0512537.D
Sampled:	05/09/13 14:40	Prepared:	05/21/13 23:30	Analyzed:	05/21/13 23:30
Solids:		Preparation:	5030B	Dilution:	1
Batch:	3E21015	Sequence:	3E14209	Calibration:	3140001
Instrument:	MS-VOA4				

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	**4.30**	2.50	5.00	10.0	J
71-43-2	Benzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	UX
75-15-0	Carbon disulfide	**3.00**	0.250	0.500	1.00	
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
110-82-7	Cyclohexane		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
100-41-4	Ethylbenzene	**2.37**	0.250	0.500	1.00	
591-78-6	2-Hexanone		1.25	2.50	5.00	UX
98-82-8	Isopropylbenzene	**0.840**	0.250	0.500	1.00	J
75-09-2	Methylene chloride		0.500	1.00	2.00	U
79-20-9	Methyl Acetate		0.500	1.00	2.00	U
108-87-2	Methylcyclohexane		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	UX
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U

ANALYSIS DATA SHEET

LNC-018-DP-SB3-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Water Laboratory ID: 1305125-37 File ID: 0512537.D

Sampled: 05/09/13 14:40 Prepared: 05/21/13 23:30 Analyzed: 05/21/13 23:30

Solids: Preparation: 5030B Dilution: 1

Batch: 3E21015 Sequence: 3E14209 Calibration: 3140001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
108-88-3	Toluene		0.250	0.500	1.00	U	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U	
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U	
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U	
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U	
79-01-6	Trichloroethene		0.250	0.500	1.00	U	
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		0.500	1.00	2.00	U	
75-01-4	Vinyl chloride		0.250	0.500	1.00	U	
108-38-3/106-42-	m,p-Xylene	0.810	0.500	1.00	2.00	J	J
95-47-6	o-Xylene		0.250	0.500	1.00	U	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.11	104	75 - 120	
Dibromofluoromethane	30.00	33.55	112	85 - 115	
1,2-Dichloroethane-d4	30.00	29.89	99.6	70 - 120	
Toluene-d8	30.00	29.67	98.9	85 - 120	

ANALYSIS DATA SHEET

LNC-018-DP-SB3-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID: 1305125-37		File ID:	0512537.D
Sampled:	05/09/13 14:40	Prepared: 05/16/13 12:08		Analyzed:	05/20/13 15:48
Solids:		Preparation: EXT_3510		Dilution:	1
Batch:	3E16002	Sequence: 3E14804	Calibration: 2272005	Instrument:	MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		1.25	2.50	5.00	UX	U
1912-24-9	Atrazine		1.25	2.50	5.00	UY	UJ C05
100-52-7	Benzaldehyde		1.25	2.50	5.00	U	U
92-52-4	1,1-Biphenyl		1.25	2.50	5.00	U	
101-55-3	4-Bromophenyl-phenylether		1.25	2.50	5.00	U	
85-68-7	Butylbenzylphthalate		1.25	2.50	5.00	U	
105-60-2	Caprolactam		1.25	2.50	5.00	U	
86-74-8	Carbazole		1.25	2.50	5.00	U	
59-50-7	4-Chloro-3-methylphenol		1.25	2.50	5.00	UX	
106-47-8	4-Chloroaniline		1.25	2.50	5.00	U	
111-91-1	Bis(2-chloroethoxy)methane		1.25	2.50	5.00	U	
111-44-4	Bis(2-chloroethyl)ether		1.25	2.50	5.00	U	
108-60-1	2,2'-Oxybis-1-chloropropane		1.25	2.50	5.00	U	
91-58-7	2-Chloronaphthalene		1.25	2.50	5.00	U	
95-57-8	2-Chlorophenol		1.25	2.50	5.00	U	
7005-72-3	4-Chlorophenyl phenyl ether		1.25	2.50	5.00	U	
132-64-9	Dibenzofuran		1.25	2.50	5.00	U	
84-74-2	Di-n-butylphthalate		1.25	2.50	5.00	U	
91-94-1	3,3'-Dichlorobenzidine		1.25	2.50	5.00	U	
120-83-2	2,4-Dichlorophenol		1.25	2.50	5.00	U	
84-66-2	Diethylphthalate		1.25	2.50	5.00	U	
105-67-9	2,4-Dimethylphenol		5.00	10.0	20.0	U	
131-11-3	Dimethyl phthalate		1.25	2.50	5.00	U	
534-52-1	4,6-Dinitro-2-methylphenol		5.00	10.0	20.0	U	
51-28-5	2,4-Dinitrophenol		8.33	25.0	50.0	U	
121-14-2	2,4-Dinitrotoluene		1.25	2.50	5.00	U	
606-20-2	2,6-Dinitrotoluene		1.25	2.50	5.00	U	
117-84-0	Di-n-octylphthalate		1.25	2.50	5.00	U	
117-81-7	Bis(2-ethylhexyl)phthalate		1.25	2.50	5.00	U	
118-74-1	Hexachlorobenzene		1.25	2.50	5.00	U	
87-68-3	Hexachlorobutadiene		1.25	2.50	5.00	U	
77-47-4	Hexachlorocyclopentadiene		1.25	5.00	10.0	U	
67-72-1	Hexachloroethane		1.25	2.50	5.00	UX	
78-59-1	Isophorone		1.25	2.50	5.00	U	
95-48-7	2-Methylphenol		1.25	2.50	5.00	U	
106-44-5	4-Methylphenol		1.25	2.50	5.00	U	
100-01-6	4-Nitroaniline		5.00	10.0	20.0	U	
99-09-2	3-Nitroaniline		5.00	10.0	20.0	U	
88-74-4	2-Nitroaniline		5.00	10.0	20.0	UX	
98-95-3	Nitrobenzene		1.25	2.50	5.00	U	

ANALYSIS DATA SHEET

LNC-018-DP-SB3-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125
Client: SAIC (S732)   Project: Lincoln NE ANG
Matrix: Water   Laboratory ID: 1305125-37   File ID: 0512537.D
Sampled: 05/09/13 14:40   Prepared: 05/16/13 12:08   Analyzed: 05/20/13 15:48
Solids: Preparation: EXT 3510   Dilution: 1
Batch: 3E16002   Sequence: 3E14804   Calibration: 2272005   Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		5.00	10.0	20.0	U
88-75-5	2-Nitrophenol		1.25	2.50	5.00	U
86-30-6	N-Nitrosodiphenylamine		1.25	2.50	5.00	U
621-64-7	N-Nitroso-di-n-propylamine		1.25	2.50	5.00	UX
87-86-5	Pentachlorophenol		5.00	10.0	20.0	U
108-95-2	Phenol		1.25	2.50	5.00	U
95-94-3	1,2,4,5-Tetrachlorobenzene		1.25	2.50	5.00	U
58-90-2	2,3,4,6-Tetrachlorophenol		2.50	5.00	10.0	U
88-06-2	2,4,6-Trichlorophenol		1.25	2.50	5.00	U
95-95-4	2,4,5-Trichlorophenol		1.25	2.50	5.00	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	100.0	64.54	64.5	50 - 110	
2-Fluorophenol	200.0	53.11	26.6	20 - 110	
Nitrobenzene-d5	100.0	71.78	71.8	40 - 110	
Phenol-d6	200.0	38.89	19.4	0 - 110	
Terphenyl-d14	100.0	60.08	60.1	50 - 135	
2,4,6-Tribromophenol	200.0	117.8	58.9	40 - 125	

ANALYSIS DATA SHEET

LNC-018-DP-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-37	File ID:	0512537.D		
Sampled:	05/09/13 14:40	Prepared:	05/16/13 12:08	Analyzed:	06/05/13 06:13		
Solids:		Preparation:	EXT 3510	Dilution:	1		
Batch:	3E16002	Sequence:	3F15611	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene	**0.0512**	0.0500	0.100	0.200	J	J
208-96-8	Acenaphthylene		0.0500	0.100	0.200	U	U
120-12-7	Anthracene		0.0500	0.100	0.200	U	
56-55-3	Benzo(a)anthracene		0.0500	0.100	0.200	U	
50-32-8	Benzo(a)pyrene		0.0500	0.100	0.200	U	
205-99-2	Benzo(b)fluoranthene		0.0500	0.100	0.200	U	
191-24-2	Benzo(g,h,i)perylene		0.0500	0.100	0.200	U	
207-08-9	Benzo(k)fluoranthene		0.0500	0.100	0.200	U	
123-91-1	1,4-Dioxane		0.125	0.250	0.500	U	
218-01-9	Chrysene		0.0500	0.100	0.200	U	
53-70-3	Dibenz(a,h)anthracene		0.0500	0.100	0.200	U	
206-44-0	Fluoranthene	**0.0698**	0.0500	0.100	0.200	J	J
86-73-7	Fluorene	**0.0563**	0.0500	0.100	0.200	J	J
193-39-5	Indeno(1,2,3-cd)pyrene		0.0500	0.100	0.200	U	U
91-57-6	2-Methylnaphthalene	**1.44**	0.0500	0.100	0.200		=
91-20-3	Naphthalene	**10.0**	0.0500	0.100	0.200		=
85-01-8	Phenanthrene	**0.119**	0.0500	0.200	0.400	J	J
129-00-0	Pyrene	**0.0720**	0.0500	0.100	0.200	J	J

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	100.0	65.49	65.5	50 - 110	
Terphenyl-d14	100.0	56.33	56.3	50 - 135	
2,4,6-Tribromophenol	200.0	117.8	58.9	40 - 125	

ANALYSIS DATA SHEET

LNC-018-DP-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-37	File ID:	044F4401.D		
Sampled:	05/09/13 14:40	Prepared:	05/16/13 17:00	Analyzed:	05/21/13 20:26		
Solids:		Preparation:	EXT 3510	Dilution:	1		
Batch:	3E16035	Sequence:	3E14605	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)	**0.211**	0.100	0.100	0.200	J A01

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.02000	0.01073	53.7	30 - 140	

ANALYSIS DATA SHEET

LNC-018-DP-SB3-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Water   Laboratory ID: 1305125-37   File ID: 015F1901.D

Sampled: 05/09/13 14:40   Prepared: 05/16/13 22:05   Analyzed: 05/16/13 22:05

Solids: Preparation: 8015GRO   Dilution: 1

Batch: 3E16005   Sequence: 3E14043   Calibration: 3044001   Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		0.0500	0.100	0.150	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	0.05000	0.06438	129	50 - 150	

ANALYSIS DATA SHEET

LNC-018-DS-SB3-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Solid Laboratory ID: 1305125-34 File ID: 0512534A.D
Sampled: 05/09/13 13:00 Prepared: 05/20/13 00:00 Analyzed: 05/21/13 01:10
Solids: 80.54 Preparation: 5035A Dilution: 1
Batch: 3E20017 Sequence: 3E14116 Calibration: 3140003 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone	**33.3**	5.83	11.7	23.3		Z R F12
71-43-2	Benzene		1.46	2.92	5.83	U	U
74-97-5	Bromochloromethane		1.46	2.92	5.83	U	
75-27-4	Bromodichloromethane		1.46	2.92	5.83	U	
75-25-2	Bromoform		1.46	2.92	5.83	U	
74-83-9	Bromomethane		2.92	5.83	11.7	U	
78-93-3	2-Butanone		2.92	5.83	11.7	U	
75-15-0	Carbon disulfide		1.46	2.92	5.83	U	
56-23-5	Carbon tetrachloride		1.46	2.92	5.83	U	
108-90-7	Chlorobenzene		1.46	2.92	5.83	U	
75-00-3	Chloroethane		2.92	5.83	11.7	U	
67-66-3	Chloroform		1.46	2.92	5.83	U	
74-87-3	Chloromethane		2.92	5.83	11.7	U	
110-82-7	Cyclohexane		1.46	2.92	5.83	U	
124-48-1	Dibromochloromethane		1.46	2.92	5.83	U	
96-12-8	1,2-Dibromo-3-chloropropane		2.92	5.83	11.7	U	
106-93-4	1,2-Dibromoethane (EDB)		1.46	2.92	5.83	U	
95-50-1	1,2-Dichlorobenzene		1.46	2.92	5.83	U	
541-73-1	1,3-Dichlorobenzene		1.46	2.92	5.83	U	
106-46-7	1,4-Dichlorobenzene		1.46	2.92	5.83	U	
75-71-8	Dichlorodifluoromethane		2.92	5.83	11.7	UY	UJ C05
75-34-3	1,1-Dichloroethane		1.46	2.92	5.83	U	U
107-06-2	1,2-Dichloroethane		1.46	2.92	5.83	U	
75-35-4	1,1-Dichloroethene		1.46	2.92	5.83	U	
156-59-2	cis-1,2-Dichloroethene		1.46	2.92	5.83	U	
156-60-5	trans-1,2-Dichloroethene		1.46	2.92	5.83	U	
78-87-5	1,2-Dichloropropane		1.46	2.92	5.83	U	
10061-01-5	cis-1,3-Dichloropropene		1.46	2.92	5.83	U	
10061-02-6	trans-1,3-Dichloropropene		1.46	2.92	5.83	U	
100-41-4	Ethylbenzene		1.46	2.92	5.83	U	
591-78-6	2-Hexanone		2.92	5.83	11.7	U	
98-82-8	Isopropylbenzene		1.46	2.92	5.83	U	
75-09-2	Methylene chloride	**206**	2.92	5.83	11.7		Z R F12
79-20-9	Methyl Acetate		2.92	5.83	11.7	U	U
108-87-2	Methylcyclohexane		1.46	2.92	5.83	U	
108-10-1	4-Methyl-2-pentanone		2.92	5.83	11.7	U	
1634-04-4	Methyl t-Butyl Ether		1.46	2.92	5.83	U	
100-42-5	Styrene		1.46	2.92	5.83	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.46	2.92	5.83	U	
127-18-4	Tetrachloroethene		1.46	2.92	5.83	U	

W 06/25/2013

ANALYSIS DATA SHEET

LNC-018-DS-SB3-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-34	File ID:	0512534A.D
Sampled:	05/09/13 13:00	Prepared:	05/20/13 00:00	Analyzed:	05/21/13 01:10
Solids:	80.54	Preparation:	5035A	Dilution:	1
Batch:	3E20017	Sequence:	3E14116	Calibration:	3140003
Instrument:	MS-VOA3				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
108-88-3	Toluene		1.46	2.92	5.83	U	U
87-61-6	1,2,3-Trichlorobenzene		1.46	2.92	5.83	U	
120-82-1	1,2,4-Trichlorobenzene		1.46	2.92	5.83	U	
79-00-5	1,1,2-Trichloroethane		1.46	2.92	5.83	U	
71-55-6	1,1,1-Trichloroethane		1.46	2.92	5.83	U	
79-01-6	Trichloroethene		1.46	2.92	5.83	U	
75-69-4	Trichlorofluoromethane		2.92	5.83	11.7	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		2.92	5.83	11.7	U	
75-01-4	Vinyl chloride		1.46	2.92	5.83	UY UJ	G5
108-38-3/106-42-	m,p-Xylene		2.92	5.83	11.7	U	U
95-47-6	o-Xylene		1.46	2.92	5.83	U	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	35.01	34.47	98.5	85 - 120	
Dibromofluoromethane	35.01	37.02	106	80 - 125	
1,2-Dichloroethane-d4	35.01	36.69	105	75 - 140	
Toluene-d8	35.01	35.25	101	85 - 115	

ANALYSIS DATA SHEET

LNC-018-DS-SB3-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Solid Laboratory ID: 1305125-34 File ID: 0512534.D
Sampled: 05/09/13 13:00 Prepared: 05/21/13 14:15 Analyzed: 06/03/13 14:14
Solids: 80.54 Preparation: EXT 3546 Dilution: 1
Batch: 3E20014 Sequence: 3F15517 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
98-86-2	Acetophenone		100	201	401	UX
1912-24-9	Atrazine		100	201	401	U
100-52-7	Benzaldehyde		100	201	401	U
92-52-4	1,1-Biphenyl		100	201	401	U
101-55-3	4-Bromophenyl-phenylether		100	201	401	U
85-68-7	Butylbenzylphthalate		100	201	401	U
105-60-2	Caprolactam		100	201	401	U
86-74-8	Carbazole		100	201	401	U
59-50-7	4-Chloro-3-methylphenol		100	201	401	U
106-47-8	4-Chloroaniline		100	201	401	U
111-91-1	Bis(2-chloroethoxy)methane		100	201	401	U
111-44-4	Bis(2-chloroethyl)ether		100	201	401	U
108-60-1	2,2'-Oxybis-1-chloropropane		100	201	401	U
91-58-7	2-Chloronaphthalene		100	201	401	U
95-57-8	2-Chlorophenol		100	201	401	U
7005-72-3	4-Chlorophenyl phenyl ether		100	201	401	U
132-64-9	Dibenzofuran		100	201	401	U
84-74-2	Di-n-butylphthalate		100	201	401	U
91-94-1	3,3'-Dichlorobenzidine		100	201	401	U
120-83-2	2,4-Dichlorophenol		100	201	401	U
84-66-2	Diethylphthalate		100	201	401	U
105-67-9	2,4-Dimethylphenol		401	803	1600	U
131-11-3	Dimethyl phthalate		100	201	401	U
534-52-1	4,6-Dinitro-2-methylphenol		1000	2010	4010	U
51-28-5	2,4-Dinitrophenol		1000	2010	4010	U
121-14-2	2,4-Dinitrotoluene		100	201	401	U
606-20-2	2,6-Dinitrotoluene		100	201	401	U
117-84-0	Di-n-octylphthalate		100	201	401	U
117-81-7	Bis(2-ethylhexyl)phthalate		100	201	401	U
118-74-1	Hexachlorobenzene		100	201	401	U
87-68-3	Hexachlorobutadiene		100	201	401	U
77-47-4	Hexachlorocyclopentadiene		100	201	401	U
67-72-1	Hexachloroethane		100	201	401	U
78-59-1	Isophorone		100	201	401	U
95-48-7	2-Methylphenol		100	201	401	U
106-44-5	4-Methylphenol		100	201	401	U
100-01-6	4-Nitroaniline		401	803	1600	U
99-09-2	3-Nitroaniline		401	803	1600	U
88-74-4	2-Nitroaniline		401	803	1600	U
98-95-3	Nitrobenzene		100	201	401	U

U

1305125

ANALYSIS DATA SHEET

LNC-018-DS-SB3-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-34	File ID:	0512534.D		
Sampled:	05/09/13 13:00	Prepared:	05/21/13 14:15	Analyzed:	06/03/13 14:14		
Solids:	80.54	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E20014	Sequence:	3F15517	Calibration:	2272005	Instrument:	MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		401	803	1600	U
88-75-5	2-Nitrophenol		100	201	401	U
86-30-6	N-Nitrosodiphenylamine		100	201	401	U
621-64-7	N-Nitroso-di-n-propylamine		100	201	401	U
87-86-5	Pentachlorophenol		401	803	1600	U
108-95-2	Phenol		100	201	401	U
95-94-3	1,2,4,5-Tetrachlorobenzene		100	201	401	U
58-90-2	2,3,4,6-Tetrachlorophenol		100	201	401	U
88-06-2	2,4,6-Trichlorophenol		100	201	401	U
95-95-4	2,4,5-Trichlorophenol		100	201	401	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4013	2343	58.4	45 - 105	
2-Fluorophenol	8026	5214	65.0	35 - 105	
Nitrobenzene-d5	4013	2601	64.8	35 - 100	
Phenol-d6	8026	5258	65.5	40 - 100	
Terphenyl-d14	4013	2559	63.8	30 - 125	
2,4,6-Tribromophenol	8026	4378	54.5	35 - 125	

ANALYSIS DATA SHEET

LNC-018-DS-SB3-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-34	File ID:	0512534.D
Sampled:	05/09/13 13:00	Prepared:	05/21/13 14:15	Analyzed:	06/16/13 03:43
Solids:	80.54	Preparation:	EXT 3546	Dilution:	1

Batch: 3E20014 Sequence: 3F16823 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		2.01	4.01	8.03	U
208-96-8	Acenaphthylene		2.01	4.01	8.03	U
120-12-7	Anthracene		2.01	4.01	8.03	U
56-55-3	Benzo(a)anthracene		2.01	4.01	8.03	U
50-32-8	Benzo(a)pyrene		2.01	4.01	8.03	U
205-99-2	Benzo(b)fluoranthene		2.01	4.01	8.03	U
191-24-2	Benzo(g,h,i)perylene		2.01	4.01	8.03	U
207-08-9	Benzo(k)fluoranthene		2.01	4.01	8.03	U
123-91-1	1,4-Dioxane		10.0	20.1	40.1	U
218-01-9	Chrysene		2.01	4.01	8.03	U
53-70-3	Dibenz(a,h)anthracene		2.01	4.01	8.03	U
206-44-0	Fluoranthene		2.01	4.01	8.03	U
86-73-7	Fluorene		2.01	4.01	8.03	U
193-39-5	Indeno(1,2,3-cd)pyrene		2.01	4.01	8.03	U
91-57-6	2-Methylnaphthalene		2.01	4.01	8.03	U
91-20-3	Naphthalene		2.01	4.01	8.03	U
85-01-8	Phenanthrene		2.01	4.01	8.03	U
129-00-0	Pyrene		2.01	4.01	8.03	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4013	2831	70.5	45 - 105	
Terphenyl-d14	4013	2912	72.6	30 - 125	
2,4,6-Tribromophenol	8026	6051	75.4	35 - 125	X

ANALYSIS DATA SHEET

LNC-018-DS-SB3-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-34	File ID:	013F1301.D		
Sampled:	05/09/13 13:00	Prepared:	05/22/13 11:45	Analyzed:	05/24/13 00:59		
Solids:	80.54	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E21011	Sequence:	3E14910	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.01	8.01	15.9	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.595	1.479	92.7	35 - 140	

ANALYSIS DATA SHEET

LNC-018-DS-SB3-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-34	File ID:	006F0601.D
Sampled:	05/09/13 13:00	Prepared:	05/21/13 09:31	Analyzed:	05/21/13 13:48
Solids:	80.54	Preparation:	8015GRO	Dilution:	1

Batch: 3E21020 Sequence: 3E14312 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		2.90	5.79	8.69	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	2.895	3.718	128	50 - 150	

ANALYSIS DATA SHEET

LNC-019-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Solid	Laboratory ID: 1305125-22		File ID:	0512522A.D
Sampled:	05/08/13 15:07	Prepared: 05/20/13 00:00		Analyzed:	05/20/13 12:08
Solids:	80.70	Preparation: 5035A		Dilution:	1
Batch:	3E20008	Sequence: 3E14106	Calibration: 3140003	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone	42.6	6.39	12.8	25.5	R ~~X~~	C05, F12
71-43-2	Benzene		1.60	3.19	6.39	U	U
74-97-5	Bromochloromethane		1.60	3.19	6.39	U	
75-27-4	Bromodichloromethane		1.60	3.19	6.39	U	
75-25-2	Bromoform		1.60	3.19	6.39	U	
74-83-9	Bromomethane		3.19	6.39	12.8	U	
78-93-3	2-Butanone		3.19	6.39	12.8	UX	
75-15-0	Carbon disulfide		1.60	3.19	6.39	U	
56-23-5	Carbon tetrachloride		1.60	3.19	6.39	U	
108-90-7	Chlorobenzene		1.60	3.19	6.39	U	
75-00-3	Chloroethane		3.19	6.39	12.8	U	
67-66-3	Chloroform		1.60	3.19	6.39	U	
74-87-3	Chloromethane		3.19	6.39	12.8	U	
110-82-7	Cyclohexane		1.60	3.19	6.39	U	
124-48-1	Dibromochloromethane		1.60	3.19	6.39	U	
96-12-8	1,2-Dibromo-3-chloropropane		3.19	6.39	12.8	U	
106-93-4	1,2-Dibromoethane (EDB)		1.60	3.19	6.39	U	
95-50-1	1,2-Dichlorobenzene		1.60	3.19	6.39	U	
541-73-1	1,3-Dichlorobenzene		1.60	3.19	6.39	U	
106-46-7	1,4-Dichlorobenzene		1.60	3.19	6.39	U	
75-71-8	Dichlorodifluoromethane		3.19	6.39	12.8	U	
75-34-3	1,1-Dichloroethane		1.60	3.19	6.39	U	
107-06-2	1,2-Dichloroethane		1.60	3.19	6.39	U	
75-35-4	1,1-Dichloroethene		1.60	3.19	6.39	U	
156-59-2	cis-1,2-Dichloroethene		1.60	3.19	6.39	U	
156-60-5	trans-1,2-Dichloroethene		1.60	3.19	6.39	U	
78-87-5	1,2-Dichloropropane		1.60	3.19	6.39	U	
10061-01-5	cis-1,3-Dichloropropene		1.60	3.19	6.39	U	
10061-02-6	trans-1,3-Dichloropropene		1.60	3.19	6.39	U	
100-41-4	Ethylbenzene		1.60	3.19	6.39	U	
591-78-6	2-Hexanone		3.19	6.39	12.8	UXQ	
98-82-8	Isopropylbenzene		1.60	3.19	6.39	U	
75-09-2	Methylene chloride	122	3.19	6.39	12.8		R F12
79-20-9	Methyl Acetate		3.19	6.39	12.8	U	U
108-87-2	Methylcyclohexane		1.60	3.19	6.39	U	
108-10-1	4-Methyl-2-pentanone		3.19	6.39	12.8	U	
1634-04-4	Methyl t-Butyl Ether		1.60	3.19	6.39	U	
100-42-5	Styrene		1.60	3.19	6.39	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.60	3.19	6.39	U	
127-18-4	Tetrachloroethene		1.60	3.19	6.39	U	

N 06/25/2013

ANALYSIS DATA SHEET

LNC-019-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-22	File ID:	0512522A.D		
Sampled:	05/08/13 15:07	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 12:08		
Solids:	80.70	Preparation:	5035A	Dilution:	1		
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene		1.60	3.19	6.39	U
87-61-6	1,2,3-Trichlorobenzene		1.60	3.19	6.39	U
120-82-1	1,2,4-Trichlorobenzene		1.60	3.19	6.39	U
79-00-5	1,1,2-Trichloroethane		1.60	3.19	6.39	U
71-55-6	1,1,1-Trichloroethane		1.60	3.19	6.39	U
79-01-6	Trichloroethene		1.60	3.19	6.39	U
75-69-4	Trichlorofluoromethane		3.19	6.39	12.8	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.19	6.39	12.8	U
75-01-4	Vinyl chloride		1.60	3.19	6.39	U
108-38-3/106-42-	m,p-Xylene		3.19	6.39	12.8	U
95-47-6	o-Xylene		1.60	3.19	6.39	U

U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	38.32	40.05	104	85 - 120	
Dibromofluoromethane	38.32	39.91	104	80 - 125	
1,2-Dichloroethane-d4	38.32	44.60	116	75 - 140	
Toluene-d8	38.32	38.02	99.2	85 - 115	

ANALYSIS DATA SHEET

LNC-019-DS-SB1-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-22 File ID: 0512522.D

Sampled: 05/08/13 15:07 Prepared: 05/21/13 18:30 Analyzed: 05/30/13 01:02

Solids: 80.70 Preparation: EXT 3546 Dilution: 1

Batch: 3E20013 Sequence: 3E15026 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
98-86-2	Acetophenone		99.6	200	398	U U
1912-24-9	Atrazine		99.6	200	398	UY UJ COS
100-52-7	Benzaldehyde		99.6	200	398	U U
92-52-4	1,1-Biphenyl		99.6	200	398	U
101-55-3	4-Bromophenyl-phenylether		99.6	200	398	U
85-68-7	Butylbenzylphthalate		99.6	200	398	U
105-60-2	Caprolactam		99.6	200	398	U
86-74-8	Carbazole		99.6	200	398	U
59-50-7	4-Chloro-3-methylphenol		99.6	200	398	U
106-47-8	4-Chloroaniline		99.6	200	398	U
111-91-1	Bis(2-chloroethoxy)methane		99.6	200	398	U
111-44-4	Bis(2-chloroethyl)ether		99.6	200	398	U
108-60-1	2,2'-Oxybis-1-chloropropane		99.6	200	398	U
91-58-7	2-Chloronaphthalene		99.6	200	398	U
95-57-8	2-Chlorophenol		99.6	200	398	U
7005-72-3	4-Chlorophenyl phenyl ether		99.6	200	398	U
132-64-9	Dibenzofuran		99.6	200	398	U
84-74-2	Di-n-butylphthalate		99.6	200	398	U
91-94-1	3,3'-Dichlorobenzidine		99.6	200	398	U
120-83-2	2,4-Dichlorophenol		99.6	200	398	U
84-66-2	Diethylphthalate		99.6	200	398	U
105-67-9	2,4-Dimethylphenol		398	798	1590	U
131-11-3	Dimethyl phthalate		99.6	200	398	U
534-52-1	4,6-Dinitro-2-methylphenol		996	2000	3980	U
51-28-5	2,4-Dinitrophenol		996	2000	3980	U
121-14-2	2,4-Dinitrotoluene		99.6	200	398	U
606-20-2	2,6-Dinitrotoluene		99.6	200	398	U
117-84-0	Di-n-octylphthalate		99.6	200	398	U
117-81-7	Bis(2-ethylhexyl)phthalate		99.6	200	398	U
118-74-1	Hexachlorobenzene		99.6	200	398	U
87-68-3	Hexachlorobutadiene		99.6	200	398	U
77-47-4	Hexachlorocyclopentadiene		99.6	200	398	U
67-72-1	Hexachloroethane		99.6	200	398	UX
78-59-1	Isophorone		99.6	200	398	U
95-48-7	2-Methylphenol		99.6	200	398	U
106-44-5	4-Methylphenol		99.6	200	398	U
100-01-6	4-Nitroaniline		398	798	1590	U
99-09-2	3-Nitroaniline		398	798	1590	U
88-74-4	2-Nitroaniline		398	798	1590	U
98-95-3	Nitrobenzene		99.6	200	398	U

ANALYSIS DATA SHEET

LNC-019-DS-SB1-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Solid Laboratory ID: 1305125-22 File ID: 0512522.D
Sampled: 05/08/13 15:07 Prepared: 05/21/13 18:30 Analyzed: 05/30/13 01:02
Solids: 80.70 Preparation: EXT 3546 Dilution: 1
Batch: 3E20013 Sequence: 3E15026 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		398	798	1590	U
88-75-5	2-Nitrophenol		99.6	200	398	U
86-30-6	N-Nitrosodiphenylamine		99.6	200	398	U
621-64-7	N-Nitroso-di-n-propylamine		99.6	200	398	UX
87-86-5	Pentachlorophenol		398	798	1590	U
108-95-2	Phenol		99.6	200	398	U
95-94-3	1,2,4,5-Tetrachlorobenzene		99.6	200	398	U
58-90-2	2,3,4,6-Tetrachlorophenol		99.6	200	398	U
88-06-2	2,4,6-Trichlorophenol		99.6	200	398	U
95-95-4	2,4,5-Trichlorophenol		99.6	200	398	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3987	2698	67.7	45 - 105	
2-Fluorophenol	7974	5989	75.1	35 - 105	
Nitrobenzene-d5	3987	2730	68.5	35 - 100	
Phenol-d6	7974	6205	77.8	40 - 100	
Terphenyl-d14	3987	3108	78.0	30 - 125	
2,4,6-Tribromophenol	7974	5830	73.1	35 - 125	

ANALYSIS DATA SHEET

LNC-019-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-22	File ID:	0512522.D		
Sampled:	05/08/13 15:07	Prepared:	05/21/13 18:30	Analyzed:	05/30/13 05:24		
Solids:	80.70	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E20013	Sequence:	3E15034	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		2.00	3.98	7.98	U
208-96-8	Acenaphthylene		2.00	3.98	7.98	U
120-12-7	Anthracene		2.00	3.98	7.98	U
56-55-3	Benzo(a)anthracene		2.00	3.98	7.98	U
50-32-8	Benzo(a)pyrene		2.00	3.98	7.98	U
205-99-2	Benzo(b)fluoranthene		2.00	3.98	7.98	U
191-24-2	Benzo(g,h,i)perylene		2.00	3.98	7.98	U
207-08-9	Benzo(k)fluoranthene		2.00	3.98	7.98	U
123-91-1	1,4-Dioxane		9.96	20.0	39.8	U
218-01-9	Chrysene		2.00	3.98	7.98	UXQ
53-70-3	Dibenz(a,h)anthracene		2.00	3.98	7.98	U
206-44-0	Fluoranthene		2.00	3.98	7.98	U
86-73-7	Fluorene		2.00	3.98	7.98	U
193-39-5	Indeno(1,2,3-cd)pyrene		2.00	3.98	7.98	U
91-57-6	2-Methylnaphthalene		2.00	3.98	7.98	U
91-20-3	Naphthalene		2.00	3.98	7.98	U
85-01-8	Phenanthrene		2.00	3.98	7.98	U
129-00-0	Pyrene		2.00	3.98	7.98	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3987	3585	89.9	45 - 105	
Terphenyl-d14	3987	3725	93.4	30 - 125	
2,4,6-Tribromophenol	7974	7795	97.8	35 - 125	

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ANALYSIS DATA SHEET

LNC-019-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-22	File ID:	030F3001.D		
Sampled:	05/08/13 15:07	Prepared:	05/20/13 12:19	Analyzed:	05/23/13 09:32		
Solids:	80.70	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E17023	Sequence:	3E14606	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q	
11-84-7	Diesel Range Organics (C10-C28)		7.97	7.97	15.8	U	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.586	1.325	83.6	35 - 140	

ANALYSIS DATA SHEET

LNC-019-DS-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-22	File ID:	015F1501.D		
Sampled:	05/08/13 15:07	Prepared:	05/18/13 17:28	Analyzed:	05/19/13 03:13		
Solids:	80.70	Preparation:	8015GRO	Dilution:	1		
Batch:	3E18011	Sequence:	3E14307	Calibration:	3044001	Instrument:	GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)	4.08	3.61	7.22	10.8	J

J

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.611	4.543	126	50 - 150	X

ANALYSIS DATA SHEET

LNC-019-DP-SB1-01

Laboratory: Empirical Laboratories, LLC | SDG: 1305125
Client: SAIC (S732) | Project: Lincoln NE ANG
Matrix: Water | Laboratory ID: 1305125-24 | File ID: 0512524.D
Sampled: 05/08/13 16:25 | Prepared: 05/21/13 19:18 | Analyzed: 05/21/13 19:18
Solids: | Preparation: 5030B | Dilution: 1
Batch: 3E21015 | Sequence: 3E14209 | Calibration: 3140001 | Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
67-64-1	Acetone	4.36	2.50	5.00	10.0	J	J
71-43-2	Benzene		0.250	0.500	1.00	U	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U	
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U	
75-25-2	Bromoform		0.250	0.500	1.00	U	
74-83-9	Bromomethane		0.500	1.00	2.00	U	
78-93-3	2-Butanone		2.50	5.00	10.0	UX	
75-15-0	Carbon disulfide	0.400	0.250	0.500	1.00	J	J
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U	
75-00-3	Chloroethane		0.500	1.00	2.00	U	
67-66-3	Chloroform		0.250	0.500	1.00	U	
74-87-3	Chloromethane	0.440	0.250	0.500	1.00	J	J
110-82-7	Cyclohexane		0.250	0.500	1.00	U	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U	
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U	
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U	
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U	
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U	
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U	
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U	
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U	
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U	
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U	
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U	
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U	
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U	
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U	
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U	
100-41-4	Ethylbenzene		0.250	0.500	1.00	U	
591-78-6	2-Hexanone		1.25	2.50	5.00	UX	
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U	
75-09-2	Methylene chloride		0.500	1.00	2.00	U	
79-20-9	Methyl Acetate		0.500	1.00	2.00	U	
108-87-2	Methylcyclohexane		0.250	0.500	1.00	U	
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	UX	
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U	
100-42-5	Styrene		0.250	0.500	1.00	U	
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U	
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U	

ANALYSIS DATA SHEET

LNC-019-DP-SB1-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Water Laboratory ID: 1305125-24 File ID: 0512524.D

Sampled: 05/08/13 16:25 Prepared: 05/21/13 19:18 Analyzed: 05/21/13 19:18

Solids: Preparation: 5030B Dilution: 1

Batch: 3E21015 Sequence: 3E14209 Calibration: 3140001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		0.500	1.00	2.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U

U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	32.55	108	75 - 120	
Dibromofluoromethane	30.00	32.15	107	85 - 115	
1.2-Dichloroethane-d4	30.00	32.01	107	70 - 120	
Toluene-d8	30.00	30.83	103	85 - 120	

ANALYSIS DATA SHEET

LNC-019-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-24	File ID:	0512524.D		
Sampled:	05/08/13 16:25	Prepared:	05/15/13 18:15	Analyzed:	05/20/13 13:07		
Solids:		Preparation:	EXT 3510	Dilution:	1		
Batch:	3E15016	Sequence:	3E14505	Calibration:	2261001	Instrument:	MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
98-86-2	Acetophenone		1.25	2.50	5.00	U U
1912-24-9	Atrazine		1.25	2.50	5.00	UY UJ C05
100-52-7	Benzaldehyde		1.25	2.50	5.00	U U
92-52-4	1,1-Biphenyl		1.25	2.50	5.00	U
101-55-3	4-Bromophenyl-phenylether		1.25	2.50	5.00	U
85-68-7	Butylbenzylphthalate		1.25	2.50	5.00	U
105-60-2	Caprolactam		1.25	2.50	5.00	U
86-74-8	Carbazole		1.25	2.50	5.00	U
59-50-7	4-Chloro-3-methylphenol		1.25	2.50	5.00	U
106-47-8	4-Chloroaniline		1.25	2.50	5.00	U
111-91-1	Bis(2-chloroethoxy)methane		1.25	2.50	5.00	U
111-44-4	Bis(2-chloroethyl)ether		1.25	2.50	5.00	U
108-60-1	2,2'-Oxybis-1-chloropropane		1.25	2.50	5.00	U
91-58-7	2-Chloronaphthalene		1.25	2.50	5.00	U
95-57-8	2-Chlorophenol		1.25	2.50	5.00	U
7005-72-3	4-Chlorophenyl phenyl ether		1.25	2.50	5.00	U
132-64-9	Dibenzofuran		1.25	2.50	5.00	U
84-74-2	Di-n-butylphthalate		1.25	2.50	5.00	U
91-94-1	3,3'-Dichlorobenzidine		1.25	2.50	5.00	U
120-83-2	2,4-Dichlorophenol		1.25	2.50	5.00	U
84-66-2	Diethylphthalate		1.25	2.50	5.00	U
105-67-9	2,4-Dimethylphenol		5.00	10.0	20.0	U
131-11-3	Dimethyl phthalate		1.25	2.50	5.00	U
534-52-1	4,6-Dinitro-2-methylphenol		5.00	10.0	20.0	U
51-28-5	2,4-Dinitrophenol		8.33	25.0	50.0	U
121-14-2	2,4-Dinitrotoluene		1.25	2.50	5.00	U
606-20-2	2,6-Dinitrotoluene		1.25	2.50	5.00	U
117-84-0	Di-n-octylphthalate		1.25	2.50	5.00	U
117-81-7	Bis(2-ethylhexyl)phthalate		1.25	2.50	5.00	U
118-74-1	Hexachlorobenzene		1.25	2.50	5.00	U
87-68-3	Hexachlorobutadiene		1.25	2.50	5.00	U
77-47-4	Hexachlorocyclopentadiene		1.25	5.00	10.0	U
67-72-1	Hexachloroethane		1.25	2.50	5.00	U
78-59-1	Isophorone		1.25	2.50	5.00	U
95-48-7	2-Methylphenol		1.25	2.50	5.00	U
106-44-5	4-Methylphenol		1.25	2.50	5.00	U
100-01-6	4-Nitroaniline		5.00	10.0	20.0	U
99-09-2	3-Nitroaniline		5.00	10.0	20.0	U
88-74-4	2-Nitroaniline		5.00	10.0	20.0	U
98-95-3	Nitrobenzene		1.25	2.50	5.00	U

ANALYSIS DATA SHEET

LNC-019-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-24	File ID:	0512524.D		
Sampled:	05/08/13 16:25	Prepared:	05/15/13 18:15	Analyzed:	05/20/13 13:07		
Solids:		Preparation:	EXT 3510	Dilution:	1		
Batch:	3E15016	Sequence:	3E14505	Calibration:	2261001	Instrument:	MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		5.00	10.0	20.0	U
88-75-5	2-Nitrophenol		1.25	2.50	5.00	U
86-30-6	N-Nitrosodiphenylamine		1.25	2.50	5.00	U
621-64-7	N-Nitroso-di-n-propylamine		1.25	2.50	5.00	U
87-86-5	Pentachlorophenol		5.00	10.0	20.0	U
108-95-2	Phenol		1.25	2.50	5.00	U
95-94-3	1,2,4,5-Tetrachlorobenzene		1.25	2.50	5.00	U
58-90-2	2,3,4,6-Tetrachlorophenol		2.50	5.00	10.0	U
88-06-2	2,4,6-Trichlorophenol		1.25	2.50	5.00	U
95-95-4	2,4,5-Trichlorophenol		1.25	2.50	5.00	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	50.00	24.72	49.4	50 - 110	*
2-Fluorophenol	100.0	35.22	35.2	20 - 110	
Nitrobenzene-d5	50.00	23.83	47.7	40 - 110	
Phenol-d6	100.0	27.63	27.6	0 - 110	
Terphenyl-d14	50.00	31.18	62.4	50 - 135	
2,4,6-Tribromophenol	100.0	49.42	49.4	40 - 125	

ANALYSIS DATA SHEET

LNC-019-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-24	File ID:	0512524.D		
Sampled:	05/08/13 16:25	Prepared:	05/15/13 18:15	Analyzed:	06/15/13 22:05		
Solids:		Preparation:	EXT 3510	Dilution:	1		
Batch:	3E15016	Sequence:	3F16823	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene		0.0500	0.100	0.200	U	U
208-96-8	Acenaphthylene		0.0500	0.100	0.200	U	
120-12-7	Anthracene		0.0500	0.100	0.200	U	
56-55-3	Benzo(a)anthracene		0.0500	0.100	0.200	U	
50-32-8	Benzo(a)pyrene		0.0500	0.100	0.200	U	
205-99-2	Benzo(b)fluoranthene		0.0500	0.100	0.200	U	
191-24-2	Benzo(g,h,i)perylene		0.0500	0.100	0.200	U	
207-08-9	Benzo(k)fluoranthene		0.0500	0.100	0.200	U	
123-91-1	1,4-Dioxane		0.125	0.250	0.500	U	
218-01-9	Chrysene		0.0500	0.100	0.200	U	
53-70-3	Dibenz(a,h)anthracene		0.0500	0.100	0.200	U	
206-44-0	Fluoranthene		0.0500	0.100	0.200	U	
86-73-7	Fluorene		0.0500	0.100	0.200	U	
193-39-5	Indeno(1,2,3-cd)pyrene		0.0500	0.100	0.200	U	
91-57-6	2-Methylnaphthalene		0.0500	0.100	0.200	U	
91-20-3	Naphthalene		0.0500	0.100	0.200	U	
85-01-8	Phenanthrene	0.0574	0.0500	0.200	0.400	J	J
129-00-0	Pyrene		0.0500	0.100	0.200	U	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	50.00	25.57	51.1	50 - 110	
Terphenyl-d14	50.00	28.90	57.8	50 - 135	
2,4,6-Tribromophenol	100.0	52.99	53.0	40 - 125	

ANALYSIS DATA SHEET

LNC-019-DP-SB1-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Water   Laboratory ID: 1305125-24   File ID: 021F2101.D

Sampled: 05/08/13 16:25   Prepared: 05/14/13 19:02   Analyzed: 05/21/13 07:34

Solids: Preparation: EXT 3510   Dilution: 1

Batch: 3E14020   Sequence: 3E14605   Calibration: 3143004   Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		0.100	0.100	0.200	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.04000	0.02436	60.9	30 - 140	

ANALYSIS DATA SHEET

LNC-019-DP-SB1-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-24	File ID:	012F1601.D
Sampled:	05/08/13 16:25	Prepared:	05/16/13 20:08	Analyzed:	05/16/13 20:08
Solids:		Preparation:	8015GRO	Dilution:	1

Batch: 3E16005 Sequence: 3E14043 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		0.0500	0.100	0.150	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	0.05000	0.06925	138	50 - 150	

ANALYSIS DATA SHEET

LNC-019-DS-SB1-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-23 File ID: 0512523A.D

Sampled: 05/08/13 15:13 Prepared: 05/20/13 00:00 Analyzed: 05/20/13 12:37

Solids: 79.04 Preparation: 5035A Dilution: 1

Batch: 3E20008 Sequence: 3E14106 Calibration: 3140003 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone		7.43	14.9	29.7	UX	U
71-43-2	Benzene		1.86	3.71	7.43	U	
74-97-5	Bromochloromethane		1.86	3.71	7.43	U	
75-27-4	Bromodichloromethane		1.86	3.71	7.43	U	
75-25-2	Bromoform		1.86	3.71	7.43	U	
74-83-9	Bromomethane		3.71	7.43	14.9	U	
78-93-3	2-Butanone		3.71	7.43	14.9	UX	
75-15-0	Carbon disulfide		1.86	3.71	7.43	U	
56-23-5	Carbon tetrachloride		1.86	3.71	7.43	U	
108-90-7	Chlorobenzene		1.86	3.71	7.43	U	
75-00-3	Chloroethane		3.71	7.43	14.9	U	
67-66-3	Chloroform		1.86	3.71	7.43	U	
74-87-3	Chloromethane		3.71	7.43	14.9	U	
110-82-7	Cyclohexane		1.86	3.71	7.43	U	
124-48-1	Dibromochloromethane		1.86	3.71	7.43	U	
96-12-8	1,2-Dibromo-3-chloropropane		3.71	7.43	14.9	U	
106-93-4	1,2-Dibromoethane (EDB)		1.86	3.71	7.43	U	
95-50-1	1,2-Dichlorobenzene		1.86	3.71	7.43	U	
541-73-1	1,3-Dichlorobenzene		1.86	3.71	7.43	U	
106-46-7	1,4-Dichlorobenzene		1.86	3.71	7.43	U	
75-71-8	Dichlorodifluoromethane		3.71	7.43	14.9	U	
75-34-3	1,1-Dichloroethane		1.86	3.71	7.43	U	
107-06-2	1,2-Dichloroethane		1.86	3.71	7.43	U	
75-35-4	1,1-Dichloroethene		1.86	3.71	7.43	U	
156-59-2	cis-1,2-Dichloroethene		1.86	3.71	7.43	U	
156-60-5	trans-1,2-Dichloroethene		1.86	3.71	7.43	U	
78-87-5	1,2-Dichloropropane		1.86	3.71	7.43	U	
10061-01-5	cis-1,3-Dichloropropene		1.86	3.71	7.43	U	
10061-02-6	trans-1,3-Dichloropropene		1.86	3.71	7.43	U	
100-41-4	Ethylbenzene		1.86	3.71	7.43	U	
591-78-6	2-Hexanone		3.71	7.43	14.9	UXO	
98-82-8	Isopropylbenzene		1.86	3.71	7.43	U	
75-09-2	Methylene chloride	152	3.71	7.43	14.9		Z R,F12
79-20-9	Methyl Acetate		3.71	7.43	14.9	U	U
108-87-2	Methylcyclohexane		1.86	3.71	7.43	U	
108-10-1	4-Methyl-2-pentanone		3.71	7.43	14.9	U	
1634-04-4	Methyl t-Butyl Ether		1.86	3.71	7.43	U	
100-42-5	Styrene		1.86	3.71	7.43	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.86	3.71	7.43	U	
127-18-4	Tetrachloroethene		1.86	3.71	7.43	U	

78 06125 120

ANALYSIS DATA SHEET

LNC-019-DS-SB1-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-23	File ID:	0512523A.D		
Sampled:	05/08/13 15:13	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 12:37		
Solids:	79.04	Preparation:	5035A	Dilution:	1		
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene		1.86	3.71	7.43	U
87-61-6	1,2,3-Trichlorobenzene		1.86	3.71	7.43	U
120-82-1	1,2,4-Trichlorobenzene		1.86	3.71	7.43	U
79-00-5	1,1,2-Trichloroethane		1.86	3.71	7.43	U
71-55-6	1,1,1-Trichloroethane		1.86	3.71	7.43	U
79-01-6	Trichloroethene		1.86	3.71	7.43	U
75-69-4	Trichlorofluoromethane		3.71	7.43	14.9	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.71	7.43	14.9	U
75-01-4	Vinyl chloride		1.86	3.71	7.43	U
108-38-3/106-42-	m,p-Xylene		3.71	7.43	14.9	U
95-47-6	o-Xylene		1.86	3.71	7.43	U

U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	44.55	44.03	98.8	85 - 120	
Dibromofluoromethane	44.55	48.25	108	80 - 125	
1,2-Dichloroethane-d4	44.55	51.03	115	75 - 140	
Toluene-d8	44.55	44.82	101	85 - 115	

ANALYSIS DATA SHEET

LNC-019-DS-SB1-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-23	File ID:	0512523.D
Sampled:	05/08/13 15:13	Prepared:	05/21/13 18:30	Analyzed:	05/30/13 01:30
Solids:	79.04	Preparation:	EXT 3546	Dilution:	1
Batch:	3E20013	Sequence:	3E15026	Calibration:	2272005
Instrument:	MS-BNA1				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		102	205	409	U	U
1912-24-9	Atrazine		102	205	409	UY	UJ C05
100-52-7	Benzaldehyde		102	205	409	U	U
92-52-4	1,1-Biphenyl		102	205	409	U	
101-55-3	4-Bromophenyl-phenylether		102	205	409	U	
85-68-7	Butylbenzylphthalate		102	205	409	U	
105-60-2	Caprolactam		102	205	409	U	
86-74-8	Carbazole		102	205	409	U	
59-50-7	4-Chloro-3-methylphenol		102	205	409	U	
106-47-8	4-Chloroaniline		102	205	409	U	
111-91-1	Bis(2-chloroethoxy)methane		102	205	409	U	
111-44-4	Bis(2-chloroethyl)ether		102	205	409	U	
108-60-1	2,2'-Oxybis-1-chloropropane		102	205	409	U	
91-58-7	2-Chloronaphthalene		102	205	409	U	
95-57-8	2-Chlorophenol		102	205	409	U	
7005-72-3	4-Chlorophenyl phenyl ether		102	205	409	U	
132-64-9	Dibenzofuran		102	205	409	U	
84-74-2	Di-n-butylphthalate		102	205	409	U	
91-94-1	3,3'-Dichlorobenzidine		102	205	409	U	
120-83-2	2,4-Dichlorophenol		102	205	409	U	
84-66-2	Diethylphthalate		102	205	409	U	
105-67-9	2,4-Dimethylphenol		409	818	1630	U	
131-11-3	Dimethyl phthalate		102	205	409	U	
534-52-1	4,6-Dinitro-2-methylphenol		1020	2050	4090	U	
51-28-5	2,4-Dinitrophenol		1020	2050	4090	U	
121-14-2	2,4-Dinitrotoluene		102	205	409	U	
606-20-2	2,6-Dinitrotoluene		102	205	409	U	
117-84-0	Di-n-octylphthalate		102	205	409	U	
117-81-7	Bis(2-ethylhexyl)phthalate		102	205	409	U	
118-74-1	Hexachlorobenzene		102	205	409	U	
87-68-3	Hexachlorobutadiene		102	205	409	U	
77-47-4	Hexachlorocyclopentadiene		102	205	409	U	
67-72-1	Hexachloroethane		102	205	409	UX	
78-59-1	Isophorone		102	205	409	U	
95-48-7	2-Methylphenol		102	205	409	U	
106-44-5	4-Methylphenol		102	205	409	U	
100-01-6	4-Nitroaniline		409	818	1630	U	
99-09-2	3-Nitroaniline		409	818	1630	U	
88-74-4	2-Nitroaniline		409	818	1630	U	
98-95-3	Nitrobenzene		102	205	409	U	

ANALYSIS DATA SHEET

LNC-019-DS-SB1-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Solid Laboratory ID: 1305125-23 File ID: 0512523.D
Sampled: 05/08/13 15:13 Prepared: 05/21/13 18:30 Analyzed: 05/30/13 01:30
Solids: 79.04 Preparation: EXT 3546 Dilution: 1
Batch: 3E20013 Sequence: 3E15026 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		409	818	1630	U
88-75-5	2-Nitrophenol		102	205	409	U
86-30-6	N-Nitrosodiphenylamine		102	205	409	U
621-64-7	N-Nitroso-di-n-propylamine		102	205	409	UX
87-86-5	Pentachlorophenol		409	818	1630	U
108-95-2	Phenol		102	205	409	U
95-94-3	1,2,4,5-Tetrachlorobenzene		102	205	409	U
58-90-2	2,3,4,6-Tetrachlorophenol		102	205	409	U
88-06-2	2,4,6-Trichlorophenol		102	205	409	U
95-95-4	2,4,5-Trichlorophenol		102	205	409	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4089	2694	65.9	45 - 105	
2-Fluorophenol	8179	5763	70.5	35 - 105	
Nitrobenzene-d5	4089	2862	70.0	35 - 100	
Phenol-d6	8179	6167	75.4	40 - 100	
Terphenyl-d14	4089	3257	79.7	30 - 125	
2,4,6-Tribromophenol	8179	6025	73.7	35 - 125	

ANALYSIS DATA SHEET

LNC-019-DS-SB1-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-23	File ID:	0512523.D		
Sampled:	05/08/13 15:13	Prepared:	05/21/13 18:30	Analyzed:	05/30/13 05:50		
Solids:	79.04	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E20013	Sequence:	3E15034	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		2.05	4.09	8.18	U
208-96-8	Acenaphthylene		2.05	4.09	8.18	U
120-12-7	Anthracene		2.05	4.09	8.18	U
56-55-3	Benzo(a)anthracene		2.05	4.09	8.18	U
50-32-8	Benzo(a)pyrene		2.05	4.09	8.18	U
205-99-2	Benzo(b)fluoranthene		2.05	4.09	8.18	U
191-24-2	Benzo(g,h,i)perylene		2.05	4.09	8.18	U
207-08-9	Benzo(k)fluoranthene		2.05	4.09	8.18	U
123-91-1	1,4-Dioxane		10.2	20.5	40.9	U
218-01-9	Chrysene		2.05	4.09	8.18	UXQ
53-70-3	Dibenz(a,h)anthracene		2.05	4.09	8.18	U
206-44-0	Fluoranthene		2.05	4.09	8.18	U
86-73-7	Fluorene		2.05	4.09	8.18	U
193-39-5	Indeno(1,2,3-cd)pyrene		2.05	4.09	8.18	U
91-57-6	2-Methylnaphthalene		2.05	4.09	8.18	U
91-20-3	Naphthalene		2.05	4.09	8.18	U
85-01-8	Phenanthrene		2.05	4.09	8.18	U
129-00-0	Pyrene		2.05	4.09	8.18	U

U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4089	3384	82.7	45 - 105	
Terphenyl-d14	4089	3616	88.4	30 - 125	
2,4,6-Tribromophenol	8179	7488	91.6	35 - 125	

ANALYSIS DATA SHEET

LNC-019-DS-SB1-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-23	File ID:	032F3201.D		
Sampled:	05/08/13 15:13	Prepared:	05/20/13 12:19	Analyzed:	05/23/13 10:39		
Solids:	79.04	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E17023	Sequence:	3E14606	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.02	8.02	15.9	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.596	1.448	90.7	35 - 140	

ANALYSIS DATA SHEET

LNC-019-DS-SB1-02

Laboratory: Empirical Laboratories, LLC   SDG: 1305125
Client: SAIC (S732)   Project: Lincoln NE ANG
Matrix: Solid   Laboratory ID: 1305125-23   File ID: 017F1701.D
Sampled: 05/08/13 15:13   Prepared: 05/18/13 17:28   Analyzed: 05/19/13 04:33
Solids: 79.04   Preparation: 8015GRO   Dilution: 1
Batch: 3E18011   Sequence: 3E14307   Calibration: 3044001   Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.61	7.22	10.8	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.611	4.332	120	50 - 150	X

ANALYSIS DATA SHEET

LNC-019-DS-SB2-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Solid   Laboratory ID: 1305125-25   File ID: 0512525A.D

Sampled: 05/09/13 07:54   Prepared: 05/20/13 00:00   Analyzed: 05/20/13 13:06

Solids: 76.68   Preparation: 5035A   Dilution: 1

Batch: 3E20008   Sequence: 3E14106   Calibration: 3140003   Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
67-64-1	Acetone		6.55	13.1	26.2	UX
71-43-2	Benzene		1.64	3.27	6.55	U
74-97-5	Bromochloromethane		1.64	3.27	6.55	U
75-27-4	Bromodichloromethane		1.64	3.27	6.55	U
75-25-2	Bromoform		1.64	3.27	6.55	U
74-83-9	Bromomethane		3.27	6.55	13.1	U
78-93-3	2-Butanone		3.27	6.55	13.1	UX
75-15-0	Carbon disulfide		1.64	3.27	6.55	U
56-23-5	Carbon tetrachloride		1.64	3.27	6.55	U
108-90-7	Chlorobenzene		1.64	3.27	6.55	U
75-00-3	Chloroethane		3.27	6.55	13.1	U
67-66-3	Chloroform		1.64	3.27	6.55	U
74-87-3	Chloromethane		3.27	6.55	13.1	U
110-82-7	Cyclohexane		1.64	3.27	6.55	U
124-48-1	Dibromochloromethane		1.64	3.27	6.55	U
96-12-8	1,2-Dibromo-3-chloropropane		3.27	6.55	13.1	U
106-93-4	1,2-Dibromoethane (EDB)		1.64	3.27	6.55	U
95-50-1	1,2-Dichlorobenzene		1.64	3.27	6.55	U
541-73-1	1,3-Dichlorobenzene		1.64	3.27	6.55	U
106-46-7	1,4-Dichlorobenzene		1.64	3.27	6.55	U
75-71-8	Dichlorodifluoromethane		3.27	6.55	13.1	U
75-34-3	1,1-Dichloroethane		1.64	3.27	6.55	U
107-06-2	1,2-Dichloroethane		1.64	3.27	6.55	U
75-35-4	1,1-Dichloroethene		1.64	3.27	6.55	U
156-59-2	cis-1,2-Dichloroethene		1.64	3.27	6.55	U
156-60-5	trans-1,2-Dichloroethene		1.64	3.27	6.55	U
78-87-5	1,2-Dichloropropane		1.64	3.27	6.55	U
10061-01-5	cis-1,3-Dichloropropene		1.64	3.27	6.55	U
10061-02-6	trans-1,3-Dichloropropene		1.64	3.27	6.55	U
100-41-4	Ethylbenzene		1.64	3.27	6.55	U
591-78-6	2-Hexanone		3.27	6.55	13.1	UXQ
98-82-8	Isopropylbenzene		1.64	3.27	6.55	U
75-09-2	Methylene chloride		3.27	6.55	13.1	U
79-20-9	Methyl Acetate		3.27	6.55	13.1	U
108-87-2	Methylcyclohexane		1.64	3.27	6.55	U
108-10-1	4-Methyl-2-pentanone		3.27	6.55	13.1	U
1634-04-4	Methyl t-Butyl Ether		1.64	3.27	6.55	U
100-42-5	Styrene		1.64	3.27	6.55	U
79-34-5	1,1,2,2-Tetrachloroethane		1.64	3.27	6.55	U
127-18-4	Tetrachloroethene		1.64	3.27	6.55	U

U

ANALYSIS DATA SHEET

LNC-019-DS-SB2-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125
Client: SAIC (S732)   Project: Lincoln NE ANG
Matrix: Solid   Laboratory ID: 1305125-25   File ID: 0512525A.D
Sampled: 05/09/13 07:54   Prepared: 05/20/13 00:00   Analyzed: 05/20/13 13:06
Solids: 76.68   Preparation: 5035A   Dilution: 1
Batch: 3E20008   Sequence: 3E14106   Calibration: 3140003   Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene		1.64	3.27	6.55	U
87-61-6	1,2,3-Trichlorobenzene		1.64	3.27	6.55	U
120-82-1	1,2,4-Trichlorobenzene		1.64	3.27	6.55	U
79-00-5	1,1,2-Trichloroethane		1.64	3.27	6.55	U
71-55-6	1,1,1-Trichloroethane		1.64	3.27	6.55	U
79-01-6	Trichloroethene		1.64	3.27	6.55	U
75-69-4	Trichlorofluoromethane		3.27	6.55	13.1	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.27	6.55	13.1	U
75-01-4	Vinyl chloride		1.64	3.27	6.55	U
108-38-3/106-42-	m,p-Xylene		3.27	6.55	13.1	U
95-47-6	o-Xylene		1.64	3.27	6.55	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	39.28	38.90	99.0	85 - 120	
Dibromofluoromethane	39.28	42.25	108	80 - 125	
1,2-Dichloroethane-d4	39.28	43.22	110	75 - 140	
Toluene-d8	39.28	39.95	102	85 - 115	

ANALYSIS DATA SHEET

LNC-019-DS-SB2-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-25 File ID: 0512525.D

Sampled: 05/09/13 07:54 Prepared: 05/21/13 14:15 Analyzed: 06/02/13 05:54

Solids: 76.68 Preparation: EXT 3546 Dilution: 1

Batch: 3E20014 Sequence: 3F15519 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		107	215	428	UX	U
1912-24-9	Atrazine		107	215	428	U	U
100-52-7	Benzaldehyde		107	215	428	UY	UJ C05
92-52-4	1,1-Biphenyl		107	215	428	U	U
101-55-3	4-Bromophenyl-phenylether		107	215	428	U	
85-68-7	Butylbenzylphthalate		107	215	428	U	
105-60-2	Caprolactam		107	215	428	U	
86-74-8	Carbazole		107	215	428	U	
59-50-7	4-Chloro-3-methylphenol		107	215	428	U	
106-47-8	4-Chloroaniline		107	215	428	U	
111-91-1	Bis(2-chloroethoxy)methane		107	215	428	U	
111-44-4	Bis(2-chloroethyl)ether		107	215	428	U	
108-60-1	2,2'-Oxybis-1-chloropropane		107	215	428	U	
91-58-7	2-Chloronaphthalene		107	215	428	U	
95-57-8	2-Chlorophenol		107	215	428	U	
7005-72-3	4-Chlorophenyl phenyl ether		107	215	428	U	
132-64-9	Dibenzofuran		107	215	428	U	
84-74-2	Di-n-butylphthalate		107	215	428	U	
91-94-1	3,3'-Dichlorobenzidine		107	215	428	U	
120-83-2	2,4-Dichlorophenol		107	215	428	U	
84-66-2	Diethylphthalate		107	215	428	U	
105-67-9	2,4-Dimethylphenol		428	857	1710	U	
131-11-3	Dimethyl phthalate		107	215	428	U	
534-52-1	4,6-Dinitro-2-methylphenol		1070	2150	4280	U	
51-28-5	2,4-Dinitrophenol		1070	2150	4280	U	
121-14-2	2,4-Dinitrotoluene		107	215	428	U	
606-20-2	2,6-Dinitrotoluene		107	215	428	U	
117-84-0	Di-n-octylphthalate		107	215	428	U	
117-81-7	Bis(2-ethylhexyl)phthalate		107	215	428	U	
118-74-1	Hexachlorobenzene		107	215	428	U	
87-68-3	Hexachlorobutadiene		107	215	428	U	
77-47-4	Hexachlorocyclopentadiene		107	215	428	U	
67-72-1	Hexachloroethane		107	215	428	UX	
78-59-1	Isophorone		107	215	428	U	
95-48-7	2-Methylphenol		107	215	428	U	
106-44-5	4-Methylphenol		107	215	428	U	
100-01-6	4-Nitroaniline		428	857	1710	U	
99-09-2	3-Nitroaniline		428	857	1710	U	
88-74-4	2-Nitroaniline		428	857	1710	U	
98-95-3	Nitrobenzene		107	215	428	U	

ANALYSIS DATA SHEET

LNC-019-DS-SB2-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125
Client: SAIC (S732)   Project: Lincoln NE ANG
Matrix: Solid   Laboratory ID: 1305125-25   File ID: 0512525.D
Sampled: 05/09/13 07:54   Prepared: 05/21/13 14:15   Analyzed: 06/02/13 05:54
Solids: 76.68   Preparation: EXT 3546   Dilution: 1
Batch: 3E20014   Sequence: 3F15519   Calibration: 2272005   Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		428	857	1710	U
88-75-5	2-Nitrophenol		107	215	428	U
86-30-6	N-Nitrosodiphenylamine		107	215	428	U
621-64-7	N-Nitroso-di-n-propylamine		107	215	428	U
87-86-5	Pentachlorophenol		428	857	1710	U
108-95-2	Phenol		107	215	428	U
95-94-3	1,2,4,5-Tetrachlorobenzene		107	215	428	U
58-90-2	2,3,4,6-Tetrachlorophenol		107	215	428	U
88-06-2	2,4,6-Trichlorophenol		107	215	428	U
95-95-4	2,4,5-Trichlorophenol		107	215	428	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4281	2693	62.9	45 - 105	
2-Fluorophenol	8563	5638	65.8	35 - 105	
Nitrobenzene-d5	4281	2729	63.7	35 - 100	
Phenol-d6	8563	5859	68.4	40 - 100	
Terphenyl-d14	4281	3090	72.2	30 - 125	
2,4,6-Tribromophenol	8563	5410	63.2	35 - 125	

ANALYSIS DATA SHEET

LNC-019-DS-SB2-01

Laboratory:	Empirical Laboratories, LLC	SDG:	1305125		
Client:	SAIC (S732)	Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-25	File ID:	0512525.D
Sampled:	05/09/13 07:54	Prepared:	05/21/13 14:15	Analyzed:	06/15/13 22:34
Solids:	76.68	Preparation:	EXT 3546	Dilution:	1
Batch:	3E20014	Sequence:	3F16823	Calibration:	3122001
Instrument:	MS-BNA4				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		2.15	4.28	8.57	U
208-96-8	Acenaphthylene		2.15	4.28	8.57	U
120-12-7	Anthracene		2.15	4.28	8.57	U
56-55-3	Benzo(a)anthracene		2.15	4.28	8.57	U
50-32-8	Benzo(a)pyrene		2.15	4.28	8.57	U
205-99-2	Benzo(b)fluoranthene		2.15	4.28	8.57	U
191-24-2	Benzo(g,h,i)perylene		2.15	4.28	8.57	U
207-08-9	Benzo(k)fluoranthene		2.15	4.28	8.57	U
123-91-1	1,4-Dioxane		10.7	21.5	42.8	U
218-01-9	Chrysene		2.15	4.28	8.57	U
53-70-3	Dibenz(a,h)anthracene		2.15	4.28	8.57	U
206-44-0	Fluoranthene		2.15	4.28	8.57	U
86-73-7	Fluorene		2.15	4.28	8.57	U
193-39-5	Indeno(1,2,3-cd)pyrene		2.15	4.28	8.57	U
91-57-6	2-Methylnaphthalene		2.15	4.28	8.57	U
91-20-3	Naphthalene		2.15	4.28	8.57	U
85-01-8	Phenanthrene		2.15	4.28	8.57	U
129-00-0	Pyrene		2.15	4.28	8.57	U

U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4281	3195	74.6	45 - 105	
Terphenyl-d14	4281	3339	78.0	30 - 125	
2,4,6-Tribromophenol	8563	7202	84.1	35 - 125	X

ANALYSIS DATA SHEET

LNC-019-DS-SB2-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-25 File ID: 033F3301.D

Sampled: 05/09/13 07:54 Prepared: 05/20/13 12:19 Analyzed: 05/23/13 11:13

Solids: 76.68 Preparation: EXT 3546 Dilution: 1

Batch: 3E17023 Sequence: 3E14606 Calibration: 3143004 Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.24	8.24	16.4	U U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.640	1.407	85.8	35 - 140	

ANALYSIS DATA SHEET

LNC-019-DS-SB2-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125

Client: SAIC (S732)   Project: Lincoln NE ANG

Matrix: Solid   Laboratory ID: 1305125-25   File ID: 018F1801.D

Sampled: 05/09/13 07:54   Prepared: 05/18/13 17:28   Analyzed: 05/19/13 05:12

Solids: 76.68   Preparation: 8015GRO   Dilution: 1

Batch: 3E18011   Sequence: 3E14307   Calibration: 3044001   Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.48	6.97	10.4	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.483	4.411	127	50 - 150	X

ANALYSIS DATA SHEET

LNC-019-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-35	File ID:	0512535.D		
Sampled:	05/09/13 13:40	Prepared:	05/21/13 22:34	Analyzed:	05/21/13 22:34		
Solids:		Preparation:	5030B	Dilution:	1		
Batch:	3E21015	Sequence:	3E14209	Calibration:	3140001	Instrument:	MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone	4.00	2.50	5.00	10.0	J
71-43-2	Benzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	UX
75-15-0	Carbon disulfide	0.270	0.250	0.500	1.00	J
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	U
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
110-82-7	Cyclohexane		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	UX
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
79-20-9	Methyl Acetate		0.500	1.00	2.00	U
108-87-2	Methylcyclohexane		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	UX
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U

ANALYSIS DATA SHEET

LNC-019-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-35	File ID:	0512535.D		
Sampled:	05/09/13 13:40	Prepared:	05/21/13 22:34	Analyzed:	05/21/13 22:34		
Solids:		Preparation:	5030B	Dilution:	1		
Batch:	3E21015	Sequence:	3E14209	Calibration:	3140001	Instrument:	MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		0.500	1.00	2.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U

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Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.58	105	75 - 120	
Dibromofluoromethane	30.00	33.06	110	85 - 115	
1,2-Dichloroethane-d4	30.00	30.84	103	70 - 120	
Toluene-d8	30.00	29.22	97.4	85 - 120	

ANALYSIS DATA SHEET

LNC-019-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID: 1305125-35		File ID:	0512535.D
Sampled:	05/09/13 13:40	Prepared: 05/16/13 12:08		Analyzed:	05/20/13 14:54
Solids:		Preparation: EXT 3510		Dilution:	1
Batch:	3E16002	Sequence: 3E14804	Calibration: 2272005	Instrument:	MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
98-86-2	Acetophenone		1.16	2.31	4.63	UX
1912-24-9	Atrazine		1.16	2.31	4.63	UY UJ COS
100-52-7	Benzaldehyde		1.16	2.31	4.63	U
92-52-4	1,1-Biphenyl		1.16	2.31	4.63	U
101-55-3	4-Bromophenyl-phenylether		1.16	2.31	4.63	U
85-68-7	Butylbenzylphthalate		1.16	2.31	4.63	U
105-60-2	Caprolactam		1.16	2.31	4.63	U
86-74-8	Carbazole		1.16	2.31	4.63	U
59-50-7	4-Chloro-3-methylphenol		1.16	2.31	4.63	UX
106-47-8	4-Chloroaniline		1.16	2.31	4.63	U
111-91-1	Bis(2-chloroethoxy)methane		1.16	2.31	4.63	U
111-44-4	Bis(2-chloroethyl)ether		1.16	2.31	4.63	U
108-60-1	2,2'-Oxybis-1-chloropropane		1.16	2.31	4.63	U
91-58-7	2-Chloronaphthalene		1.16	2.31	4.63	U
95-57-8	2-Chlorophenol		1.16	2.31	4.63	U
7005-72-3	4-Chlorophenyl phenyl ether		1.16	2.31	4.63	U
132-64-9	Dibenzofuran		1.16	2.31	4.63	U
84-74-2	Di-n-butylphthalate		1.16	2.31	4.63	U
91-94-1	3,3'-Dichlorobenzidine		1.16	2.31	4.63	U
120-83-2	2,4-Dichlorophenol		1.16	2.31	4.63	U
84-66-2	Diethylphthalate		1.16	2.31	4.63	U
105-67-9	2,4-Dimethylphenol		4.63	9.26	18.5	U
131-11-3	Dimethyl phthalate		1.16	2.31	4.63	U
534-52-1	4,6-Dinitro-2-methylphenol		4.63	9.26	18.5	U
51-28-5	2,4-Dinitrophenol		7.71	23.1	46.3	U
121-14-2	2,4-Dinitrotoluene		1.16	2.31	4.63	U
606-20-2	2,6-Dinitrotoluene		1.16	2.31	4.63	U
117-84-0	Di-n-octylphthalate		1.16	2.31	4.63	U
117-81-7	Bis(2-ethylhexyl)phthalate		1.16	2.31	4.63	U
118-74-1	Hexachlorobenzene		1.16	2.31	4.63	U
87-68-3	Hexachlorobutadiene		1.16	2.31	4.63	U
77-47-4	Hexachlorocyclopentadiene		1.16	4.63	9.26	U
67-72-1	Hexachloroethane		1.16	2.31	4.63	UX
78-59-1	Isophorone		1.16	2.31	4.63	U
95-48-7	2-Methylphenol		1.16	2.31	4.63	U
106-44-5	4-Methylphenol		1.16	2.31	4.63	U
100-01-6	4-Nitroaniline		4.63	9.26	18.5	U
99-09-2	3-Nitroaniline		4.63	9.26	18.5	U
88-74-4	2-Nitroaniline		4.63	9.26	18.5	UX
98-95-3	Nitrobenzene		1.16	2.31	4.63	U

ANALYSIS DATA SHEET

LNC-019-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID:	1305125-35	File ID:	0512535.D
Sampled:	05/09/13 13:40	Prepared:	05/16/13 12:08	Analyzed:	05/20/13 14:54
Solids:		Preparation:	EXT 3510	Dilution:	1

Batch: 3E16002 Sequence: 3E14804 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		4.63	9.26	18.5	U
88-75-5	2-Nitrophenol		1.16	2.31	4.63	U
86-30-6	N-Nitrosodiphenylamine		1.16	2.31	4.63	U
621-64-7	N-Nitroso-di-n-propylamine		1.16	2.31	4.63	UX
87-86-5	Pentachlorophenol		4.63	9.26	18.5	U
108-95-2	Phenol		1.16	2.31	4.63	U
95-94-3	1,2,4,5-Tetrachlorobenzene		1.16	2.31	4.63	U
58-90-2	2,3,4,6-Tetrachlorophenol		2.31	4.63	9.26	U
88-06-2	2,4,6-Trichlorophenol		1.16	2.31	4.63	U
95-95-4	2,4,5-Trichlorophenol		1.16	2.31	4.63	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	32.34	69.9	50 - 110	
2-Fluorophenol	92.59	23.15	25.0	20 - 110	
Nitrobenzene-d5	46.30	41.03	88.6	40 - 110	
Phenol-d6	92.59	13.81	14.9	0 - 110	
Terphenyl-d14	46.30	18.67	40.3	50 - 135	*
2,4,6-Tribromophenol	92.59	60.05	64.9	40 - 125	

ANALYSIS DATA SHEET

LNC-019-DP-SB2-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Water Laboratory ID: 1305125-35 File ID: 0512535.D

Sampled: 05/09/13 13:40 Prepared: 05/16/13 12:08 Analyzed: 06/05/13 05:20

Solids: Preparation: EXT 3510 Dilution: 1

Batch: 3E16002 Sequence: 3F15611 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene		0.0463	0.0926	0.185	U	U
208-96-8	Acenaphthylene		0.0463	0.0926	0.185	U	
120-12-7	Anthracene		0.0463	0.0926	0.185	U	
56-55-3	Benzo(a)anthracene		0.0463	0.0926	0.185	U	
50-32-8	Benzo(a)pyrene		0.0463	0.0926	0.185	U	
205-99-2	Benzo(b)fluoranthene	**0.0577**	0.0463	0.0926	0.185	J	J
191-24-2	Benzo(g,h,i)perylene		0.0463	0.0926	0.185	U	U
207-08-9	Benzo(k)fluoranthene		0.0463	0.0926	0.185	U	
123-91-1	1,4-Dioxane		0.116	0.231	0.463	U	
218-01-9	Chrysene	**0.0649**	0.0463	0.0926	0.185	J	J
53-70-3	Dibenz(a,h)anthracene		0.0463	0.0926	0.185	U	U
206-44-0	Fluoranthene	**0.108**	0.0463	0.0926	0.185	J	J
86-73-7	Fluorene		0.0463	0.0926	0.185	U	U
193-39-5	Indeno(1,2,3-cd)pyrene		0.0463	0.0926	0.185	U	
91-57-6	2-Methylnaphthalene		0.0463	0.0926	0.185	U	
91-20-3	Naphthalene		0.0463	0.0926	0.185	U	
85-01-8	Phenanthrene	**0.0940**	0.0463	0.185	0.370	J	J
129-00-0	Pyrene	**0.108**	0.0463	0.0926	0.185	J	J

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	33.71	72.8	50 - 110	
Terphenyl-d14	46.30	18.62	40.2	50 - 135	*
2,4,6-Tribromophenol	92.59	61.33	66.2	40 - 125	

ANALYSIS DATA SHEET

LNC-019-DP-SB2-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-35	File ID:	042F4201.D		
Sampled:	05/09/13 13:40	Prepared:	05/16/13 17:00	Analyzed:	05/21/13 19:20		
Solids:		Preparation:	EXT_3510	Dilution:	1		
Batch:	3E16035	Sequence:	3E14605	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		0.0962	0.0962	0.192	U UJ Ad

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.01923	0.007324	38.1	30 - 140	

ANALYSIS DATA SHEET

LNC-019-DP-SB2-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Water Laboratory ID: 1305125-35 File ID: 013F1701.D

Sampled: 05/09/13 13:40 Prepared: 05/16/13 20:47 Analyzed: 05/16/13 20:47

Solids: Preparation: 8015GRO Dilution: 1

Batch: 3E16005 Sequence: 3E14043 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		0.0500	0.100	0.150	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	0.05000	0.06951	139	50 - 150	

ANALYSIS DATA SHEET

LNC-019-DS-SB2-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Solid Laboratory ID: 1305125-26 File ID: 0512526A.D
Sampled: 05/09/13 07:58 Prepared: 05/20/13 00:00 Analyzed: 05/20/13 13:35
Solids: 77.91 Preparation: 5035A Dilution: 1
Batch: 3E20008 Sequence: 3E14106 Calibration: 3140003 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone		6.84	13.7	27.4	UX	U
71-43-2	Benzene		1.71	3.42	6.84	U	
74-97-5	Bromochloromethane		1.71	3.42	6.84	U	
75-27-4	Bromodichloromethane		1.71	3.42	6.84	U	
75-25-2	Bromoform		1.71	3.42	6.84	U	
74-83-9	Bromomethane		3.42	6.84	13.7	U	
78-93-3	2-Butanone		3.42	6.84	13.7	UX	
75-15-0	Carbon disulfide		1.71	3.42	6.84	U	
56-23-5	Carbon tetrachloride		1.71	3.42	6.84	U	
108-90-7	Chlorobenzene		1.71	3.42	6.84	U	
75-00-3	Chloroethane		3.42	6.84	13.7	U	
67-66-3	Chloroform		1.71	3.42	6.84	U	
74-87-3	Chloromethane		3.42	6.84	13.7	U	
110-82-7	Cyclohexane		1.71	3.42	6.84	U	
124-48-1	Dibromochloromethane		1.71	3.42	6.84	U	
96-12-8	1,2-Dibromo-3-chloropropane		3.42	6.84	13.7	U	
106-93-4	1,2-Dibromoethane (EDB)		1.71	3.42	6.84	U	
95-50-1	1,2-Dichlorobenzene		1.71	3.42	6.84	U	
541-73-1	1,3-Dichlorobenzene		1.71	3.42	6.84	U	
106-46-7	1,4-Dichlorobenzene		1.71	3.42	6.84	U	
75-71-8	Dichlorodifluoromethane		3.42	6.84	13.7	U	
75-34-3	1,1-Dichloroethane		1.71	3.42	6.84	U	
107-06-2	1,2-Dichloroethane		1.71	3.42	6.84	U	
75-35-4	1,1-Dichloroethene		1.71	3.42	6.84	U	
156-59-2	cis-1,2-Dichloroethene		1.71	3.42	6.84	U	
156-60-5	trans-1,2-Dichloroethene		1.71	3.42	6.84	U	
78-87-5	1,2-Dichloropropane		1.71	3.42	6.84	U	
10061-01-5	cis-1,3-Dichloropropene		1.71	3.42	6.84	U	
10061-02-6	trans-1,3-Dichloropropene		1.71	3.42	6.84	U	
100-41-4	Ethylbenzene		1.71	3.42	6.84	U	
591-78-6	2-Hexanone		3.42	6.84	13.7	UXO	
98-82-8	Isopropylbenzene		1.71	3.42	6.84	U	
75-09-2	Methylene chloride	302	3.42	6.84	13.7		R F12
79-20-9	Methyl Acetate		3.42	6.84	13.7	U	U
108-87-2	Methylcyclohexane		1.71	3.42	6.84	U	
108-10-1	4-Methyl-2-pentanone		3.42	6.84	13.7	U	
1634-04-4	Methyl t-Butyl Ether		1.71	3.42	6.84	U	
100-42-5	Styrene		1.71	3.42	6.84	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.71	3.42	6.84	U	
127-18-4	Tetrachloroethene		1.71	3.42	6.84	U	

JV Oct 25/2013

ANALYSIS DATA SHEET

LNC-019-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-26	File ID:	0512526A.D		
Sampled:	05/09/13 07:58	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 13:35		
Solids:	77.91	Preparation:	5035A	Dilution:	1		
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003	Instrument:	MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene		1.71	3.42	6.84	U
87-61-6	1,2,3-Trichlorobenzene		1.71	3.42	6.84	U
120-82-1	1,2,4-Trichlorobenzene		1.71	3.42	6.84	U
79-00-5	1,1,2-Trichloroethane		1.71	3.42	6.84	U
71-55-6	1,1,1-Trichloroethane		1.71	3.42	6.84	U
79-01-6	Trichloroethene		1.71	3.42	6.84	U
75-69-4	Trichlorofluoromethane		3.42	6.84	13.7	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.42	6.84	13.7	U
75-01-4	Vinyl chloride		1.71	3.42	6.84	U
108-38-3/106-42-	m,p-Xylene		3.42	6.84	13.7	U
95-47-6	o-Xylene		1.71	3.42	6.84	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	41.05	41.40	101	85 - 120	
Dibromofluoromethane	41.05	43.65	106	80 - 125	
1,2-Dichloroethane-d4	41.05	43.68	106	75 - 140	
Toluene-d8	41.05	41.07	100	85 - 115	

ANALYSIS DATA SHEET

LNC-019-DS-SB2-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-26 File ID: 0512526.D

Sampled: 05/09/13 07:58 Prepared: 05/21/13 14:15 Analyzed: 06/02/13 06:21

Solids: 77.91 Preparation: EXT 3546 Dilution: 1

Batch: 3E20014 Sequence: 3F15519 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		102	205	408	UX	U
1912-24-9	Atrazine		102	205	408	U	U
100-52-7	Benzaldehyde		102	205	408	~~UY~~ UJ	COS
92-52-4	1,1-Biphenyl		102	205	408	U	U
101-55-3	4-Bromophenyl-phenylether		102	205	408	U	
85-68-7	Butylbenzylphthalate		102	205	408	U	
105-60-2	Caprolactam		102	205	408	U	
86-74-8	Carbazole		102	205	408	U	
59-50-7	4-Chloro-3-methylphenol		102	205	408	U	
106-47-8	4-Chloroaniline		102	205	408	U	
111-91-1	Bis(2-chloroethoxy)methane		102	205	408	U	
111-44-4	Bis(2-chloroethyl)ether		102	205	408	U	
108-60-1	2,2'-Oxybis-1-chloropropane		102	205	408	U	
91-58-7	2-Chloronaphthalene		102	205	408	U	
95-57-8	2-Chlorophenol		102	205	408	U	
7005-72-3	4-Chlorophenyl phenyl ether		102	205	408	U	
132-64-9	Dibenzofuran		102	205	408	U	
84-74-2	Di-n-butylphthalate		102	205	408	U	
91-94-1	3,3'-Dichlorobenzidine		102	205	408	U	
120-83-2	2,4-Dichlorophenol		102	205	408	U	
84-66-2	Diethylphthalate		102	205	408	U	
105-67-9	2,4-Dimethylphenol		408	818	1630	U	
131-11-3	Dimethyl phthalate		102	205	408	U	
534-52-1	4,6-Dinitro-2-methylphenol		1020	2050	4080	U	
51-28-5	2,4-Dinitrophenol		1020	2050	4080	U	
121-14-2	2,4-Dinitrotoluene		102	205	408	U	
606-20-2	2,6-Dinitrotoluene		102	205	408	U	
117-84-0	Di-n-octylphthalate		102	205	408	U	
117-81-7	Bis(2-ethylhexyl)phthalate		102	205	408	U	
118-74-1	Hexachlorobenzene		102	205	408	U	
87-68-3	Hexachlorobutadiene		102	205	408	U	
77-47-4	Hexachlorocyclopentadiene		102	205	408	U	
67-72-1	Hexachloroethane		102	205	408	UX	
78-59-1	Isophorone		102	205	408	U	
95-48-7	2-Methylphenol		102	205	408	U	
106-44-5	4-Methylphenol		102	205	408	U	
100-01-6	4-Nitroaniline		408	818	1630	U	
99-09-2	3-Nitroaniline		408	818	1630	U	
88-74-4	2-Nitroaniline		408	818	1630	U	
98-95-3	Nitrobenzene		102	205	408	U	

ANALYSIS DATA SHEET

LNC-019-DS-SB2-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125
Client: SAIC (S732) Project: Lincoln NE ANG
Matrix: Solid Laboratory ID: 1305125-26 File ID: 0512526.D
Sampled: 05/09/13 07:58 Prepared: 05/21/13 14:15 Analyzed: 06/02/13 06:21
Solids: 77.91 Preparation: EXT 3546 Dilution: 1
Batch: 3E20014 Sequence: 3F15519 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		408	818	1630	U
88-75-5	2-Nitrophenol		102	205	408	U
86-30-6	N-Nitrosodiphenylamine		102	205	408	U
621-64-7	N-Nitroso-di-n-propylamine		102	205	408	U
87-86-5	Pentachlorophenol		408	818	1630	U
108-95-2	Phenol		102	205	408	U
95-94-3	1,2,4,5-Tetrachlorobenzene		102	205	408	U
58-90-2	2,3,4,6-Tetrachlorophenol		102	205	408	U
88-06-2	2,4,6-Trichlorophenol		102	205	408	U
95-95-4	2,4,5-Trichlorophenol		102	205	408	U

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Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	8176	5281	64.6	45 - 105	
2-Fluorophenol	16350	11710	71.6	35 - 105	
Nitrobenzene-d5	8176	5610	68.6	35 - 100	
Phenol-d6	16350	11670	71.4	40 - 100	
Terphenyl-d14	8176	5868	71.8	30 - 125	
2,4,6-Tribromophenol	16350	10460	64.0	35 - 125	

ANALYSIS DATA SHEET

LNC-019-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-26	File ID:	0512526.D		
Sampled:	05/09/13 07:58	Prepared:	05/21/13 14:15	Analyzed:	06/15/13 23:02		
Solids:	77.91	Preparation:	EXT_3546	Dilution:	1		
Batch:	3E20014	Sequence:	3F16823	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		2.05	4.08	8.18	U
208-96-8	Acenaphthylene		2.05	4.08	8.18	U
120-12-7	Anthracene		2.05	4.08	8.18	U
56-55-3	Benzo(a)anthracene		2.05	4.08	8.18	U
50-32-8	Benzo(a)pyrene		2.05	4.08	8.18	U
205-99-2	Benzo(b)fluoranthene		2.05	4.08	8.18	U
191-24-2	Benzo(g,h,i)perylene		2.05	4.08	8.18	U
207-08-9	Benzo(k)fluoranthene		2.05	4.08	8.18	U
123-91-1	1,4-Dioxane		10.2	20.5	40.8	U
218-01-9	Chrysene		2.05	4.08	8.18	U
53-70-3	Dibenz(a,h)anthracene		2.05	4.08	8.18	U
206-44-0	Fluoranthene		2.05	4.08	8.18	U
86-73-7	Fluorene		2.05	4.08	8.18	U
193-39-5	Indeno(1,2,3-cd)pyrene		2.05	4.08	8.18	U
91-57-6	2-Methylnaphthalene		2.05	4.08	8.18	U
91-20-3	Naphthalene		2.05	4.08	8.18	U
85-01-8	Phenanthrene		2.05	4.08	8.18	U
129-00-0	Pyrene		2.05	4.08	8.18	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	8176	6720	82.2	45 - 105	
Terphenyl-d14	8176	7046	86.2	30 - 125	
2,4,6-Tribromophenol	16350	15060	92.1	35 - 125	X

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ANALYSIS DATA SHEET

LNC-019-DS-SB2-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-26	File ID:	034F3401.D		
Sampled:	05/09/13 07:58	Prepared:	05/20/13 12:19	Analyzed:	05/23/13 11:46		
Solids:	77.91	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E17023	Sequence:	3E14606	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.45	8.45	16.8	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.681	1.347	80.1	35 - 140	

ANALYSIS DATA SHEET

LNC-019-DS-SB2-02

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-26 File ID: 019F1901.D

Sampled: 05/09/13 07:58 Prepared: 05/18/13 17:28 Analyzed: 05/19/13 05:51

Solids: 77.91 Preparation: 8015GRO Dilution: 1

Batch: 3E18011 Sequence: 3E14307 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.41	6.83	10.2	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.414	4.083	120	50 - 150	X

ANALYSIS DATA SHEET

LNC-019-DS-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-27	File ID:	0512527A.D
Sampled:	05/09/13 08:45	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 14:04
Solids:	83.50	Preparation:	5035A	Dilution:	1

Batch: 3E20008 Sequence: 3E14106 Calibration: 3140003 Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone	177	6.19	12.4	24.7	R NX ~~J~~	G01, C05, F12 H02
71-43-2	Benzene		1.55	3.09	6.19	U	U
74-97-5	Bromochloromethane		1.55	3.09	6.19	U	U
75-27-4	Bromodichloromethane		1.55	3.09	6.19	NU UJ	H02
75-25-2	Bromoform		1.55	3.09	6.19	NU UJ	H02
74-83-9	Bromomethane		3.09	6.19	12.4	U	U
78-93-3	2-Butanone	45.4	3.09	6.19	12.4	X J	G01, C05
75-15-0	Carbon disulfide	1.73	1.55	3.09	6.19	J J	G01
56-23-5	Carbon tetrachloride		1.55	3.09	6.19	U	U
108-90-7	Chlorobenzene		1.55	3.09	6.19	NU UJ	H02
75-00-3	Chloroethane		3.09	6.19	12.4	U	U
67-66-3	Chloroform		1.55	3.09	6.19	U	
74-87-3	Chloromethane		3.09	6.19	12.4	U	
110-82-7	Cyclohexane		1.55	3.09	6.19	U	
124-48-1	Dibromochloromethane		1.55	3.09	6.19	NU UJ	H02
96-12-8	1,2-Dibromo-3-chloropropane		3.09	6.19	12.4	NU UJ	H02
106-93-4	1,2-Dibromoethane (EDB)		1.55	3.09	6.19	NU UJ	H02
95-50-1	1,2-Dichlorobenzene		1.55	3.09	6.19	NU UJ	H02
541-73-1	1,3-Dichlorobenzene		1.55	3.09	6.19	NU UJ	H02
106-46-7	1,4-Dichlorobenzene		1.55	3.09	6.19	NU UJ	H02
75-71-8	Dichlorodifluoromethane		3.09	6.19	12.4	U	U
75-34-3	1,1-Dichloroethane		1.55	3.09	6.19	U	
107-06-2	1,2-Dichloroethane		1.55	3.09	6.19	U	
75-35-4	1,1-Dichloroethene		1.55	3.09	6.19	U	
156-59-2	cis-1,2-Dichloroethene		1.55	3.09	6.19	U	
156-60-5	trans-1,2-Dichloroethene		1.55	3.09	6.19	U	
78-87-5	1,2-Dichloropropane		1.55	3.09	6.19	U	
10061-01-5	cis-1,3-Dichloropropene		1.55	3.09	6.19	U	
10061-02-6	trans-1,3-Dichloropropene		1.55	3.09	6.19	NU UJ	H02
100-41-4	Ethylbenzene		1.55	3.09	6.19	NU UJ	H02
591-78-6	2-Hexanone		3.09	6.19	12.4	UXO	U
98-82-8	Isopropylbenzene		1.55	3.09	6.19	NU UJ	H02
75-09-2	Methylene chloride	490	3.09	6.19	12.4	R N ~~J~~	G01, H02, F12
79-20-9	Methyl Acetate		3.09	6.19	12.4	U	U
108-87-2	Methylcyclohexane		1.55	3.09	6.19	U	
108-10-1	4-Methyl-2-pentanone		3.09	6.19	12.4	U	
1634-04-4	Methyl t-Butyl Ether		1.55	3.09	6.19	U	
100-42-5	Styrene		1.55	3.09	6.19	NU UJ	H02
79-34-5	1,1,2,2-Tetrachloroethane		1.55	3.09	6.19	U	U
127-18-4	Tetrachloroethene		1.55	3.09	6.19	U	U

ANALYSIS DATA SHEET

LNC-019-DS-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-27	File ID:	0512527A.D
Sampled:	05/09/13 08:45	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 14:04
Solids:	83.50	Preparation:	5035A	Dilution:	1
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003
Instrument:	MS-VOA3				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene		1.55	3.09	6.19	NU UJ H02
87-61-6	1,2,3-Trichlorobenzene		1.55	3.09	6.19	NU UJ H02
120-82-1	1,2,4-Trichlorobenzene		1.55	3.09	6.19	NU UJ H02
79-00-5	1,1,2-Trichloroethane		1.55	3.09	6.19	U U
71-55-6	1,1,1-Trichloroethane		1.55	3.09	6.19	U U
79-01-6	Trichloroethene		1.55	3.09	6.19	NU UJ H02
75-69-4	Trichlorofluoromethane		3.09	6.19	12.4	U U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.09	6.19	12.4	U U
75-01-4	Vinyl chloride		1.55	3.09	6.19	U U
108-38-3/106-42-	m,p-Xylene		3.09	6.19	12.4	NU UJ H02
95-47-6	o-Xylene		1.55	3.09	6.19	NU UJ H02

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	37.12	42.70	115	85 - 120	
Dibromofluoromethane	37.12	46.85	126	80 - 125	*
1,2-Dichloroethane-d4	37.12	45.88	124	75 - 140	
Toluene-d8	37.12	36.11	97.3	85 - 115	

ANALYSIS DATA SHEET

LNC-019-DS-SB3-01

Laboratory: Empirical Laboratories, LLC SDG: 1305125

Client: SAIC (S732) Project: Lincoln NE ANG

Matrix: Solid Laboratory ID: 1305125-27 File ID: 0512527.D

Sampled: 05/09/13 08:45 Prepared: 05/21/13 14:15 Analyzed: 06/03/13 13:19

Solids: 83.50 Preparation: EXT 3546 Dilution: 1

Batch: 3E20014 Sequence: 3F15517 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
98-86-2	Acetophenone		97.9	196	392	UX
1912-24-9	Atrazine		97.9	196	392	U
100-52-7	Benzaldehyde		97.9	196	392	U
92-52-4	1,1-Biphenyl		97.9	196	392	U
101-55-3	4-Bromophenyl-phenylether		97.9	196	392	U
85-68-7	Butylbenzylphthalate		97.9	196	392	U
105-60-2	Caprolactam		97.9	196	392	U
86-74-8	Carbazole		97.9	196	392	U
59-50-7	4-Chloro-3-methylphenol		97.9	196	392	U
106-47-8	4-Chloroaniline		97.9	196	392	U
111-91-1	Bis(2-chloroethoxy)methane		97.9	196	392	U
111-44-4	Bis(2-chloroethyl)ether		97.9	196	392	U
108-60-1	2,2'-Oxybis-1-chloropropane		97.9	196	392	U
91-58-7	2-Chloronaphthalene		97.9	196	392	U
95-57-8	2-Chlorophenol		97.9	196	392	U
7005-72-3	4-Chlorophenyl phenyl ether		97.9	196	392	U
132-64-9	Dibenzofuran		97.9	196	392	U
84-74-2	Di-n-butylphthalate		97.9	196	392	U
91-94-1	3,3'-Dichlorobenzidine		97.9	196	392	U
120-83-2	2,4-Dichlorophenol		97.9	196	392	U
84-66-2	Diethylphthalate		97.9	196	392	U
105-67-9	2,4-Dimethylphenol		392	784	1560	U
131-11-3	Dimethyl phthalate		97.9	196	392	U
534-52-1	4,6-Dinitro-2-methylphenol		979	1960	3920	U
51-28-5	2,4-Dinitrophenol		979	1960	3920	NU
121-14-2	2,4-Dinitrotoluene		97.9	196	392	U
606-20-2	2,6-Dinitrotoluene		97.9	196	392	U
117-84-0	Di-n-octylphthalate		97.9	196	392	U
117-81-7	Bis(2-ethylhexyl)phthalate		97.9	196	392	U
118-74-1	Hexachlorobenzene		97.9	196	392	U
87-68-3	Hexachlorobutadiene		97.9	196	392	U
77-47-4	Hexachlorocyclopentadiene		97.9	196	392	NU
67-72-1	Hexachloroethane		97.9	196	392	U
78-59-1	Isophorone		97.9	196	392	U
95-48-7	2-Methylphenol		97.9	196	392	U
106-44-5	4-Methylphenol		97.9	196	392	U
100-01-6	4-Nitroaniline		392	784	1560	U
99-09-2	3-Nitroaniline		392	784	1560	U
88-74-4	2-Nitroaniline		392	784	1560	U
98-95-3	Nitrobenzene		97.9	196	392	U

ANALYSIS DATA SHEET

LNC-019-DS-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-27	File ID:	0512527.D		
Sampled:	05/09/13 08:45	Prepared:	05/21/13 14:15	Analyzed:	06/03/13 13:19		
Solids:	83.50	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E20014	Sequence:	3F15517	Calibration:	2272005	Instrument:	MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		392	784	1560	U
88-75-5	2-Nitrophenol		97.9	196	392	U
86-30-6	N-Nitrosodiphenylamine		97.9	196	392	U
621-64-7	N-Nitroso-di-n-propylamine		97.9	196	392	U
87-86-5	Pentachlorophenol		392	784	1560	U
108-95-2	Phenol		97.9	196	392	U
95-94-3	1,2,4,5-Tetrachlorobenzene		97.9	196	392	U
58-90-2	2,3,4,6-Tetrachlorophenol		97.9	196	392	U
88-06-2	2,4,6-Trichlorophenol		97.9	196	392	U
95-95-4	2,4,5-Trichlorophenol		97.9	196	392	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3919	2926	74.7	45 - 105	
2-Fluorophenol	7838	6410	81.8	35 - 105	
Nitrobenzene-d5	3919	4683	120	35 - 100	*
Phenol-d6	7838	6490	82.8	40 - 100	
Terphenyl-d14	3919	3126	79.8	30 - 125	
2,4,6-Tribromophenol	7838	6251	79.8	35 - 125	

ANALYSIS DATA SHEET

LNC-019-DS-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-27	File ID:	0512527.D
Sampled:	05/09/13 08:45	Prepared:	05/21/13 14:15	Analyzed:	06/15/13 23:30
Solids:	83.50	Preparation:	EXT_3546	Dilution:	1

Batch: 3E20014 Sequence: 3F16823 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene		1.96	3.92	7.84	U	U
208-96-8	Acenaphthylene		1.96	3.92	7.84	U	
120-12-7	Anthracene		1.96	3.92	7.84	U	
56-55-3	Benzo(a)anthracene		1.96	3.92	7.84	U	
50-32-8	Benzo(a)pyrene		1.96	3.92	7.84	U	
205-99-2	Benzo(b)fluoranthene		1.96	3.92	7.84	U	
191-24-2	Benzo(g,h,i)perylene		1.96	3.92	7.84	U	
207-08-9	Benzo(k)fluoranthene		1.96	3.92	7.84	U	
123-91-1	1,4-Dioxane		9.79	19.6	39.2	U	
218-01-9	Chrysene		1.96	3.92	7.84	U	
53-70-3	Dibenz(a,h)anthracene		1.96	3.92	7.84	U	
206-44-0	Fluoranthene	**2.25** •	1.96	3.92	7.84	J	J
86-73-7	Fluorene		1.96	3.92	7.84	U	U
193-39-5	Indeno(1,2,3-cd)pyrene		1.96	3.92	7.84	U	
91-57-6	2-Methylnaphthalene		1.96	3.92	7.84	U	
91-20-3	Naphthalene		1.96	3.92	7.84	U	
85-01-8	Phenanthrene	**2.77** •	1.96	3.92	7.84	J	J
129-00-0	Pyrene		1.96	3.92	7.84	U	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	3919	3505	89.4	45 - 105	
Terphenyl-d14	3919	3648	93.1	30 - 125	

JW 09/04/2013

ANALYSIS DATA SHEET

LNC-019-DS-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-27	File ID:		035F3501.D	
Sampled:	05/09/13 08:45	Prepared:	05/20/13 12:19	Analyzed:		05/23/13 12:19	
Solids:	83.50	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E17023	Sequence:	3E14606	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)	**228**	7.68	7.68	15.2	N J HD2

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.529	1.314	86.0	35 - 140	

ANALYSIS DATA SHEET

LNC-019-DS-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-27	File ID:	020F2001.D		
Sampled:	05/09/13 08:45	Prepared:	05/18/13 17:28	Analyzed:	05/19/13 06:30		
Solids:	83.50	Preparation:	8015GRO	Dilution:	1		
Batch:	3E18011	Sequence:	3E14307	Calibration:	3044001	Instrument:	GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)	65.2	2.89	5.78	8.67	

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	2.890	2.950	102	50 - 150	X

ANALYSIS DATA SHEET

LNC-019-DP-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-39	File ID:	0512539.D
Sampled:	05/09/13 16:13	Prepared:	05/22/13 00:00	Analyzed:	05/22/13 14:06
Solids:		Preparation:	5030B	Dilution:	1

Batch: 3E22012 Sequence: 3E14301 Calibration: 3140001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
67-64-1	Acetone		2.50	5.00	10.0	U	U
71-43-2	Benzene		0.250	0.500	1.00	U	
74-97-5	Bromochloromethane		0.250	0.500	1.00	U	
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U	
75-25-2	Bromoform		0.250	0.500	1.00	U	
74-83-9	Bromomethane		0.500	1.00	2.00	U	
78-93-3	2-Butanone		2.50	5.00	10.0	U	
75-15-0	Carbon disulfide		0.250	0.500	1.00	U	
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	UX	
108-90-7	Chlorobenzene		0.250	0.500	1.00	U	
75-00-3	Chloroethane		0.500	1.00	2.00	U	
67-66-3	Chloroform		0.250	0.500	1.00	U	
74-87-3	Chloromethane		0.250	0.500	1.00	UY UJ	COS
110-82-7	Cyclohexane		0.250	0.500	1.00	U	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U	
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U	
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U	
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U	
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U	
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U	
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U	
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U	
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U	
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U	
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U	
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U	
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U	
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U	
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U	
100-41-4	Ethylbenzene		0.250	0.500	1.00	U	
591-78-6	2-Hexanone		1.25	2.50	5.00	U	
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U	
75-09-2	Methylene chloride		0.500	1.00	2.00	U	
79-20-9	Methyl Acetate		0.500	1.00	2.00	U	
108-87-2	Methylcyclohexane		0.250	0.500	1.00	U	
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U	
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U	
100-42-5	Styrene		0.250	0.500	1.00	U	
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U	
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U	

ANALYSIS DATA SHEET

LNC-019-DP-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-39	File ID:	0512539.D
Sampled:	05/09/13 16:13	Prepared:	05/22/13 00:00	Analyzed:	05/22/13 14:06
Solids:		Preparation:	5030B	Dilution:	1

Batch: 3E22012 Sequence: 3E14301 Calibration: 3140001 Instrument: MS-VOA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		0.500	1.00	2.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	U
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	31.53	105	75 - 120	
Dibromofluoromethane	30.00	32.01	107	85 - 115	
1,2-Dichloroethane-d4	30.00	29.41	98.0	70 - 120	
Toluene-d8	30.00	30.73	102	85 - 120	

ANALYSIS DATA SHEET

LNC-019-DP-SB3-01

Laboratory: Empirical Laboratories, LLC | SDG: 1305125
Client: SAIC (S732) | Project: Lincoln NE ANG
Matrix: Water | Laboratory ID: 1305125-39 | File ID: 0512539.D
Sampled: 05/09/13 16:13 | Prepared: 05/16/13 12:08 | Analyzed: 05/20/13 16:43
Solids: | Preparation: EXT 3510 | Dilution: 1
Batch: 3E16002 | Sequence: 3E14804 | Calibration: 2272005 | Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		1.16	2.31	4.63	UX	U
1912-24-9	Atrazine		1.16	2.31	4.63	UY	UJ C05
100-52-7	Benzaldehyde		1.16	2.31	4.63	U	U
92-52-4	1,1-Biphenyl		1.16	2.31	4.63	U	
101-55-3	4-Bromophenyl-phenylether		1.16	2.31	4.63	U	
85-68-7	Butylbenzylphthalate		1.16	2.31	4.63	U	
105-60-2	Caprolactam		1.16	2.31	4.63	U	
86-74-8	Carbazole		1.16	2.31	4.63	U	
59-50-7	4-Chloro-3-methylphenol		1.16	2.31	4.63	UX	
106-47-8	4-Chloroaniline		1.16	2.31	4.63	U	
111-91-1	Bis(2-chloroethoxy)methane		1.16	2.31	4.63	U	
111-44-4	Bis(2-chloroethyl)ether		1.16	2.31	4.63	U	
108-60-1	2,2'-Oxybis-1-chloropropane		1.16	2.31	4.63	U	
91-58-7	2-Chloronaphthalene		1.16	2.31	4.63	U	
95-57-8	2-Chlorophenol		1.16	2.31	4.63	U	
7005-72-3	4-Chlorophenyl phenyl ether		1.16	2.31	4.63	U	
132-64-9	Dibenzofuran		1.16	2.31	4.63	U	
84-74-2	Di-n-butylphthalate		1.16	2.31	4.63	U	
91-94-1	3,3'-Dichlorobenzidine		1.16	2.31	4.63	U	
120-83-2	2,4-Dichlorophenol		1.16	2.31	4.63	U	
84-66-2	Diethylphthalate		1.16	2.31	4.63	U	
105-67-9	2,4-Dimethylphenol		4.63	9.26	18.5	U	
131-11-3	Dimethyl phthalate		1.16	2.31	4.63	U	
534-52-1	4,6-Dinitro-2-methylphenol		4.63	9.26	18.5	U	
51-28-5	2,4-Dinitrophenol		7.71	23.1	46.3	U	
121-14-2	2,4-Dinitrotoluene		1.16	2.31	4.63	U	
606-20-2	2,6-Dinitrotoluene		1.16	2.31	4.63	U	
117-84-0	Di-n-octylphthalate		1.16	2.31	4.63	U	
117-81-7	Bis(2-ethylhexyl)phthalate		1.16	2.31	4.63	U	
118-74-1	Hexachlorobenzene		1.16	2.31	4.63	U	
87-68-3	Hexachlorobutadiene		1.16	2.31	4.63	U	
77-47-4	Hexachlorocyclopentadiene		1.16	4.63	9.26	U	
67-72-1	Hexachloroethane		1.16	2.31	4.63	UX	
78-59-1	Isophorone		1.16	2.31	4.63	U	
95-48-7	2-Methylphenol		1.16	2.31	4.63	U	
106-44-5	4-Methylphenol		1.16	2.31	4.63	U	
100-01-6	4-Nitroaniline		4.63	9.26	18.5	U	
99-09-2	3-Nitroaniline		4.63	9.26	18.5	U	
88-74-4	2-Nitroaniline		4.63	9.26	18.5	UX	
98-95-3	Nitrobenzene		1.16	2.31	4.63	U	

ANALYSIS DATA SHEET

LNC-019-DP-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-39	File ID:	0512539.D
Sampled:	05/09/13 16:13	Prepared:	05/16/13 12:08	Analyzed:	05/20/13 16:43
Solids:		Preparation:	EXT 3510	Dilution:	1
Batch:	3E16002	Sequence:	3E14804	Calibration:	2272005
Instrument:	MS-BNA1				

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		4.63	9.26	18.5	U
88-75-5	2-Nitrophenol		1.16	2.31	4.63	U
86-30-6	N-Nitrosodiphenylamine		1.16	2.31	4.63	U
621-64-7	N-Nitroso-di-n-propylamine		1.16	2.31	4.63	UX
87-86-5	Pentachlorophenol		4.63	9.26	18.5	U
108-95-2	Phenol		1.16	2.31	4.63	U
95-94-3	1,2,4,5-Tetrachlorobenzene		1.16	2.31	4.63	U
58-90-2	2,3,4,6-Tetrachlorophenol		2.31	4.63	9.26	U
88-06-2	2,4,6-Trichlorophenol		1.16	2.31	4.63	U
95-95-4	2,4,5-Trichlorophenol		1.16	2.31	4.63	U

U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	38.24	82.6	50 - 110	
2-Fluorophenol	92.59	19.04	20.6	20 - 110	
Nitrobenzene-d5	46.30	40.08	86.6	40 - 110	
Phenol-d6	92.59	14.53	15.7	0 - 110	
Terphenyl-d14	46.30	33.25	71.8	50 - 135	
2,4,6-Tribromophenol	92.59	64.64	69.8	40 - 125	

ANALYSIS DATA SHEET

LNC-019-DP-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-39	File ID:	0512539.D
Sampled:	05/09/13 16:13	Prepared:	05/16/13 12:08	Analyzed:	06/05/13 07:06
Solids:		Preparation:	EXT 3510	Dilution:	1

Batch: 3E16002 Sequence: 3F15611 Calibration: 3122001 Instrument: MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene	**0.0653**	0.0463	0.0926	0.185	J	J
208-96-8	Acenaphthylene		0.0463	0.0926	0.185	U	U
120-12-7	Anthracene	**0.0600**	0.0463	0.0926	0.185	J	J
56-55-3	Benzo(a)anthracene	**0.185**	0.0463	0.0926	0.185	J	J
50-32-8	Benzo(a)pyrene	**0.151**	0.0463	0.0926	0.185	J	J
205-99-2	Benzo(b)fluoranthene	**0.147**	0.0463	0.0926	0.185	J	J
191-24-2	Benzo(g,h,i)perylene	**0.101**	0.0463	0.0926	0.185	J	J
207-08-9	Benzo(k)fluoranthene	**0.166**	0.0463	0.0926	0.185	J	J
123-91-1	1,4-Dioxane		0.116	0.231	0.463	U	U
218-01-9	Chrysene	**0.259**	0.0463	0.0926	0.185		=
53-70-3	Dibenz(a,h)anthracene		0.0463	0.0926	0.185	U	U
206-44-0	Fluoranthene	**0.548**	0.0463	0.0926	0.185		=
86-73-7	Fluorene		0.0463	0.0926	0.185	U	U
193-39-5	Indeno(1,2,3-cd)pyrene	**0.102**	0.0463	0.0926	0.185	J	J
91-57-6	2-Methylnaphthalene		0.0463	0.0926	0.185	U	U
91-20-3	Naphthalene		0.0463	0.0926	0.185	U	U
85-01-8	Phenanthrene	**0.329**	0.0463	0.185	0.370	J	J
129-00-0	Pyrene	**0.468**	0.0463	0.0926	0.185		=

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	46.30	37.02	80.0	50 - 110	
Terphenyl-d14	46.30	29.73	64.2	50 - 135	
2,4,6-Tribromophenol	92.59	59.38	64.1	40 - 125	

ANALYSIS DATA SHEET

LNC-019-DP-SB3-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125
Client: SAIC (S732)   Project: Lincoln NE ANG
Matrix: Water   Laboratory ID: 1305125-39   File ID: 046F4601.D
Sampled: 05/09/13 16:13   Prepared: 05/16/13 17:00   Analyzed: 05/21/13 21:33
Solids: Preparation: EXT 3510   Dilution: 1
Batch: 3E16035   Sequence: 3E14605   Calibration: 3143004   Instrument: GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		0.0926	0.0926	0.185	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.01852	0.007523	40.6	30 - 140	

ANALYSIS DATA SHEET

LNC-019-DP-SB3-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-39	File ID:	020F2401.D		
Sampled:	05/09/13 16:13	Prepared:	05/17/13 01:22	Analyzed:	05/17/13 01:22		
Solids:		Preparation:	8015GRO	Dilution:	1		
Batch:	3E16005	Sequence:	3E14043	Calibration:	3044001	Instrument:	GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q	
8006-61-9	Gasoline Range Organics (C6-C10)		0.0500	0.100	0.150	UX	U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	0.05000	0.06367	127	50 - 150	

ANALYSIS DATA SHEET

LNC-019-DS-SB3-02

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Solid	Laboratory ID: 1305125-28	File ID:	0512528A.D	
Sampled:	05/09/13 09:00	Prepared: 05/20/13 00:00	Analyzed:	05/20/13 14:33	
Solids:	76.32	Preparation: 5035A	Dilution:	1	
Batch:	3E20008	Sequence: 3E14106	Calibration:	3140003	Instrument: MS-VOA3

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
67-64-1	Acetone		7.01	14.0	28.1	UX	U
71-43-2	Benzene		1.75	3.51	7.01	U	
74-97-5	Bromochloromethane		1.75	3.51	7.01	U	
75-27-4	Bromodichloromethane		1.75	3.51	7.01	U	
75-25-2	Bromoform		1.75	3.51	7.01	U	
74-83-9	Bromomethane		3.51	7.01	14.0	U	
78-93-3	2-Butanone		3.51	7.01	14.0	UX	
75-15-0	Carbon disulfide		1.75	3.51	7.01	U	
56-23-5	Carbon tetrachloride		1.75	3.51	7.01	U	
108-90-7	Chlorobenzene		1.75	3.51	7.01	U	
75-00-3	Chloroethane		3.51	7.01	14.0	U	
67-66-3	Chloroform		1.75	3.51	7.01	U	
74-87-3	Chloromethane		3.51	7.01	14.0	U	
110-82-7	Cyclohexane		1.75	3.51	7.01	U	
124-48-1	Dibromochloromethane		1.75	3.51	7.01	U	
96-12-8	1,2-Dibromo-3-chloropropane		3.51	7.01	14.0	U	
106-93-4	1,2-Dibromoethane (EDB)		1.75	3.51	7.01	U	
95-50-1	1,2-Dichlorobenzene		1.75	3.51	7.01	U	
541-73-1	1,3-Dichlorobenzene		1.75	3.51	7.01	U	
106-46-7	1,4-Dichlorobenzene		1.75	3.51	7.01	U	
75-71-8	Dichlorodifluoromethane		3.51	7.01	14.0	U	
75-34-3	1,1-Dichloroethane		1.75	3.51	7.01	U	
107-06-2	1,2-Dichloroethane		1.75	3.51	7.01	U	
75-35-4	1,1-Dichloroethene		1.75	3.51	7.01	U	
156-59-2	cis-1,2-Dichloroethene		1.75	3.51	7.01	U	
156-60-5	trans-1,2-Dichloroethene		1.75	3.51	7.01	U	
78-87-5	1,2-Dichloropropane		1.75	3.51	7.01	U	
10061-01-5	cis-1,3-Dichloropropene		1.75	3.51	7.01	U	
10061-02-6	trans-1,3-Dichloropropene		1.75	3.51	7.01	U	
100-41-4	Ethylbenzene		1.75	3.51	7.01	U	
591-78-6	2-Hexanone		3.51	7.01	14.0	UXO	
98-82-8	Isopropylbenzene		1.75	3.51	7.01	U	
75-09-2	Methylene chloride	218	3.51	7.01	14.0		J R F12
79-20-9	Methyl Acetate		3.51	7.01	14.0	U	U
108-87-2	Methylcyclohexane		1.75	3.51	7.01	U	
108-10-1	4-Methyl-2-pentanone		3.51	7.01	14.0	U	
1634-04-4	Methyl t-Butyl Ether		1.75	3.51	7.01	U	
100-42-5	Styrene		1.75	3.51	7.01	U	
79-34-5	1,1,2,2-Tetrachloroethane		1.75	3.51	7.01	U	
127-18-4	Tetrachloroethene		1.75	3.51	7.01	U	

ANALYSIS DATA SHEET

LNC-019-DS-SB3-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-28	File ID:	0512528A.D
Sampled:	05/09/13 09:00	Prepared:	05/20/13 00:00	Analyzed:	05/20/13 14:33
Solids:	76.32	Preparation:	5035A	Dilution:	1
Batch:	3E20008	Sequence:	3E14106	Calibration:	3140003
Instrument:	MS-VOA3				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
108-88-3	Toluene		1.75	3.51	7.01	U
87-61-6	1,2,3-Trichlorobenzene		1.75	3.51	7.01	U
120-82-1	1,2,4-Trichlorobenzene		1.75	3.51	7.01	U
79-00-5	1,1,2-Trichloroethane		1.75	3.51	7.01	U
71-55-6	1,1,1-Trichloroethane		1.75	3.51	7.01	U
79-01-6	Trichloroethene		1.75	3.51	7.01	U
75-69-4	Trichlorofluoromethane		3.51	7.01	14.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		3.51	7.01	14.0	U
75-01-4	Vinyl chloride		1.75	3.51	7.01	U
108-38-3/106-42-	m,p-Xylene		3.51	7.01	14.0	U
95-47-6	o-Xylene		1.75	3.51	7.01	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	42.09	42.77	102	85 - 120	
Dibromofluoromethane	42.09	46.62	111	80 - 125	
1,2-Dichloroethane-d4	42.09	48.03	114	75 - 140	
Toluene-d8	42.09	43.43	103	85 - 115	

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ANALYSIS DATA SHEET

LNC-019-DS-SB3-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-28	File ID:	0512528.D
Sampled:	05/09/13 09:00	Prepared:	05/21/13 14:15	Analyzed:	06/02/13 07:15
Solids:	76.32	Preparation:	EXT 3546	Dilution:	1
Batch:	3E20014	Sequence:	3F15519	Calibration:	2272005
Instrument:	MS-BNA1				

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
98-86-2	Acetophenone		104	208	415	UX	U
1912-24-9	Atrazine		104	208	415	U	U
100-52-7	Benzaldehyde		104	208	415	UY UJ	COS
92-52-4	1,1-Biphenyl		104	208	415	U	U
101-55-3	4-Bromophenyl-phenylether		104	208	415	U	
85-68-7	Butylbenzylphthalate		104	208	415	U	
105-60-2	Caprolactam		104	208	415	U	
86-74-8	Carbazole		104	208	415	U	
59-50-7	4-Chloro-3-methylphenol		104	208	415	U	
106-47-8	4-Chloroaniline		104	208	415	U	
111-91-1	Bis(2-chloroethoxy)methane		104	208	415	U	
111-44-4	Bis(2-chloroethyl)ether		104	208	415	U	
108-60-1	2,2'-Oxybis-1-chloropropane		104	208	415	U	
91-58-7	2-Chloronaphthalene		104	208	415	U	
95-57-8	2-Chlorophenol		104	208	415	U	
7005-72-3	4-Chlorophenyl phenyl ether		104	208	415	U	
132-64-9	Dibenzofuran		104	208	415	U	
84-74-2	Di-n-butylphthalate		104	208	415	U	
91-94-1	3,3'-Dichlorobenzidine		104	208	415	U	
120-83-2	2,4-Dichlorophenol		104	208	415	U	
84-66-2	Diethylphthalate		104	208	415	U	
105-67-9	2,4-Dimethylphenol		415	831	1660	U	
131-11-3	Dimethyl phthalate		104	208	415	U	
534-52-1	4,6-Dinitro-2-methylphenol		1040	2080	4150	U	
51-28-5	2,4-Dinitrophenol		1040	2080	4150	U	
121-14-2	2,4-Dinitrotoluene		104	208	415	U	
606-20-2	2,6-Dinitrotoluene		104	208	415	U	
117-84-0	Di-n-octylphthalate		104	208	415	U	
117-81-7	Bis(2-ethylhexyl)phthalate		104	208	415	U	
118-74-1	Hexachlorobenzene		104	208	415	U	
87-68-3	Hexachlorobutadiene		104	208	415	U	
77-47-4	Hexachlorocyclopentadiene		104	208	415	U	
67-72-1	Hexachloroethane		104	208	415	UX	
78-59-1	Isophorone		104	208	415	U	
95-48-7	2-Methylphenol		104	208	415	U	
106-44-5	4-Methylphenol		104	208	415	U	
100-01-6	4-Nitroaniline		415	831	1660	U	
99-09-2	3-Nitroaniline		415	831	1660	U	
88-74-4	2-Nitroaniline		415	831	1660	U	
98-95-3	Nitrobenzene		104	208	415	U	

ANALYSIS DATA SHEET

LNC-019-DS-SB3-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-28	File ID:	0512528.D
Sampled:	05/09/13 09:00	Prepared:	05/21/13 14:15	Analyzed:	06/02/13 07:15
Solids:	76.32	Preparation:	EXT 3546	Dilution:	1

Batch: 3E20014 Sequence: 3F15519 Calibration: 2272005 Instrument: MS-BNA1

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		415	831	1660	U
88-75-5	2-Nitrophenol		104	208	415	U
86-30-6	N-Nitrosodiphenylamine		104	208	415	U
621-64-7	N-Nitroso-di-n-propylamine		104	208	415	U
87-86-5	Pentachlorophenol		415	831	1660	U
108-95-2	Phenol		104	208	415	U
95-94-3	1,2,4,5-Tetrachlorobenzene		104	208	415	U
58-90-2	2,3,4,6-Tetrachlorophenol		104	208	415	U
88-06-2	2,4,6-Trichlorophenol		104	208	415	U
95-95-4	2,4,5-Trichlorophenol		104	208	415	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4152	3290	79.2	45 - 105	
2-Fluorophenol	8303	6678	80.4	35 - 105	
Nitrobenzene-d5	4152	3440	82.9	35 - 100	
Phenol-d6	8303	6885	82.9	40 - 100	
Terphenyl-d14	4152	3644	87.8	30 - 125	
2,4,6-Tribromophenol	8303	6604	79.5	35 - 125	

ANALYSIS DATA SHEET

LNC-019-DS-SB3-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-28	File ID:	0512528.D		
Sampled:	05/09/13 09:00	Prepared:	05/21/13 14:15	Analyzed:	06/16/13 00:54		
Solids:	76.32	Preparation:	EXT_3546	Dilution:	1		
Batch:	3E20014	Sequence:	3F16823	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/Kg dry)	DL	LOD	LOQ	Q	
83-32-9	Acenaphthene		2.08	4.15	8.31	U	U
208-96-8	Acenaphthylene		2.08	4.15	8.31	U	
120-12-7	Anthracene		2.08	4.15	8.31	U	
56-55-3	Benzo(a)anthracene	2.67	2.08	4.15	8.31	J	J
50-32-8	Benzo(a)pyrene		2.08	4.15	8.31	U	U
205-99-2	Benzo(b)fluoranthene		2.08	4.15	8.31	U	
191-24-2	Benzo(g,h,i)perylene		2.08	4.15	8.31	U	
207-08-9	Benzo(k)fluoranthene		2.08	4.15	8.31	U	
123-91-1	1,4-Dioxane		10.4	20.8	41.5	U	
218-01-9	Chrysene		2.08	4.15	8.31	U	
53-70-3	Dibenz(a,h)anthracene		2.08	4.15	8.31	U	
206-44-0	Fluoranthene	2.29	2.08	4.15	8.31	J	J
86-73-7	Fluorene		2.08	4.15	8.31	U	U
193-39-5	Indeno(1,2,3-cd)pyrene		2.08	4.15	8.31	U	
91-57-6	2-Methylnaphthalene		2.08	4.15	8.31	U	
91-20-3	Naphthalene		2.08	4.15	8.31	U	
85-01-8	Phenanthrene	2.72	2.08	4.15	8.31	J	J
129-00-0	Pyrene		2.08	4.15	8.31	U	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/Kg dry)	CONC (ug/Kg dry)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	4152	3714	89.4	45 - 105	
Terphenyl-d14	4152	3943	95.0	30 - 125	

JW
09/04/2013

ANALYSIS DATA SHEET

LNC-019-DS-SB3-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Solid	Laboratory ID:	1305125-28	File ID:	038F3801.D		
Sampled:	05/09/13 09:00	Prepared:	05/20/13 12:19	Analyzed:	05/23/13 14:00		
Solids:	76.32	Preparation:	EXT 3546	Dilution:	1		
Batch:	3E17023	Sequence:	3E14606	Calibration:	3143004	Instrument:	GL-GCFID2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		8.42	8.42	16.7	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
o-Terphenyl	1.677	1.292	77.1	35 - 140	

ANALYSIS DATA SHEET

LNC-019-DS-SB3-02

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Solid	Laboratory ID:	1305125-28	File ID:	023F2301.D
Sampled:	05/09/13 09:00	Prepared:	05/18/13 17:28	Analyzed:	05/19/13 08:29
Solids:	76.32	Preparation:	8015GRO	Dilution:	1

Batch: 3E18011 Sequence: 3E14307 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/Kg dry)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		3.07	6.15	9.22	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/Kg dry)	CONC (mg/Kg dry)	% REC	QC LIMITS	Q
Bromofluorobenzene	3.073	3.677	120	50 - 150	X

ANALYSIS DATA SHEET

LNC-FB-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID: 1305125-04	File ID:	0512504.D	
Sampled:	05/07/13 09:00	Prepared: 05/18/13 12:26	Analyzed:	05/18/13 12:26	
Solids:		Preparation: 5030B	Dilution:	1	
Batch:	3E18005	Sequence: 3E14033	Calibration:	3127004	Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	U
78-93-3	2-Butanone		2.50	5.00	10.0	U
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	UX
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
110-82-7	Cyclohexane		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
79-20-9	Methyl Acetate		0.500	1.00	2.00	UX
108-87-2	Methylcyclohexane		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	U
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U

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ANALYSIS DATA SHEET

LNC-FB-01

Laboratory:	Empirical Laboratories, LLC	SDG:	1305125		
Client:	SAIC (S732)	Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-04	File ID:	0512504.D
Sampled:	05/07/13 09:00	Prepared:	05/18/13 12:26	Analyzed:	05/18/13 12:26
Solids:		Preparation:	5030B	Dilution:	1
Batch:	3E18005	Sequence:	3E14033	Calibration:	3127004
Instrument:	MS-VOA5				

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q	
108-88-3	Toluene	0.280	0.250	0.500	1.00	J	J
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U	
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U	
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U	
79-01-6	Trichloroethene		0.250	0.500	1.00	U	
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		0.500	1.00	2.00	U	
75-01-4	Vinyl chloride		0.250	0.500	1.00	UX	
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U	
95-47-6	o-Xylene		0.250	0.500	1.00	U	

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.34	91.1	75 - 120	
Dibromofluoromethane	30.00	29.89	99.6	85 - 115	
1,2-Dichloroethane-d4	30.00	29.25	97.5	70 - 120	
Toluene-d8	30.00	30.30	101	85 - 120	

ANALYSIS DATA SHEET

LNC-FB-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID: 1305125-04		File ID:	0512504.D
Sampled:	05/07/13 09:00	Prepared: 05/13/13 12:35		Analyzed:	05/15/13 23:08
Solids:		Preparation: EXT 3510		Dilution:	1
Batch:	3E13311	Sequence: 3E14040	Calibration: 2261001	Instrument:	MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
98-86-2	Acetophenone		1.19	2.38	4.76	U
1912-24-9	Atrazine		1.19	2.38	4.76	U
100-52-7	Benzaldehyde		1.19	2.38	4.76	U
92-52-4	1,1-Biphenyl		1.19	2.38	4.76	U
101-55-3	4-Bromophenyl-phenylether		1.19	2.38	4.76	U
85-68-7	Butylbenzylphthalate		1.19	2.38	4.76	U
105-60-2	Caprolactam		1.19	2.38	4.76	U
86-74-8	Carbazole		1.19	2.38	4.76	U
59-50-7	4-Chloro-3-methylphenol		1.19	2.38	4.76	U
106-47-8	4-Chloroaniline		1.19	2.38	4.76	U
111-91-1	Bis(2-chloroethoxy)methane		1.19	2.38	4.76	U
111-44-4	Bis(2-chloroethyl)ether		1.19	2.38	4.76	U
108-60-1	2,2'-Oxybis-1-chloropropane		1.19	2.38	4.76	U
91-58-7	2-Chloronaphthalene		1.19	2.38	4.76	U
95-57-8	2-Chlorophenol		1.19	2.38	4.76	U
7005-72-3	4-Chlorophenyl phenyl ether		1.19	2.38	4.76	U
132-64-9	Dibenzofuran		1.19	2.38	4.76	U
84-74-2	Di-n-butylphthalate		1.19	2.38	4.76	U
91-94-1	3,3'-Dichlorobenzidine		1.19	2.38	4.76	U
120-83-2	2,4-Dichlorophenol		1.19	2.38	4.76	U
84-66-2	Diethylphthalate		1.19	2.38	4.76	U
105-67-9	2,4-Dimethylphenol		4.76	9.52	19.0	U
131-11-3	Dimethyl phthalate		1.19	2.38	4.76	U
534-52-1	4,6-Dinitro-2-methylphenol		4.76	9.52	19.0	U
51-28-5	2,4-Dinitrophenol		7.93	23.8	47.6	U
121-14-2	2,4-Dinitrotoluene		1.19	2.38	4.76	U
606-20-2	2,6-Dinitrotoluene		1.19	2.38	4.76	U
117-84-0	Di-n-octylphthalate		1.19	2.38	4.76	U
117-81-7	Bis(2-ethylhexyl)phthalate		1.19	2.38	4.76	U
118-74-1	Hexachlorobenzene		1.19	2.38	4.76	U
87-68-3	Hexachlorobutadiene		1.19	2.38	4.76	U
77-47-4	Hexachlorocyclopentadiene		1.19	4.76	9.52	U
67-72-1	Hexachloroethane		1.19	2.38	4.76	U
78-59-1	Isophorone		1.19	2.38	4.76	U
95-48-7	2-Methylphenol		1.19	2.38	4.76	U
106-44-5	4-Methylphenol		1.19	2.38	4.76	U
100-01-6	4-Nitroaniline		4.76	9.52	19.0	U
99-09-2	3-Nitroaniline		4.76	9.52	19.0	U
88-74-4	2-Nitroaniline		4.76	9.52	19.0	U
98-95-3	Nitrobenzene		1.19	2.38	4.76	U

ANALYSIS DATA SHEET

LNC-FB-01

Laboratory: Empirical Laboratories, LLC   SDG: 1305125
Client: SAIC (S732)   Project: Lincoln NE ANG
Matrix: Water   Laboratory ID: 1305125-04   File ID: 0512504.D
Sampled: 05/07/13 09:00   Prepared: 05/13/13 12:35   Analyzed: 05/15/13 23:08
Solids: Preparation: EXT 3510   Dilution: 1
Batch: 3E13311   Sequence: 3E14040   Calibration: 2261001   Instrument: MS-BNA3

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
100-02-7	4-Nitrophenol		4.76	9.52	19.0	U
88-75-5	2-Nitrophenol		1.19	2.38	4.76	U
86-30-6	N-Nitrosodiphenylamine		1.19	2.38	4.76	U
621-64-7	N-Nitroso-di-n-propylamine		1.19	2.38	4.76	U
87-86-5	Pentachlorophenol		4.76	9.52	19.0	U
108-95-2	Phenol		1.19	2.38	4.76	U
95-94-3	1,2,4,5-Tetrachlorobenzene		1.19	2.38	4.76	U
58-90-2	2,3,4,6-Tetrachlorophenol		2.38	4.76	9.52	U
88-06-2	2,4,6-Trichlorophenol		1.19	2.38	4.76	U
95-95-4	2,4,5-Trichlorophenol		1.19	2.38	4.76	U

Total Target Analytes Reported: 50

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	47.62	40.93	86.0	50 - 110	
2-Fluorophenol	95.24	41.90	44.0	20 - 110	
Nitrobenzene-d5	47.62	40.86	85.8	40 - 110	
Phenol-d6	95.24	24.64	25.9	0 - 110	
Terphenyl-d14	47.62	43.11	90.5	50 - 135	
2,4,6-Tribromophenol	95.24	79.62	83.6	40 - 125	

ANALYSIS DATA SHEET

LNC-FB-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125		
Client:	SAIC (S732)			Project:	Lincoln NE ANG		
Matrix:	Water	Laboratory ID:	1305125-04	File ID:	0512504.D		
Sampled:	05/07/13 09:00	Prepared:	05/14/13 11:36	Analyzed:	06/04/13 01:09		
Solids:		Preparation:	EXT 3510	Dilution:	1		
Batch:	3E14008	Sequence:	3F15509	Calibration:	3122001	Instrument:	MS-BNA4

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
83-32-9	Acenaphthene		0.0472	0.0943	0.189	U
208-96-8	Acenaphthylene		0.0472	0.0943	0.189	U
120-12-7	Anthracene		0.0472	0.0943	0.189	U
56-55-3	Benzo(a)anthracene		0.0472	0.0943	0.189	U
50-32-8	Benzo(a)pyrene		0.0472	0.0943	0.189	U
205-99-2	Benzo(b)fluoranthene		0.0472	0.0943	0.189	U
191-24-2	Benzo(g,h,i)perylene		0.0472	0.0943	0.189	U
207-08-9	Benzo(k)fluoranthene		0.0472	0.0943	0.189	U
123-91-1	1,4-Dioxane		0.118	0.236	0.472	U
218-01-9	Chrysene		0.0472	0.0943	0.189	U
53-70-3	Dibenz(a,h)anthracene		0.0472	0.0943	0.189	U
206-44-0	Fluoranthene		0.0472	0.0943	0.189	U
86-73-7	Fluorene		0.0472	0.0943	0.189	U
193-39-5	Indeno(1,2,3-cd)pyrene		0.0472	0.0943	0.189	U
91-57-6	2-Methylnaphthalene		0.0472	0.0943	0.189	U
91-20-3	Naphthalene	**0.0822**	0.0472	0.0943	0.189	J
85-01-8	Phenanthrene		0.0472	0.189	0.377	U
129-00-0	Pyrene		0.0472	0.0943	0.189	U

Total Target Analytes Reported: 18

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorobiphenyl	47.17	34.92	74.0	50 - 110	
Terphenyl-d14	47.17	38.38	81.4	50 - 135	
2,4,6-Tribromophenol	94.34	81.39	86.3	40 - 125	X

ANALYSIS DATA SHEET

LNC-FB-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-04	File ID:	015F1501.D
Sampled:	05/07/13 09:00	Prepared:	05/14/13 19:02	Analyzed:	05/21/13 04:15
Solids:		Preparation:	EXT 3510	Dilution:	1
Batch:	3E14020	Sequence:	3E14605	Calibration:	3143004
Instrument:	GL-GCFID2				

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
11-84-7	Diesel Range Organics (C10-C28)		0.0926	0.0926	0.185	U UJ A61

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
o-Terphenyl	0.01852	0.01614	87.1	30 - 140	

ANALYSIS DATA SHEET

LNC-FB-01

Laboratory:	Empirical Laboratories, LLC			SDG:	1305125
Client:	SAIC (S732)			Project:	Lincoln NE ANG
Matrix:	Water	Laboratory ID:	1305125-C4	File ID:	006F1001.D
Sampled:	05/07/13 09:00	Prepared:	05/16/13 16:14	Analyzed:	05/16/13 16:14
Solids:		Preparation:	8015GRO	Dilution:	1

Batch: 3E16005 Sequence: 3E14043 Calibration: 3044001 Instrument: GL-GCVOA2

CAS NO.	COMPOUND	CONC. (mg/L)	DL	LOD	LOQ	Q
8006-61-9	Gasoline Range Organics (C6-C10)		0.0500	0.100	0.150	U

U

Total Target Analytes Reported: 1

SYSTEM MONITORING COMPOUND	ADDED (mg/L)	CONC (mg/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	0.05000	0.06781	136	50 - 150	

ANALYSIS DATA SHEET

LNC-FB-01

Laboratory: Empirical Laboratories, LLC
Client: SAIC (S732)
Matrix: Water
Sampled: 05/07/13 09:00

SDG: 1305125
Project: Lincoln NE ANG
Laboratory ID: 1305125-04
Received: 05/11/13 08:30

CAS NO.	Analyte	Conc. (ug/L)	DL	LOD	LOQ	D.F.	Q	Method	Batch	Analyzed
7439-92-1	Lead		0.375	0.750	0.750	1	U	SW6010B	3E28012	05/30/13 15:57

ANALYSIS DATA SHEET

LNC-TB-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID: 1305125-02	File ID:	0512502.D	
Sampled:	05/06/13 15:45	Prepared: 05/18/13 02:28	Analyzed:	05/18/13 02:28	
Solids:		Preparation: 5030B	Dilution:	1	
Batch:	3E17016	Sequence: 3E13802	Calibration:	3127004	Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
67-64-1	Acetone		2.50	5.00	10.0	U
71-43-2	Benzene		0.250	0.500	1.00	U
74-97-5	Bromochloromethane		0.250	0.500	1.00	U
75-27-4	Bromodichloromethane		0.250	0.500	1.00	U
75-25-2	Bromoform		0.250	0.500	1.00	U
74-83-9	Bromomethane		0.500	1.00	2.00	UQ
78-93-3	2-Butanone		2.50	5.00	10.0	UX
75-15-0	Carbon disulfide		0.250	0.500	1.00	U
56-23-5	Carbon tetrachloride		0.250	0.500	1.00	U
108-90-7	Chlorobenzene		0.250	0.500	1.00	U
75-00-3	Chloroethane		0.500	1.00	2.00	UX
67-66-3	Chloroform		0.250	0.500	1.00	U
74-87-3	Chloromethane		0.250	0.500	1.00	U
110-82-7	Cyclohexane		0.250	0.500	1.00	U
124-48-1	Dibromochloromethane		0.250	0.500	1.00	U
96-12-8	1,2-Dibromo-3-chloropropane		0.500	1.00	2.00	U
106-93-4	1,2-Dibromoethane (EDB)		0.250	0.500	1.00	U
95-50-1	1,2-Dichlorobenzene		0.250	0.500	1.00	U
541-73-1	1,3-Dichlorobenzene		0.250	0.500	1.00	U
106-46-7	1,4-Dichlorobenzene		0.250	0.500	1.00	U
75-71-8	Dichlorodifluoromethane		0.500	1.00	2.00	U
75-34-3	1,1-Dichloroethane		0.250	0.500	1.00	U
107-06-2	1,2-Dichloroethane		0.250	0.500	1.00	U
75-35-4	1,1-Dichloroethene		0.250	0.500	1.00	U
156-59-2	cis-1,2-Dichloroethene		0.250	0.500	1.00	U
156-60-5	trans-1,2-Dichloroethene		0.250	0.500	1.00	U
78-87-5	1,2-Dichloropropane		0.250	0.500	1.00	U
10061-01-5	cis-1,3-Dichloropropene		0.250	0.500	1.00	U
10061-02-6	trans-1,3-Dichloropropene		0.250	0.500	1.00	U
100-41-4	Ethylbenzene		0.250	0.500	1.00	U
591-78-6	2-Hexanone		1.25	2.50	5.00	U
98-82-8	Isopropylbenzene		0.250	0.500	1.00	U
75-09-2	Methylene chloride		0.500	1.00	2.00	U
79-20-9	Methyl Acetate		0.500	1.00	2.00	UX
108-87-2	Methylcyclohexane		0.250	0.500	1.00	U
108-10-1	4-Methyl-2-pentanone		1.25	2.50	5.00	UX
1634-04-4	Methyl t-Butyl Ether		0.250	0.500	1.00	U
100-42-5	Styrene		0.250	0.500	1.00	U
79-34-5	1,1,2,2-Tetrachloroethane		0.250	0.500	1.00	U
127-18-4	Tetrachloroethene		0.250	0.500	1.00	U

U

ANALYSIS DATA SHEET

LNC-TB-01

Laboratory:	Empirical Laboratories, LLC		SDG:	1305125	
Client:	SAIC (S732)		Project:	Lincoln NE ANG	
Matrix:	Water	Laboratory ID: 1305125-02	File ID:	0512502.D	
Sampled:	05/06/13 15:45	Prepared: 05/18/13 02:28	Analyzed:	05/18/13 02:28	
Solids:		Preparation: 5030B	Dilution:	1	
Batch:	3E17016	Sequence: 3E13802	Calibration:	3127004	Instrument: MS-VOA5

CAS NO.	COMPOUND	CONC. (ug/L)	DL	LOD	LOQ	Q
108-88-3	Toluene		0.250	0.500	1.00	U
87-61-6	1,2,3-Trichlorobenzene		0.250	0.500	1.00	U
120-82-1	1,2,4-Trichlorobenzene		0.250	0.500	1.00	U
79-00-5	1,1,2-Trichloroethane		0.250	0.500	1.00	U
71-55-6	1,1,1-Trichloroethane		0.250	0.500	1.00	U
79-01-6	Trichloroethene		0.250	0.500	1.00	U
75-69-4	Trichlorofluoromethane		0.500	1.00	2.00	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		0.500	1.00	2.00	U
75-01-4	Vinyl chloride		0.250	0.500	1.00	UX
108-38-3/106-42-	m,p-Xylene		0.500	1.00	2.00	U
95-47-6	o-Xylene		0.250	0.500	1.00	U

Total Target Analytes Reported: 51

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Bromofluorobenzene	30.00	27.67	92.2	75 - 120	
Dibromofluoromethane	30.00	29.52	98.4	85 - 115	
1,2-Dichloroethane-d4	30.00	30.81	103	70 - 120	
Toluene-d8	30.00	30.27	101	85 - 120	

APPENDIX D
GEOPHYSICAL REPORT

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June 28, 2013

Ms. Jill Kovalchik
Science Applications International Corporation
151 Lafayette Drive
Oak Ridge, TN 37831

Re: Historic Fuel Line Verification and UST Survey, Nebraska Air National Guard, 155th Air Refueling Wing, Lincoln, Nebraska, SAIC Project 2603200209/1000/100

Dear Jill:

Science Applications International Corporation (SAIC), Geophysical Services Division is pleased to present this letter report documenting the results of geophysical mapping services conducted to verify and/or locate underground storage tanks (USTs) and adjacent utilities prior to environmental sampling activities at the Nebraska Air National Guard (ANG). The UST/utility verification project was conducted at Aerospace Ground Equipment (AGE) Building 608. All fieldwork was completed the week of May 10, 2013.

SITE DESCRIPTION

The geophysical investigation was conducted in the grassy area at the northwest corner of AGE Building 608. A concrete pad and two drive-overs, presumably cleanouts, were present within the footprint of the survey area.

Building 608 – Former USTs (TU018)

Based on historic documents, area of concern (TU018), known as the Former Detergent and/or Waste Oil USTs at Building 608, includes former UST Tank #608-1, a 500-gal steel UST used to store waste oil from a nearby oil/water separator (OWS), and former UST Tank #608-2, a 2,000-gal fiberglass UST used to store "detergent." The two USTs were installed in 1975 and 1976, respectively. A memorandum dated November 6, 1995, indicates that at least one of the two tanks was removed in 1995, stating UST Tank #608-1 "has been backfilled. There was contamination." No mention is made of UST #608-2.

As of September 2012, ANG personnel were uncertain if UST #608-2 had been removed; the presence of subsurface piping in the grass west of Building 608 indicates that a tank may still be present. Geophysical surveying was performed at the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) to determine whether UST #608-2 remains in place.

GEOPHYSICAL APPROACH

The primary objective of the geophysical survey effort was to acquire sufficient data to determine if UST #608-2 remains in place.

The geophysical survey was conducted within an approximately 50- by 100-ft grassed area adjacent to the northwest corner of Building 608 in three phases. In the first phase of the investigation, a multi-mode passive utility locator was used to verify the location of potential underground utilities, to the extent possible. In the second phase of the investigation, an EM61-MK2 metal detector survey was conducted along traverses spaced every 2.5 ft to represent complete coverage of the survey area. The collected data were integrated with differential global positioning system (DGPS) data to produce a geo-referenced data set. In the final phase of the investigation, ground penetrating radar (GPR) was deployed in areas where electromagnetic (EM) results were inconclusive due to interference from metallic cultural features. GPR surveys were conducted over the grassy area, with refined traverses over EM anomalies to determine if they exhibit parabolic-shaped GPR reflections consistent with an UST. This phased geophysical approach increased the likelihood of identifying any remnant USTs and/or associated piping, if present, within the limitations of current available geophysical technologies.

Prior to conducting the EM61 metal detector survey, SAIC performed quality control function checks in an area free of metal in accordance with SAIC Geophysical Procedure GP-002, *Surface Electromagnetic Survey*. Background instrument response was set to zero (i.e., instrument nulling). SAIC collected pre- and post-survey static tests to monitor instrument noise levels to ensure that the instrument was functioning properly and that there was minimal ambient EM interference. Static test data revealed instrument noise levels were +/- 2 mV, within the manufacturer's specification for instrument operation. Generally speaking, metallic underground piping was expected to exhibit an EM response in the 10s of mVs. Any USTs, if present, were anticipated to exhibit EM responses in 100s to 1,000s of mVs depending on burial depth.

GEOPHYSICAL SURVEY

In the first phase, SAIC utilized a radio detection cable avoidance tool (CAT3) line locator to screen the subsurface in two separate modes (radio search mode and 60-Hertz [Hz] mode) to accurately locate subsurface utilities. Radio search mode was used to screen the subsurface for very-low-frequency radio signals re-radiated by buried metallic pipes. The locations of an underground electric line and a gas line were verified with this method. Identified utilities were marked on the ground with highly reflective marking paint and subsequently mapped with DGPS.

In the second phase of the investigation, several metallic anomalies were identified, as indicated on Figure 1.

- Anomaly A was fairly symmetrical and exhibited an EM response greater than 4,000 mV. This feature corresponded to the location of an approximately 8- by 15-ft concrete pad, presumably covering the "existing" OWS, as stated by on-site ANG personnel.
- Anomalous area B coincided with the location of an approximately 10-in.-diameter metallic drive-over cover located in the lawn area. This area also exhibited an EM shadow around one or more air conditioner unit(s) located adjacent to the building.
- Anomaly C was attributed to a second metallic drive-over, approximately 10-in- diameter, located in the grass lawn.
- Anomaly D was located immediately adjacent to the building and was attributed to cultural interference (i.e., interference caused by man-made features in the local vicinity).
- Anomaly E coincides with a gas meter that is located adjacent to the building.

FIELD DRAFT

LEGEND

- Verified Gas Line
- Verified Electric
- **A** Anomaly and Identifier

155th AIR REFUELING WING
NE AIR NATIONAL GUARD
LINCOLN, NEBRASKA

A.G.E BUILDING 608
EM61-MK2 METAL DETECTOR RESPONSE

SAIC®

job no. 2603200209/1000/100	
file no. NGB_Lincoln NE EM61MK2.SRF	
drawn J. Warren	date
checked	date
approved	date
figure no.	1

- Anomaly F is located in the northeast corner of the survey area in the grass lawn. This feature exhibited an elevated EM response between 40 and 150 mV. This feature could not be attributed to any surface features.

- Anomaly G is a linear anomaly that appears to originate at the concrete vault (the location of Anomaly A), pass by the two metallic drive-overs (Anomalies B and C), and trend towards the AGE building. The origin of this feature could not be substantiated by EM methods alone.

- Anomaly H exhibited elevated EM responses over a broad area in a consistent pattern. These features were associated with reinforcement within the concrete apron. No other distinguishable features were identified; however, the EM response from concrete reinforcements could have masked other features at depth.

In the third phase, GPR methods were used to search for additional subsurface piping not yet identified. GPR was also used to interrogate EM Anomalies A, F, and G to further substantiate their origin.

- Several scans were conducted across Anomaly A. This feature exhibited planar GPR reflections, which appeared to be confined to the footprint of the concrete pad. These reflections were a result of the pad and an associated vault at depth.

- Multiple scans were also conducted across Anomaly F. While some scans revealed parabolic-shaped signatures, a UST could not be definitively substantiated at this location. Furthermore, the EM response was not significant enough to suggest a large metal mass at depth that was consistent with a small UST.

- Scans over Anomaly G revealed faint GPR reflections that appeared to further substantiate a feature at depth.

GEOPHYSICAL SURVEY LIMITATIONS

The geophysical investigation included standard and/or routinely accepted practices of the geophysical industry. SAIC utilized qualified personnel to reduce the risk of missing a subsurface feature due to the depth it is buried, the soil type and conditions, the feature materials, or other site-specific conditions that may mask the feature of interest. However, by its nature, no subsurface survey is 100% accurate, and SAIC cannot accept responsibility for inherent survey limitations or unforeseen, site-specific conditions.

In performing the work, SAIC utilized geophysical technologies and EM detection procedures currently in use in the industry and approved by ANG in the project work plan (SAIC 2013). SAIC accepts no responsibility or liability whatsoever for inherent geophysical technique limitations, survey limitations, or unforeseen site-specific conditions. Thus, SAIC cannot guarantee that all subsurface features or anomalies were detected; however, the services provided under this contract were performed within the parameters and scope communicated by ANG and reflected in the contract and with the corresponding degree of skill and judgment.

SUMMARY

In general, an approximately 50- by 100-ft grassed area adjacent to the northwest corner of Building 608 was surveyed for evidence of historic USTs and/or associated piping. A total of eight anomalous areas (A though H) and two utilities (electric and gas) were identified. Additionally, the grassy area was surveyed with GPR methods. Refined GPR surveys were also conducted over Anomalies A, F, and G.

Anomalies A and F exhibited planar GPR reflections. Anomaly A was associated with a concrete vault or tank at depth. This feature did not exhibit parabolic-shaped reflections consistent with a UST. Based on GPR, a vault, consistent with the "existing" OWS, appeared to be confined within the footprint of the concrete pad. Anomaly F exhibited a slightly elevated EM response. This feature was interrogated with GPR but did not reveal parabolic-shaped GPR reflections consistent with a UST. Anomaly G exhibited a linear EM trend consistent with a utility. GPR data exhibited faint reflections in this area substantiating a feature at depth.

In conclusion, a vault was identified in the area of a concrete pad. USTs could not be substantiated elsewhere within the footprint of the survey area.

SAIC, Geophysical Services Division appreciates this opportunity to support the ANG project team. We look forward to your favorable review of this letter report and successful completion of the site investigation. If you have any questions or require any further information, please feel free to contact the undersigned at your convenience.

Respectfully submitted,

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

Jeffrey J. Warren, P.G.
Geophysicist

JJW:
Attachments

REFERENCES

SAIC (Science Applications International Corporation) 2005. Geophysical Procedure GP-002, *Surface Electromagnetic Survey.*

SAIC 2005. Geophysical Procedure GP-007, *Field Mapping With Global Positioning Systems.*

SAIC 2013. *Work Plan for Preliminary Assessment/Site Investigation, Compliance Restoration Program, 155th Air Refueling Wing, Nebraska Air National Guard, Forbes Field, Lincoln, Nebraska*, Final, March.

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APPENDIX E
REMEDIAL ACTION COST ENGINEERING REQUIREMENTS WORKSHEETS

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ANG RI DQO WORKSHEET

Installation Name: Nebraska Air National Guard **Site ID** TU015

City: Lincoln **State:** NE

Site Name: Former Vehicle Service Pit in Building 608

Site Description:
Former concrete pit was used to capture waste JP-4 in the service bay of the AGE.
The pit was abandoned approx. 1995, when it was filled and capped with concrete.
Reported dimensions are approximately 4 ft by 4 ft by 5-6 ft.
Site dimensions below encompass TU015, TU018, and SA019 groundwater (co-mingled).
Note that RI groundwater results (9 wells total) are expected to be used across all three AOCs.

Recommended for RI because: Multiple PAHs exceed screening criteria in soil; naphthalene exceeds screening criteria in groundwater.

Site Dimensions:

Acreage	0.4	Acres
Length	160	Feet
Width	100	Feet
Perimeter	520	Feet

Contaminants of Concern (check all that apply):

Acids/Caustics			
Asbestos			
Fuels			PCBs
SVOCs	X		Pesticides
VOCs			Metals
Other*			Low Level Radioactive

*Please specify:

Impacted Media (check all that apply):

Surface Soil			Surface Water
Subsurface Soil	X		Sediment
Groundwater	X		Vadose Zone

Type of Aquifer (check one):

Confined		X	Unconfined

Soil Type (check one):

Gravel/Gravel-Sand Mixture			Sand-Silt Mixture/Sand-Clay Mixture
Sand/Gravelly-Sand Mixture		X	Silt/Silty-Clay Mixture
Other*			

*Please specify:

For the purposes of out year programmatic assumptions:

Probable Remedial Investigation parameters:

Number of wells	3
Number of soil samples	12

Area of Contamination:

Soil

Soil Extent defined (yes or no)	No	
Soil: Approximate lateral extent	400	Sq. Feet
Depth to base of soil contamination:	12	Feet

Groundwater

GW Extent defined (yes or no)	No	
GW: Approximate lateral extent	16,000	Sq. Feet
Depth to base of GW contamination:	50	Feet
Depth to water table:	12	Feet
Depth to bedrock:	100	Feet

Site Remedial Action (check all that apply):

Dig and haul	X		NTCRA
Bio-Augmentation			Pump and treat
Bio Remediation	X		Cap
ISCO	X		Phytoremediation
Other*		X	LUC's

*Please specify:

ANG RI DQO WORKSHEET

Installation Name: Nebraska Air National Guard   **Site ID** TU018

City: Lincoln   **State:** NE

Site Name: Former Detergent and/or Waste Oil USTs at Building 608

Site Description: Former tanks 608-1 (waste oil) and 608-2 (detergent) were located at the northwest corner of building 608. Site dimensions below encompass TU015, TU018, and SA019 groundwater (co-mingled). Note that RI groundwater results (9 wells total) are expected to be used across all three AOCs.

Recommended for RI because: PAHs remain above screening criteria in groundwater; NDEQ requested the area be included in the TU015 RI.

Site Dimensions:

Acreage	0.4	Acres
Length	160	Feet
Width	100	Feet
Perimeter	520	Feet

Contaminants of Concern (check all that apply):

Acids/Caustics			
Asbestos			
Fuels			PCBs
SVOCs	X		Pesticides
VOCs			Metals
Other*			Low Level Radioactive

*Please specify:

Impacted Media (check all that apply):

Surface Soil			Surface Water
Subsurface Soil			Sediment
Groundwater	X		Vadose Zone

Type of Aquifer (check one):

Confined		X	Unconfined

Soil Type (check one):

Gravel/Gravel-Sand Mixture			Sand-Silt Mixture/Sand-Clay Mixture
Sand/Gravelly-Sand Mixture		X	Silt/Silty-Clay Mixture
Other*			

*Please specify:

For the purposes of out year programmatic assumptions:

Probable Remedial Investigation parameters:

Number of wells	3
Number of soil samples	0

Area of Contamination:

Soil

Soil Extent defined (yes or no)	n/a	
Soil: Approximate lateral extent		Sq. Feet
Depth to base of soil contamination:		Feet

Groundwater

GW Extent defined (yes or no)	No	
GW: Approximate lateral extent	16,000	Sq. Feet
Depth to base of GW contamination:	50	Feet
Depth to water table:	12	Feet
Depth to bedrock:	100	Feet

Site Remedial Action (check all that apply):

Dig and haul			NTCRA
Bio-Augmentation			Pump and treat
Bio Remediation	X		Cap
ISCO	X		Phytoremediation
Other*		X	LUC's

*Please specify:

ANG RI DQO WORKSHEET

Installation Name: Nebraska Air National Guard **Site ID** SA019

City: Lincoln **State:** NE

Site Name: Former Drop Tank Storage Area

Site Description: Area formerly used for drop tank storage, west of TU015 and TU018.
Site dimensions below encompass TU015, TU018, and SA019 groundwater (co-mingled).
Note that RI groundwater results (9 wells total) are expected to be used across all three AOCs.

Recommended for RI because: PAHs remain above screening criteria in groundwater; NDEQ requested the area be included in the TU015 RI.

Site Dimensions:

Acreage	0.4	Acres
Length	160	Feet
Width	100	Feet
Perimeter	520	Feet

Contaminants of Concern (check all that apply):

Acids/Caustics			
Asbestos			
Fuels			PCBs
SVOCs	X		Pesticides
VOCs			Metals
Other*			Low Level Radioactive

*Please specify:

Impacted Media (check all that apply):

Surface Soil			Surface Water
Subsurface Soil			Sediment
Groundwater	X		Vadose Zone

Type of Aquifer (check one):

Confined		X	Unconfined

Soil Type (check one):

Gravel/Gravel-Sand Mixture			Sand-Silt Mixture/Sand-Clay Mixture
Sand/Gravelly-Sand Mixture		X	Silt/Silty-Clay Mixture
Other*			

*Please specify:

For the purposes of out year programmatic assumptions:

Probable Remedial Investigation parameters:

Number of wells	3
Number of soil samples	0

Area of Contamination:

Soil

Soil Extent defined (yes or no)	n/a	
Soil: Approximate lateral extent		Sq. Feet
Depth to base of soil contamination:		Feet

Groundwater

GW Extent defined (yes or no)	No	
GW: Approximate lateral extent	16,000	Sq. Feet
Depth to base of GW contamination:	50	Feet
Depth to water table:	12	Feet
Depth to bedrock:	100	Feet

Site Remedial Action (check all that apply):

Dig and haul			NTCRA
Bio-Augmentation			Pump and treat
Bio Remediation	X		Cap
ISCO	X		Phytoremediation
Other*		X	LUC's

*Please specify:

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FINAL

PRELIMINARY ASSESSMENT/SITE INVESTIGATION FOR SEVEN AREAS OF CONCERN AT NEBRASKA AIR NATIONAL GUARD, LINCOLN, NEBRASKA

Compliance Restoration Program
155th Air Refueling Wing
Nebraska Air National Guard
Lincoln, Nebraska

March 2014

Disclaimer: All references to Science Applications International Corporation (SAIC) within this document now refer to Leidos, which was formerly a part of SAIC.

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FINAL

PRELIMINARY ASSESSMENT/SITE INVESTIGATION
FOR
SEVEN AREAS OF CONCERN AT
NEBRASKA AIR NATIONAL GUARD,
LINCOLN, NEBRASKA

Compliance Restoration Program
155th Air Refueling Wing
Nebraska Air National Guard
Lincoln, Nebraska

March 2014

Contract Number DAHA92-01-D-0008
Delivery Order Number 0197

Air National Guard
Restoration Branch
NGB/A7OR
3501 Fetchet Avenue
Joint Base Andrews, Maryland 20762

Prepared by
Science Applications International Corporation
Oak Ridge, Tennessee

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APPROVALS

This document has been technically reviewed for accuracy and completeness in accordance with Science Applications International Corporation (SAIC) Procedure 3.1, Document Review. All comments received from this review have been addressed and incorporated through document revision as appropriate.

Mark E. Kidder

Mark E. Kidder, SAIC Program Manager — March 27, 2014 (Date)

Matthew B. Vest

Matthew B. Vest, SAIC Peer Reviewer — March 27, 2014 (Date)

Jill M. Kovalchik

Jill M. Kovalchik, Lead Document Preparer — March 27, 2014 (Date)

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CONTENTS

TABLES

FIGURES

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ACRONYMS

ANG	Air National Guard
ANGB	Air National Guard Base
AOC	area of concern
BGS	below ground surface
CRP	Compliance Restoration Program
DQO	data quality objective
DRO	diesel-range organics
EOD	explosive ordnance disposal
EPA	U. S. Environmental Protection Agency
GRO	gasoline-range organics
HRS	Hazard Ranking System
IRP	Installation Restoration Program
JP	jet propellant
LOD	limit of detection
LOQ	level of quantitation
MCL	maximum contaminant level
MDC	maximum detected concentration
NDEC	Nebraska Department of Environmental Control
NDEQ	Nebraska Department of Environmental Quality
NDNR	Nebraska Department of Natural Resources
NFA	no further action
NGB	National Guard Bureau
OWS	oil/water separator
PA	preliminary assessment
PVC	polyvinyl chloride
RG	remediation goal
RI	remedial investigation
RSL	regional screening level
SAIC	Science Applications International Corporation
SI	site investigation
SSL	soil screening level
SVOC	semivolatile organic compound
TPH	total petroleum hydrocarbons
TRPH	total recoverable petroleum hydrocarbons
TWP	temporary well point
UST	underground storage tank
VOC	volatile organic compound
WP	work plan
XRF	x-ray fluorescence

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EXECUTIVE SUMMARY

Science Applications International Corporation has prepared this Preliminary Assessment/Site Investigation (PA/SI) Report on behalf of the Air National Guard to document the results of PA/SI activities conducted at seven areas of concern (AOCs) at the Lincoln ANG Base (ANGB), Lincoln, Nebraska. Seven AOCs were selected for PA/SI activities under the Compliance Restoration Program (CRP) at Lincoln ANGB based upon preliminary records reviews and a site reconnaissance visit conducted in September 2012. These seven AOCs were assigned alphanumeric identifiers, comprised of two letters and three digits, for tracking purposes. The two letters indicate the type of area under investigation, while the numerical portion of the identifier is assigned sequentially at each Installation without regard for the type of AOC. At Lincoln ANGB, AOC identifiers include the following two letter combinations: TU (for an underground storage tank [UST]), SA (for a storage area), and OW (for an oil/water separator [OWS]). The seven AOCs are the Former Vehicle Service Pit in Building 635 (TU014), Former Vehicle Service Pit in Building 608 (TU015), Battery Acid Neutralization Pit in Building 635 (TU016), Battery Acid Neutralization Pit in Building 636 (TU017), Former Detergent and/or Waste Oil USTs at Building 608 (TU018), Former Drop Tank Storage Area at Building 608 (SA019), and Former OWS at Building 605 (OW020).

ES.1 INVESTIGATIVE ACTIVITIES

On-site PA activities were conducted in conjunction with an Installation-specific kickoff meeting at Lincoln ANGB the week of September 5, 2012. SI field activities, which included soil sampling at five of the seven AOCs and groundwater sampling at four of the seven AOCs, were conducted from May 6 through 10, 2013. Geophysical surveying was conducted at the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) on May 6 and 7, 2013, to confirm the presence/absence of remaining subsurface infrastructure.

Building 635. Two AOCs are located within the Former Vehicle Maintenance Shop, which was remodeled in the mid-1990s: the Former Vehicle Service Pit in Building 635 (TU014) and the Battery Acid Neutralization Pit in Building 635 (TU016). The two AOCs are located in adjacent bays in the southeast corner of the building.

The Former Vehicle Service Pit in Building 635 (TU014) is located within what is now a storage room (Room 118C) for Base Civil Engineering. Although the pit has been filled in, and a new concrete floor was poured, no historical environmental sampling is believed to have been conducted. During SI field activities, a total of three soil samples and one groundwater sample were collected from two boring locations and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and total petroleum hydrocarbons (TPH).

The Battery Acid Neutralization Pit in Building 635 (TU016) was reportedly located in what is now an equipment storage room for explosive ordnance disposal personnel. During SI field activities, three soil borings were advanced to approximately 5 ft below ground surface (BGS) in the area of the former pit. Field x-ray fluorescence (XRF) screening for lead was conducted on the retrieved soil cores, and one soil sample for off-site analysis of lead was collected from each soil boring from the interval with the highest lead concentration based on the XRF screening.

Building 608. Three AOCs at or near Building 608 were identified for PA/SI activities: the Former Vehicle Service Pit in Building 608 (TU015), the Former Detergent and/or Waste Oil USTs at Building 608 (TU018), and the Former Drop Tank Storage Area at Building 608 (SA019). The three AOCs at Building 608 lie in close proximity to one another. The Former Vehicle Service Pit in

Building 608 (TU015) is located within the building, the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) is located adjacent to its northwest corner, and the Former Drop Tank Storage Area at Building 608 (SA019) is located west of the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) on the apron.

The Former Vehicle Service Pit in Building 608 (TU015), presumably used for F4 wing tanks, was a concrete sump reported to be approximately 4 ft wide, 4 ft long, and 5 to 6 ft deep. During SI field activities, a total of four soil samples and two groundwater samples were collected from two boring locations and analyzed for VOCs, SVOCs, and TPH.

The Former Detergent and/or Waste Oil USTs at Building 608 (TU018) AOC includes UST Tank #608-1, a 500-gal steel UST used to store waste oil from a nearby OWS, and UST Tank #608-2, a 2,000-gal fiberglass UST used to store "detergent." UST Tank #608-1 was removed in 1995 as part of a Base-wide UST removal project; however, no documentation confirming the removal of UST Tank #608-2 was located during the PA. During SI field activities, a geophysical survey, using electromagnetic and ground-penetrating radar technologies, was conducted to confirm the presence or absence of former detergent Tank #608-2. No UST was substantiated within the survey area. Subsequently, a total of six soil and three groundwater samples were collected from three boring locations and analyzed for VOCs, SVOCs, and TPH.

The Former Drop Tank Storage Area at Building 608 (SA019) was located west of Building 608. A concrete pad built for drop tank storage reportedly sloped away from Building 608 and onto a grassy area to the west (BB&E 2011b). During SI field activities, a total of six soil samples and three groundwater samples were collected from three boring locations and analyzed for VOCs, SVOCs, and TPH.

Building 636. The Battery Acid Neutralization Pit in Building 636 (TU017) was constructed outside of the battery room during building construction in 1992. According to shop personnel, very little battery acid was discharged to the floor drain. During the September 5, 2012, Installation-specific kickoff meeting, Mr. Wade Gregson and Mr. Ed Southwick of the Nebraska Department of Environmental Quality (NDEQ) indicated agreement with the assumption that, due to the 1992 installation date for this battery neutralization pit, it was likely that little to no battery acid was discharged to the battery room floor drain (most of the vehicle batteries after 1992 were sealed and did not require filling). NDEQ indicated that sampling would not be necessary at this location if the neutralization pit was found to be intact and structurally sound. A photograph of the pit taken on September 5, 2012, illustrates that the pit is intact and structurally sound and, thus, no sampling was conducted at the Battery Acid Neutralization Pit in Building 636 (TU017). Further investigation of this AOC is not warranted.

Building 605. The Former OWS at Building 605 (OW020) (also known as Tank #6055-1) was a 500-gal concrete structure installed in 1973. The OWS received used solvents and oils via the Building 605 shop floor and trench drains, as well as from the parts cleaning room in the Former Jet Engine Shop. In 1996, NDEQ issued a letter stating that no further action (NFA) was required at Tank #605-1 based upon a Closure Assessment Report (NDEQ 1996). Subsequently, monitoring wells in the Building 605 area were abandoned under NDEQ oversight. Based upon review of these historical records, no sampling was conducted at the Former OWS at Building 605 (OW020). Further investigation of this AOC is not warranted.

ES.2 RESULTS

Based upon the results of PA activities, the Battery Acid Neutralization Pit in Building 636 (TU017) was determined not to warrant further investigation, and the Former OWS at Building 605 (OW020) was determined to have been granted NFA by NDEQ in 1996. Therefore, sampling was only conducted at five

AOCs during the SI phase. Results of soil analyses were compared to May 2013 U. S. Environmental Protection Agency (EPA) regional screening levels (RSLs) under a residential scenario, soil to groundwater leaching criteria (as appropriate), and September 2012 NDEQ Voluntary Cleanup Program (VCP) remediation goals (RGs) for direct contact and protection of groundwater. Groundwater results were compared to the federal maximum contaminant level (MCL) and the NDEQ VCP groundwater criteria; if no MCL exists for a given constituent, the EPA RSL for tap water was used instead.

Former Vehicle Service Pit in Building 635 (TU014). One SVOC (naphthalene) was detected in soil at concentrations greater than screening criteria. Naphthalene was detected in one soil sample at sample location TU014-SB2 in the 8.7- to 9.5-ft BGS interval at a concentration of 21.7J µg/kg. Naphthalene was not detected in the shallower interval (6.4 to 7.5 ft BGS) of this soil boring. While the detected concentration does not exceed the EPA RSL (3,600 µg/kg) or the NDEQ direct contact RG (4,300 µg/kg), the detection exceeded the EPA soil screening level of 0.47 µg/kg and the NDEQ migration to groundwater RG (9.4 µg/kg). All other VOCs and SVOCs were not detected in soil or were detected at concentrations less than their respective screening criteria. TPH was not detected in soil. No VOCs, SVOCs, or TPH were detected in groundwater.

Former Vehicle Service Pit in Building 608 (TU015). Four VOCs (cyclohexane, ethylbenzene, isopropylbenzene, and xylene [both m,p-xylene and o-xylene isomers]) and four SVOCs (benz[a]anthracene, bis[2-ethylhexyl]phthalate, 2-methylnaphthalene, and naphthalene) were detected in one or more subsurface soil samples at the Former Vehicle Service Pit in Building 608 (TU015) above one or more soil screening criteria for the protection of groundwater; no constituents detected in soil exceeded residential direct contact criteria. All other VOCs and SVOCs were not detected in soil or were detected at concentrations less than their respective screening criteria. TPH was detected in three of four soil samples, with a maximum detected TPH-diesel-range organics (DRO) concentration of 120 mg/kg in TU015-SB1 in the 8.3- to 10.0-ft BGS interval and a maximum detected TPH-gasoline-range organics (GRO) concentration of 810J mg/kg in TU015-SB2. Soil boring TU015-SB2 demonstrated the highest concentrations of VOCs and TPH-GRO in soil, while TU015-SB1 yielded the highest concentrations of SVOCs and TPH-DRO in soil.

TPH and all eight constituents detected in soil above screening criteria for the protection of groundwater were also detected in groundwater; although, only one (naphthalene) was detected in groundwater above screening criteria. Naphthalene was detected at 2.46 µg/L in TU015-SB1 and at 2.08 µg/L in TU015-SB2; both detections exceeded the EPA RSL and equivalent NDEQ RG (0.14 µg/L) for groundwater. Benzene was also detected in both groundwater samples at 2.89 µg/L in TU015-SB1 and at 1.55 µg/L in TU015-SB2. The only detected concentration of benzene that exceeded the MCL and equivalent NDEQ RG (5 µg/L) for groundwater came from the field duplicate sample (14.8 µg/L).

Battery Acid Neutralization Pit in Building 635 (TU016). Field XRF screening for lead was conducted on all three retrieved soil cores, with results ranging from below the limit of detection to 11±5 mg/kg. The highest lead concentrations, based on the XRF screening, were detected within the 0.5- to 2.5-ft BGS interval. Lead was detected in all three samples analyzed by the off-site laboratory at concentrations ranging from 11.7 to 14.6 mg/kg. None of the detected concentrations exceed the EPA RSL and equivalent NDEQ VCP RG for lead of 400 mg/kg.

Former Detergent and/or Waste Oil USTs at Building 608 (TU018). Methylene chloride was the only detected constituent in soil to exceed soil screening criteria; however, all methylene chloride results were rejected due to probable laboratory contamination. All other VOCs and SVOCs were not detected in soil or were detected at concentrations less than their respective screening criteria. TPH was not detected in soil. Four SVOCs (benz[a]anthracene, benzo[b]fluoranthene, indeno[1,2,3-cd]pyrene, and naphthalene) were detected in groundwater at concentrations greater than one or more screening criteria.

Benz(a)anthracene, benzo(a)fluoranthene, and indeno(1,2,3-cd)pyrene were detected in groundwater at concentrations less than 0.1 µg/L, while naphthalene was detected at a maximum detected concentration (MDC) of 10.0 µg/L. All other VOCs and SVOCs were not detected in groundwater or were detected at concentrations less than their respective screening criteria. TPH-DRO was detected in two groundwater samples with an MDC of 0.657 mg/L, and TPH-GRO was detected in one of three groundwater samples at a concentration of 0.363 mg/L.

Former Drop Tank Storage Area at Building 608 (SA019). Methylene chloride was the only constituent in soil to exceed soil screening criteria; however, all methylene chloride results were rejected due to probable laboratory contamination. All other VOCs and SVOCs were not detected in soil or were detected at concentrations less than their respective screening criteria. TPH was detected in two soil samples, with the MDCs of TPH-DRO (228J mg/kg) and TPH-GRO (65.2 mg/kg) both detected in the 1.9- to 3.3-ft BGS interval of SA019-SB3. Three SVOCs (benz[a]anthracene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) were detected in groundwater at concentrations greater than one or more screening criteria. All three polycyclic aromatic hydrocarbons were detected in groundwater at concentrations below 0.2 µg/L; the MDC for all three occurred at SA019-SB3. All other VOCs and SVOCs were not detected in groundwater or were detected at concentrations less than their respective screening criteria. TPH was not detected in groundwater.

ES.3 HAZARD RANKING SYSTEM SCORING

Due to no evidence of contamination above screening levels at several AOCs and a lack of receptors and/or exposure pathways at the remaining AOCs, no Hazard Ranking System scoring was conducted.

ES.4 RECOMMENDATIONS

Based upon the results of PA activities, two AOCs were determined not to warrant field investigation: the Battery Acid Neutralization Pit in Building 636 (TU017) and the Former OWS at Building 605 (OW020). Administrative closure of these two AOCs within the CRP is recommended.

Lead was not detected in soil above screening criteria at the Battery Acid Neutralization Pit in Building 635 (TU016), and the only constituent detected above screening criteria t at the Former Vehicle Service Pit in Building 635 (TU014) was naphthalene. The detected concentration does not warrant further investigation or remedial action. NFA is recommended for the following:

- the Former Vehicle Service Pit in Building 635 (TU014), and
- the Battery Acid Neutralization Pit in Building 635 (TU016).

Analytical results of groundwater sampling at all three Building 608 AOCs (the Former Vehicle Service Pit in Building 608 [TU015], the Former Detergent and/or Waste Oil USTs at Building 608 [TU018], and the Former Drop Tank Storage Area at Building 608 [SA019]) are consistent with historical petroleum groundwater impacts in the Building 608 area (e.g., Installation Restoration Program Site 10, which was granted NFA in 2013) and are not necessarily indicative of new source(s). However, the consistency among individual contaminants detected in both soil and groundwater beneath Building 608 and the significant soil contaminant concentrations identified in the SI indicate that a remedial investigation at the Former Vehicle Service Pit in Building 608 (TU015) is warranted. As petroleum impacts to groundwater are evident throughout the vicinity, additional investigation is recommended at the Building 608 AOCs:

- the Former Vehicle Service Pit in Building 608 (TU015),
- the Former Detergent and/or Waste Oil USTs at Building 608 (TU018), and
- the Former Drop Tank Storage Area at Building 608 (SA019).

Table ES-1 summarizes information relevant to the ongoing data quality objective process for each of the three AOCs recommended for further investigation. Completed Remedial Action Cost Engineering Requirements worksheets are included as Appendix E for National Guard Bureau programming purposes.

Table ES-1. Information Relevant to the DQO Process

AOC	Constituents Detected Above Screening Criteria	Sampling Recommendation(s)	Objectives
Former Vehicle Service Pit in Building 608 (TU015)	Soil: cyclohexane, ethylbenzene, isopropylbenzene, xylene (both m,p-xylene and o-xylene isomers), benz(a)anthracene, bis(2-ethylhexyl)phthalate, 2-methylnaphthalene, and naphthalene Groundwater: naphthalene and benzene	Soil: 12 soil samples Groundwater: 3 wells (9 total at Building 608)	Determine the nature and extent of contaminated media. Evaluate the risk posed by current concentrations in soil and groundwater, including vapor intrusion at Building 608
Former Detergent and/or Waste Oil USTs at Building 608 (TU018)	Soil: none Groundwater: benz(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, and naphthalene	Soil: none Groundwater: 3 wells (9 total at Building 608)	Determine the nature and extent of contaminated media. Evaluate the risk posed by current concentrations in groundwater, including vapor intrusion at Building 608
Former Drop Tank Storage Area at Building 608 (SA019)	Soil: none Groundwater: benz(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene	Soil: none Groundwater: 3 wells (9 total at Building 608)	Determine the nature and extent of contaminated media. Evaluate the risk posed by current concentrations in groundwater, including vapor intrusion at Building 608

AOC = Area of concern.
DQO = Data quality objective.
UST = Underground storage tank.

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1.0 INTRODUCTION

Science Applications International Corporation (SAIC) has prepared this Preliminary Assessment/Site Investigation (PA/SI) Report on behalf of the Air National Guard (ANG) to document the results of PA/SI activities conducted at seven areas of concern (AOCs) at the Lincoln ANG Base (ANGB), Lincoln, Nebraska (Figure 1-1). PA/SI activities were performed within the Compliance Restoration Program (CRP) under National Guard Bureau (NGB) Contract Number DAHA92-01-D-0008, Delivery Order Number 0197. All field activities were conducted in accordance with the *Work Plan for Preliminary Assessment/Site Investigation, Compliance Restoration Program, 155th Air Refueling Wing, Nebraska Air National Guard, Lincoln, Nebraska* (ANG 2013).

1.1 PROJECT OBJECTIVES AND SCOPE

The primary objective of the PA/SI is to determine the presence or absence of contamination at each identified AOC and to either

- obtain a no further action (NFA) decision with regulatory concurrence for qualifying AOCs, or
- identify the data quality objectives (DQOs) for conducting follow-on remedial investigations (RIs) at AOCs that do not meet the criteria for NFA.

PA/SIs are used to evaluate one or more known or potential releases of hazardous substances at a site. The PA is a limited-scope compilation of readily available information about a site and its surroundings. Information is gathered through visual site surveys, document reviews, and interviews; a PA does not typically include sampling. The main purpose of the PA is to distinguish sites that pose little or no threat to human health and the environment from those that may pose a threat. If the PA determines that further investigation is warranted, an SI is conducted.

The main purpose of the SI is to collect and analyze environmental samples to determine what chemicals, if any, are present at the site; provide information required to determine the Hazard Ranking System (HRS) score for the site; and determine if response actions may be needed. Analytical data are compared to appropriate risk-based screening criteria, background data, and/or established regulatory criteria to determine whether further investigation is required. Following an SI, additional investigation may occur in an RI; response actions may be conducted at any point in the process.

Seven AOCs, as listed in Table 1-1 and depicted in Figure 1-2, were selected for PA/SI activities based upon preliminary records reviews and a site reconnaissance visit conducted in May 2011 under the One Clean initiative. These seven AOCs were assigned alphanumeric identifiers, comprised of two letters and three digits, for tracking purposes. The two letters indicate the type of area under investigation, while the numerical portion of the identifier is assigned sequentially at each Installation without regard for the type of AOC. At Lincoln ANGB, AOC identifiers include the following two letter combinations: TU (for an underground storage tank [UST]), SA (for a storage area), and OW (for the location of an oil/water separator [OWS]). The seven AOCs are formally known as the Former Vehicle Service Pit in Building 635 (TU014), Former Vehicle Service Pit in Building 608 (TU015), Battery Acid Neutralization Pit in Building 635 (TU016), Battery Acid Neutralization Pit in Building 636 (TU017), Former Detergent and/or USTs at Building 608 (TU018), Former Drop Tank Storage Area at Building 608 (SA019), and Former OWS at Building 605 (OW020).

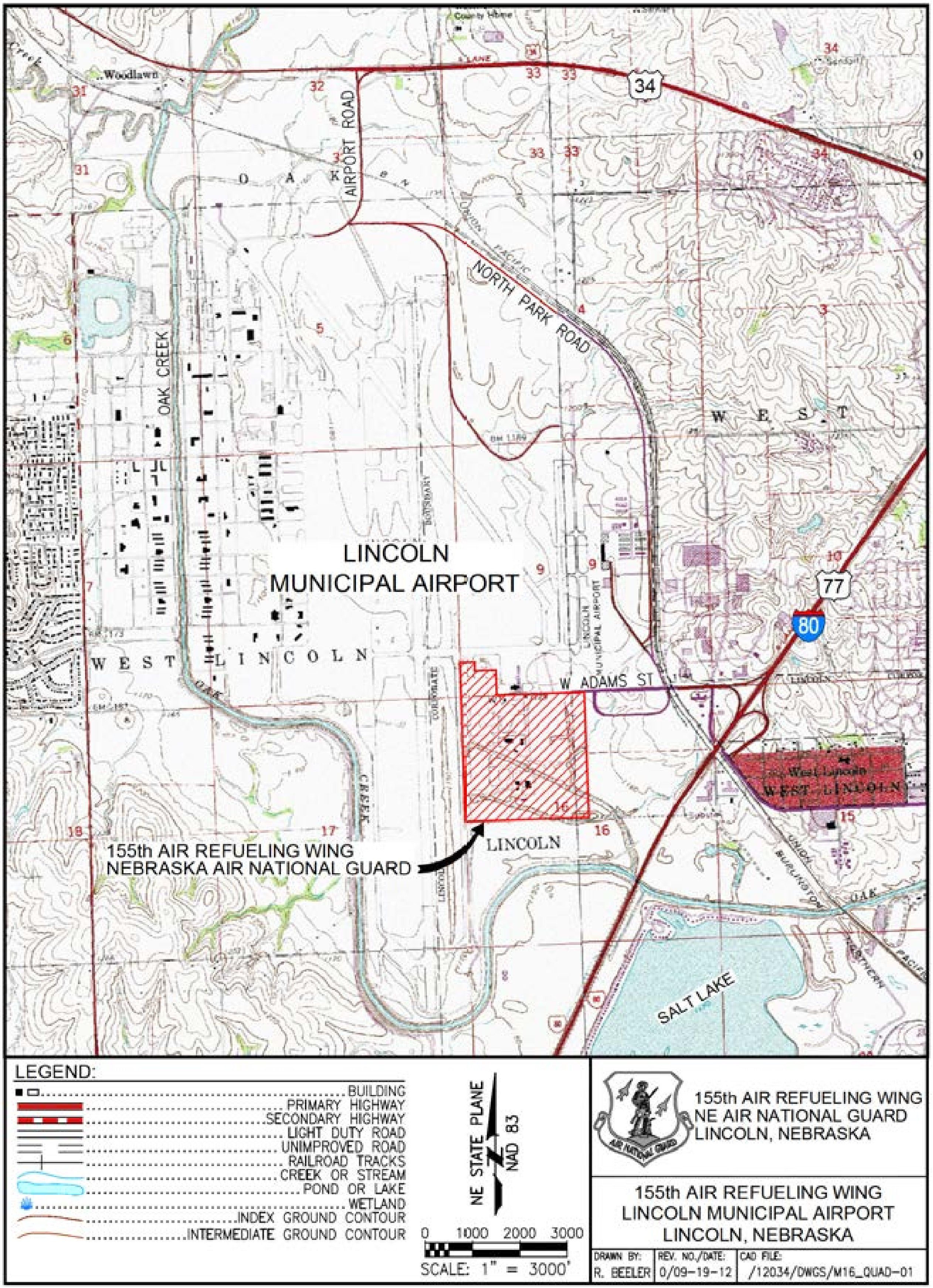

Figure 1-1. Location Map for the 155th Air Refueling Wing, Lincoln Municipal Airport, Lincoln, Nebraska

Table 1-1. AOCs Identified for PA/SI Activities at Lincoln ANGB

AOC ID	AOC Name
TU014	Former Vehicle Service Pit in Building 635
TU015	Former Vehicle Service Pit in Building 608
TU016	Battery Acid Neutralization Pit in Building 635
TU017	Battery Acid Neutralization Pit in Building 636
TU018	Former Detergent and/or Waste Oil USTs at Building 608
SA019	Former Drop Tank Storage Area at Building 608
OW020	Former OWS at Building 605

ANGB = Air National Guard Base.
AOC = Area of concern.
ID = Identifier.
OWS = Oil/water separator.
PA = Preliminary assessment.
SI = Site investigation.
UST = Underground storage tank.

On-site PA activities were conducted in conjunction with an Installation-specific kickoff meeting at Lincoln ANGB the week of September 5, 2012. SI field activities, which included soil sampling at four of the seven AOCs and groundwater sampling at three of the AOCs, were conducted from May 6 through May 10, 2013. In addition, geophysical surveying was conducted at the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) on May 6 and 7, 2013, to verify the presence/absence of subsurface infrastructure. This PA/SI Report summarizes the results of the PA, describes SI field activities, presents analytical results of environmental sampling and geophysical survey, and provides recommendations for each AOC.

1.2 REPORT ORGANIZATION

Following the outline established in the PA/SI Work Plan (WP; ANG 2013), this report is divided into the following chapters:

Chapter 1.0. ***Introduction***—Summarizes the purpose and scope of this PA/SI Report.

Chapter 2.0. ***Installation Description***—Presents the description and history of the Base.

Chapter 3.0. ***Environmental Setting***—Describes the geographic and environmental setting of the Base. Information on the regional and local climate, topography, geology, hydrogeology, hydrology, and soil is provided.

Chapter 4.0. ***Preliminary Assessments***—Presents the history and background of each AOC and provides the results of the AOC site visits.

Chapter 5.0. ***Site Investigation Field Program***—Details the AOC-specific field investigation activities and methods and summarizes the results.

Chapter 6.0. ***Inventory of Water Supply and Monitoring Wells***—If applicable, provides an inventory of water supply and monitoring wells in the vicinity of each AOC.

Chapter 7.0. ***Area of Concern Pathway and Environmental Hazard Assessments***—Describes the potential exposure pathways and provides the U. S. Environmental Protection Agency (EPA) HRS QuickScore for each AOC, if applicable.

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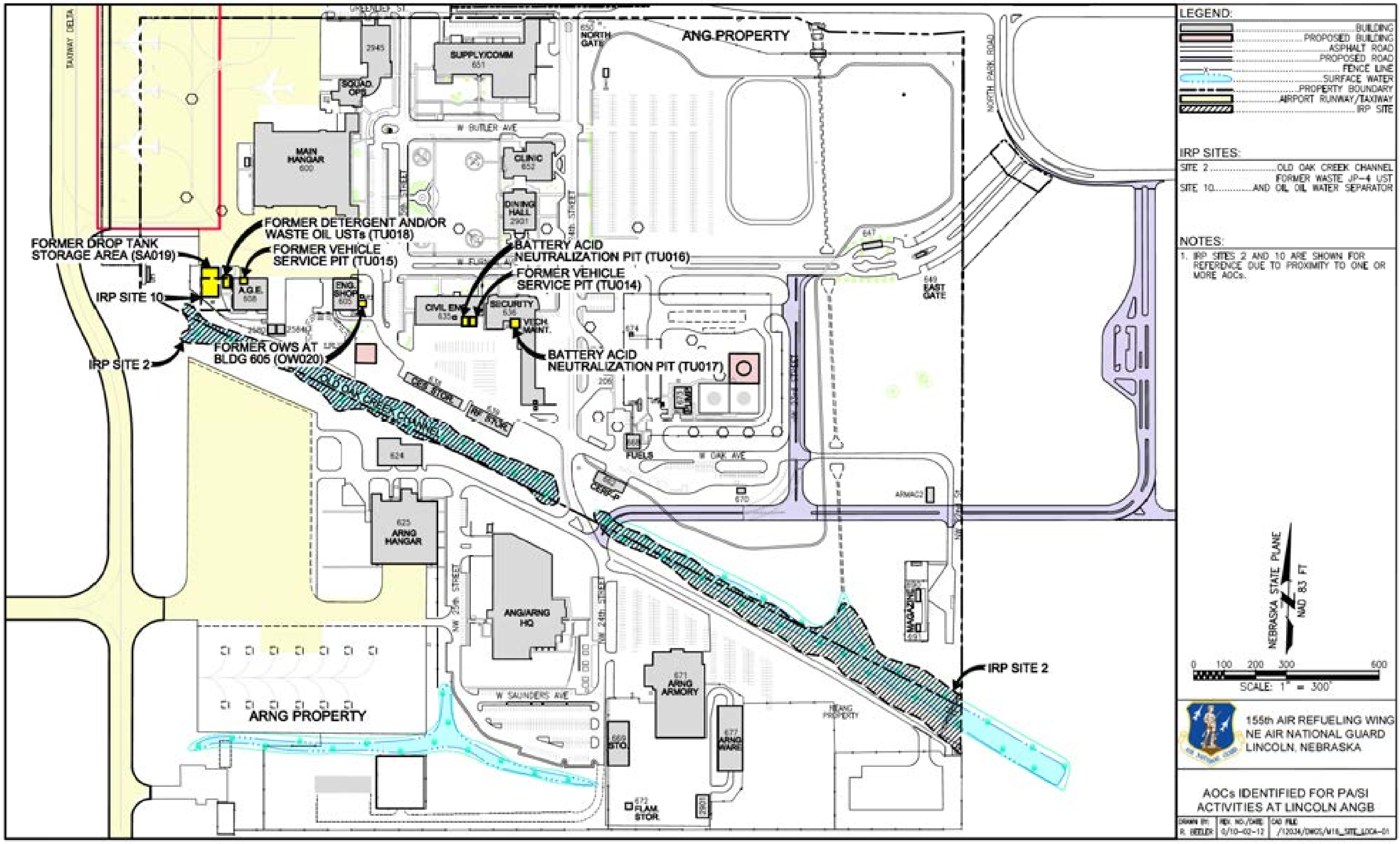

Figure 1-2. AOCs Investigated Under CRP at Lincoln ANGB

Chapter 8.0. ***Conclusions and Recommendations***—Summarizes the PA/SI conclusions and recommendations for either NFA or additional investigation of each AOC.

Chapter 9.0. ***References***—Lists the references that were used in preparing this PA/SI Report.

Appendices—The following appendices are included in this PA/SI Report:

Appendix A. Historical Documents
Appendix B. Boring Logs
Appendix C. Analytical Results (includes a discussion of methylene chloride and acetone results)
Appendix D. Geophysical Report
Appendix E. Remedial Action Cost Engineering Requirements Worksheets

2.0 INSTALLATION DESCRIPTION

This chapter summarizes available background information on the Nebraska ANG 155th Air Refueling Wing at Lincoln ANGB and the seven subject AOCs.

2.1 INSTALLATION SETTING

The Lincoln Airport is located in Lancaster County and is approximately 5 miles northwest of the capital city of Lincoln in southeast Nebraska (Figure 1-1). Lincoln ANGB consists of approximately 180 acres, of which the majority is owned by the U.S. Air Force and leased to Nebraska ANG. Another 38.5 acres is leased to the Nebraska Army National Guard, which occupies the southern end of the site.

2.2 HISTORY AND CURRENT OPERATIONS

Lincoln Airport was originally established as the Lincoln Army Airfield in 1942 as a combat crew processing center and Airplane Mechanics School during World War II where it operated until 1946. At this time, Nebraska ANG was activated and occupied several buildings along the western side of the airfield until it was returned to the city of Lincoln in 1948. It was later reactivated in 1952 and renamed the Lincoln Air Force Base where it operated until 1968 when it was returned to the city of Lincoln for the second time.

The southeastern portion of the airport was divided into thirds, with the U.S. Navy acquiring the northern two thirds in 1953 and the U.S. Air Force acquiring the southern third in 1954. The U.S. Navy operated a Naval Air Station from approximately 1954 to 1959 prior to being acquired by the U.S. Air Force. At this time, ANG operations moved north to the former U.S. Navy facilities, where they have remained. With the exception of several new structures, the general layout of the Installation has not changed significantly since 1966.

2.3 LAND USE

A 2012 zoning map provided by the Lancaster County Planning Department (Figure 2-1) indicates that the immediate area surrounding Lincoln Airport is primarily agricultural land with some residential and business districts to the west (Lancaster County Planning Department 2012).

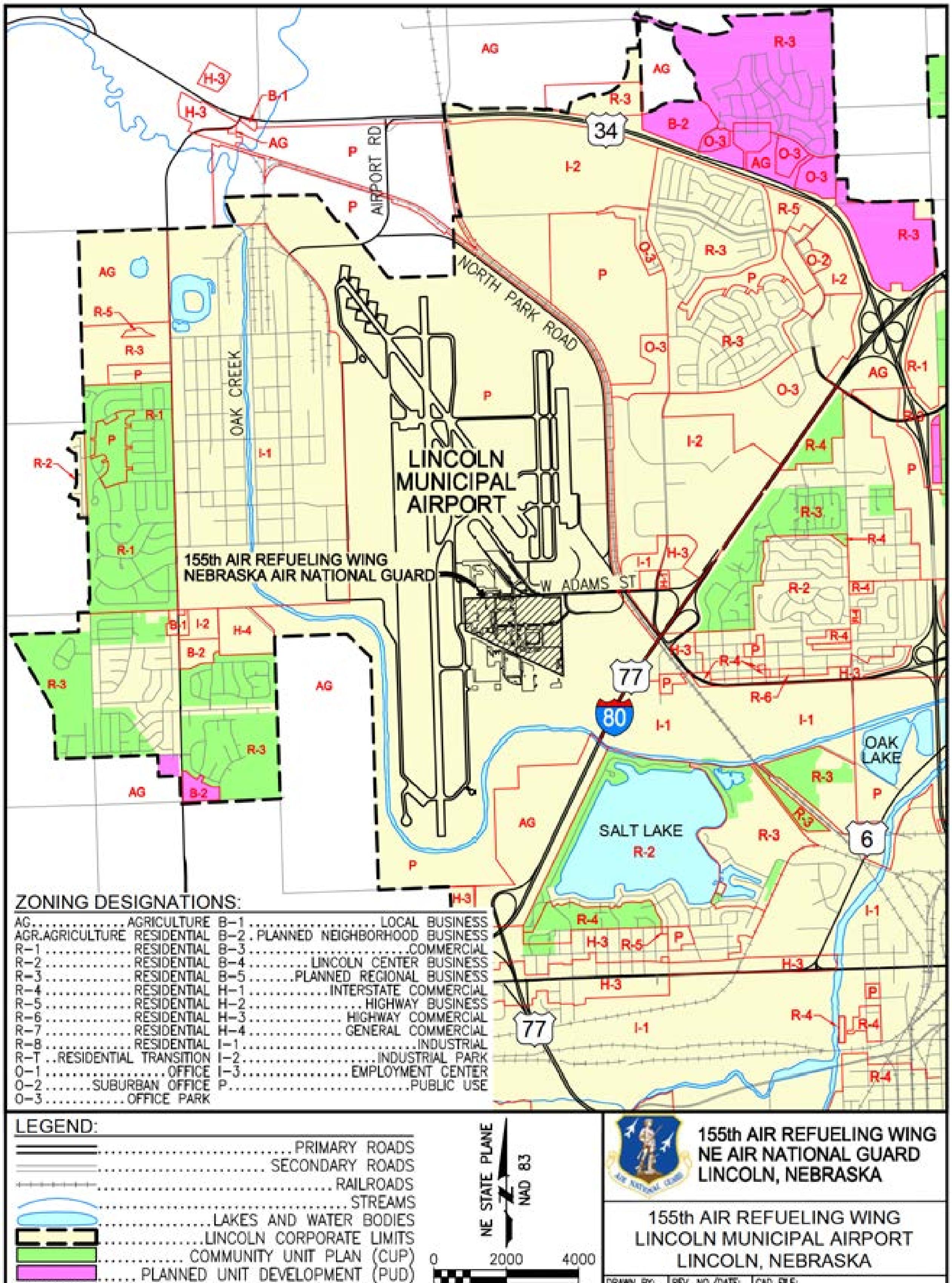

Figure 2-1. Land Use in the Vicinity of Lincoln Municipal Airport

3.0 ENVIRONMENTAL SETTING

This chapter summarizes the Lincoln ANGB environmental setting.

3.1 LOCATION AND TOPOGRAPHY

Lincoln ANGB is located near Salt Creek and the adjoining saline wetlands of northern Lancaster County. The topography consists of gently rolling hills, and the average surface elevation in the area is 1,167 ft above mean sea level.

3.2 ENVIRONMENTAL SETTING

The following subsections describe the environmental setting at Lincoln ANGB. Much of the information presented below was originally presented in the *Preliminary Assessment for the 155th Tactical Reconnaissance Group, Nebraska Air National Guard, Lincoln Municipal Airport, Lincoln, Nebraska* (HTRC 1987).

3.2.1 Climate

The climate in Lincoln is defined as humid continental and is characterized by four highly variable seasons. The average winter temperature is 27°F and summer is 76°F. The average annual precipitation is 27.77 in. and is more prevalent in the warmer months when thunderstorms commonly produce tornadoes. Snow is generally light with an average annual snow fall of 28 in., but there is the potential for blizzards, although not often with the dry conditions and frequent thaws.

3.2.2 Geology

The Base, located in the southeastern part of Nebraska, is situated on the eastern edge of the Great Plains. Bedrock in the Lincoln area is comprised of Cretaceous-aged sandstone and shale. The primary bedrock unit encountered in this area is the lower Cretaceous Dakota Group, which includes the Lakota Formation and Fuson Shale. The Dakota group, whose thickness averages 350 to 400 ft, underlies most of Nebraska and extends into the northern Great Plains, eventually outcropping in the foothills of the Rocky Mountains, the Laramie Range, and the Black Hills. In Lancaster County, Nebraska, bedrock is overlain by unconsolidated sediment of the Quaternary period, which can be characterized by two lithostratigraphic units. The upper unconsolidated unit is approximately 10 to 22 ft of eolian silt and clay deposits; the lower unconsolidated unit is comprised of approximately 15 ft of well-sorted fluvial sand and gravel and is thickest in paleostream channels in the underlying Cretaceous bedrock.

3.2.3 Soil

According to the U. S. Department of Agriculture Soil Conservation Service, the upper 5 ft of native soil at Lincoln ANGB belongs to the Sharpsburg-Judson, Kennebec-Nodaway-Zook, or Crete-Sharpsburg Associations.

Kennebec-Nodaway-Zook soil is characterized as deep, nearly level to very gently sloping, and moderately well-drained to poorly drained silty soil. It is found on the southern and western portions of Lincoln ANGB. The Crete-Sharpsburg soil, found in the central and eastern portions of the Base, is characterized as deep, nearly level to gently sloping, moderately well-drained silty soil formed on stream terraces. The Sharpsburg-Judson soil is classified as deep, nearly level to moderately steep, and moderately well-drained; this silty soil is found in the northeast corner of the Base, where it formed in loess and colluvium on uplands and foot slopes.

3.2.4 Groundwater

Groundwater occurs in two aquifers at Lincoln ANGB: a shallow unconfined aquifer and a deep confined aquifer. The unconfined aquifer is found within the unconsolidated sands and clayey soil formed during the Quaternary age that extend to a depth of 90 ft below ground surface (BGS) in some places. The shallow aquifer is generally encountered at approximately 12 ft BGS with a saturated thickness of approximately 40 ft and flows southwest towards Oak Creek. The unconfined and confined aquifers are separated by a thick silty clay layer.

The deep confined aquifer occurs within the Cretaceous Dakota Formation and serves as the principal aquifer in the area, although not the primary source of drinking water due to its variable quality and transmissivity. This formation is characterized by fine- to coarse-grained sandstone that is poorly consolidated with lenses of shale and mudrock. The aquifer begins at depths between 125 and 150 ft BGS and ranges in thickness from 0 to 350 ft. Regional flow is generally southwest to south, and average transmissivity is estimated at 4,000 gal per day foot but can be as high as 50,000 gal per day foot.

No registered water wells are found within a 1-mile radius of Lincoln ANGB. There are 10 groundwater monitoring wells located on-site associated with historical investigations; abandonment of these wells is planned within the near future. As of August 2012, no drinking water wells were identified within a 4-mile radius of the Base.

3.2.5 Surface Water Hydrology

Lincoln ANGB is located within the Salt Creek drainage area. The Base stormwater collection system drains to the Old Oak Creek Channel, a semi-stagnant channel abandoned during runway construction when Oak Creek was rerouted. The Old Oak Creek Channel extends from within the western Base boundary adjacent to Building 608 to the southeast corner of the Base, with flow only during periods of precipitation. The channel drains to Oak Creek, which runs along the west, south, and southeast sides of the Lincoln Airport. Oak Creek is a highly channelized stream that converges with Salt Creek approximately 3 miles east of the Base.

The *Installation Restoration Program, Site Investigation Report Volume 1: Sections 1 Through 6, Appendix A, 155th Air Refueling Group, Nebraska ANG, Lincoln Municipal Airport, Lincoln, Nebraska*, reported approximately 1 mile of wetlands on Base, occurring in narrow bands along two intermittent streams (one of them, the Old Oak Creek Channel). Salt marshes occur in several places along Salt Creek downstream of the Base.

3.2.6 Critical Habitats/Threatened or Endangered Species

According to the U. S. Fish and Wildlife Service, as of February 2012, three proposed or listed threatened or endangered species are reasonably expected to occur in Lancaster County (USFWS 2012)

- *Canis lupus* (Gray wolf) – threatened,
- *Platanthera praeclara* (Western Prairie Fringed Orchid) – threatened, and
- *Cicindela nevadica lincolniana* (Salt Creek Tiger beetle) – endangered.

One designated critical habitat was identified within Lancaster County as of September 2012 (USFWS 2012). This area occurs north of the airport (approximately 3 miles) and is the habitat of the Salt Creek Tiger beetle.

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4.0 PRELIMINARY ASSESSMENTS

The PA includes on-site interviews with active and former personnel from the ANG Installations and other parties with relevant historical site knowledge and includes a visual survey to characterize the current site conditions, to better delineate the nature and location of potential contamination, and to help identify sample locations for the SI sample collection activities. Interviews, records searches, and visual surveys were conducted during the PA to define current environmental conditions specific to each AOC. On-site PA activities were conducted in conjunction with an Installation-specific kickoff meeting at Lincoln ANGB the week of September 5, 2012. Documents reviewed during the PA include

- *Preliminary Assessment for the 155th Tactical Reconnaissance Group, Nebraska Air National Guard, Lincoln Municipal Airport, Lincoln, Nebraska* (HTRC 1987).
- *Installation Restoration Program, Site Investigation Report Volume 1: Sections 1 Through 6, Appendix A, 155th Air Refueling Group, Nebraska ANG, Lincoln Municipal Airport, Lincoln, Nebraska* (ANG 1995).
- *Environmental Restoration Program, Site 13, Memorandum No. 1, Quarterly Groundwater Sampling Activities, 155th Air Refueling Wing, Lincoln Municipal Airport, Nebraska Air National Guard, Lincoln, Nebraska* (ANG 2006).
- *Environmental Restoration Program, Project Closeout Activities at ERP Sites 10 and 13, 155th Air Refueling Wing, Lincoln Municipal Airport, Nebraska Air National Guard, Lincoln, Nebraska* (ANG 2008).
- *Proposed Plan for Installation Restoration Program Sites 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 13, 155th Air Refueling Wing, Nebraska Air National Guard, Lincoln Municipal Airport, Lincoln, Nebraska* (ANG 2011a).
- *Environmental Baseline Survey, Proposed Lease Acquisition Areas and EOD Easement Area, 155th Air Refueling Wing, Lincoln Municipal Airport, Nebraska* (ANG 2011b).
- *PA/SI Trip Report Memorandum – 155th Air Refueling Wing, Lincoln, Nebraska* (BB&E 2011b).
- *Review of Environmental Baseline Surveys – 155th Air Refueling Wing, Nebraska Air National Guard, Lincoln Municipal Airport, Lincoln, Nebraska* (BB&E 2011a). This letter summarized results from a review of several historical documents, including the following documents not already listed above:
  - *Environmental Baseline Survey, 155th Air Refueling Wing, Nebraska Air National Guard Base, Lincoln Air National Guard* (ERM 2001).
  - *Environmental Baseline Survey, Explosive Ordnance Disposal Training Facility, 155th Air Refueling Wing, Nebraska Air National Guard, Lincoln Airport, Lincoln, Nebraska* (ERM 2005).

  The seven AOCs discussed in this report were selected for investigation based upon the document reviews completed by BB&E.

Results of PA activities conducted at each AOC are provided below. Appendix A presents historical documentation relevant to one or more AOCs, including photographs of Lincoln ANGB.

4.1 BUILDING 635 AREAS OF CONCERN (TU014 AND TU016)

Two AOCs are located within the Former Vehicle Maintenance Shop, which was remodeled in the mid-1990s: the former Vehicle Service Pit in Building 635 (TU014) and the Battery Acid Neutralization Pit in Building 635 (TU016). The two AOCs are located in adjacent bays in the southeast corner of the building.

4.1.1 Former Vehicle Service Pit in Building 635 (TU014)

The Former Vehicle Service Pit in Building 635 (TU014) is located within what is now a storage room (Room 118C) for Base Civil Engineering. The pit has been filled in, and a new concrete floor was poured; but because this was not a regulated site, no historical environmental sampling is believed to have been conducted.

According to facility personnel, the bottom of the vehicle service pit is estimated to have been at approximately 6 to 8 ft BGS. Potential releases include oils and solvents from vehicle maintenance activities conducted in the former pit and resultant migration through former cracks in the concrete walls and flooring to the surrounding soil. Therefore, the Final WP (ANG 2013) recommended the collection of four soil samples and up to two groundwater samples from two locations: ideally, one at the end closest to the bay door, and one at the opposite end of the former pit. Both soil and groundwater samples would be analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and total petroleum hydrocarbons (TPH). The proposed sampling activities were conducted on May 6 and -7, 2013, and are detailed in Chapter 5.0.

4.1.2 Battery Acid Neutralization Pit in Building 635 (TU016)

The Battery Acid Neutralization Pit in Building 635 (TU016) was reportedly located in what is now an equipment storage room for explosive ordnance disposal (EOD) personnel. According to facility personnel, the former battery room covered a 10- by 15-ft area. Although the room has been demolished, piping and a floor drain remain. Visual indications of corrosion are evident in the concrete floor.

No subsurface battery neutralization pit was evident based on visual observations during the September 2012 site visit. Long-time Base personnel recalled only a drain in the former battery room. The floor drain appears to discharge directly to the sanitary sewer with no visible access points for a potential neutralization pit. No plumbing map for Building 635 could be located to confirm the former presence of a neutralization pit.

Due to the lack of evidence supporting the former presence of a battery acid neutralization pit in Building 635, the Final WP (ANG 2013) recommended the collection of soil samples from three locations within the vicinity of the existing floor drain for analysis of lead, a key indicator to battery acid contamination. The proposed sampling activities were conducted on May 7, 2013, and are detailed in Chapter 5.0.

4.2 BUILDING 608 AREAS OF CONCERN (TU015, TU018, AND SA019)

Three AOCs at or near Building 608 were identified for PA/SI activities: the Former Vehicle Service Pit in Building 608 (TU015), the Former Detergent and/or Waste Oil USTs at Building 608 (TU018), and the Former Drop Tank Storage Area at Building 608 (SA019). The three AOCs at Building 608 lie in close proximity to one another. The Former Vehicle Service Pit in Building 608 (TU015) is located within the building; the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) is located adjacent to its northwest corner; and the Former Drop Tank Storage Area at Building 608 (SA019) is located west of the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) on the apron.

Several former USTs and OWSs were located in the vicinity of these three AOCs, including the UST and AOC previously investigated as Installation Restoration Program (IRP) Site 10. These former tanks were identified as follows:

- #608-1, a 265-gal single-wall, steel UST installed in 1975 that was associated with a nearby OWS. This UST was removed and backfilled in October 1995. Upon excavation, the tank was noted to be in poor condition due to numerous holes caused by heavy corrosion; however, the associated piping was observed to be in good condition with no visible signs of leakage. Observation of contamination during excavation included soil discoloration along with a strong petroleum odor (Nebraska State Fire Marshall 1996a). Two soil samples were collected and analyzed for total recoverable petroleum hydrocarbons (TRPH). TRPH was detected at concentrations of 48 and 740 mg/kg. Groundwater was not encountered.

  The historical excavation footprint and former tank location shown on figures within this report are taken from the Final Proposed Plan for IRP Sites 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 13 (ANG 2011a).

- #608-2, a 2,000-gal fiberglass UST installed in 1976 and used to store "detergent." The tank's exact former location remains unknown. No documentation has been located recording its removal. However, the tank was included in 1992 UST Removal Program planning documents as a UST scheduled for removal.

- #608-3, a 1,000-gal welded steel UST installed in 1975 and used to store waste jet propellant (JP)-4. This UST and an associated OWS were removed in April 1991, and significant contamination was noted. A total of approximately 350 yd^3 of soil were excavated and stockpiled, and an estimated 250,000 gal of groundwater were also removed and disposed. The Nebraska Department of Environmental Control (NDEC), now the Nebraska Department of Environmental Quality (NDEQ), assigned file number UG 073191-RF-1200 to the release, while ANG identified it as IRP Site 10. In December 1992, NDEC issued a letter stating "no further remedial actions will be required at this time. However, if a problem arises in the future as a result of this release, Nebraska Air National Guard will be held responsible for further remedial action."

  Monitoring wells at the site were closed in 2008, and project closeout activities were conducted in 2011. NDEQ approved NFA at Site 10 in February 2013 (NDEQ 2013).

- #608-4, a 250-gal welded steel oil interceptor installed in 1975 in the western end of an approximately 5-ft-wide and 13-ft-long (depth unknown) concrete containment pit. This tank was removed in October 1995, and the concrete pit was backfilled with sand and then capped with concrete in November 1995. No soil samples were collected during removal activities; however, following tank removal, holes were punched through the containment pit floor. One sample was collected from groundwater that infiltrated through these holes. TRPH was detected at 1.1 mg/L (Nebraska State Fire Marshall 1996b).

- #608-5, an approximately 3,800-gal concrete emergency spill pit measuring approximately 5 ft wide, 12 ft long, and 8 ½ ft deep. This concrete pit was located approximately 10 ft southeast of the concrete containment pit associated with #608-4. The pit was emptied and steam cleaned in October 1995. Two soil samples were collected from beneath the pit floor and analyzed for TRPH; detected concentrations were 33 and 68 mg/kg. Influent and effluent lines were plugged with non-shrink grout, and the pit was backfilled with a sand/gravel mixture and then capped with concrete in November 1995 (Nebraska State Fire Marshall 1996c).

Key historical documents for the Building 608 area, including those with analytical results of soil and groundwater samples, are included in Appendix A.

4.2.1 Former Vehicle Service Pit in Building 608 (TU015)

The Former Vehicle Service Pit in Building 608 (TU015), presumably used for F4 wing tanks, was reported to be a concrete sump approximately 4 ft wide, 4 ft long, and 5 to 6 ft deep. During the September 2012 site visit, Base personnel indicated that, at the time of its abandonment approximately 10 to 15 years prior, the interior of the sump looked good and no obvious cracks were seen. Multiple subsurface pipes from other parts of the building reportedly drained to this sump. This piping was "blown out" to remove residual petroleum, and then both piping and the former sump were filled with concrete. No sampling was known to have been conducted at the former sump location.

It was believed that releases of JP-4 during servicing of the F4 wing tanks could have entered this area and been released to the subsurface soil and/or groundwater if any breaks were present in the concrete walls or flooring. Therefore, the Final WP (ANG 2013) recommended the collection of four soil samples and up to two groundwater samples from two locations along the outside edges of the former sump walls for analysis of VOCs, SVOCs, and TPH. The proposed sampling activities were conducted on May 8, 2013, and are detailed in Chapter 5.0.

In the winter of 2013/2014, Leidos (formerly a part of SAIC) requested additional records from the State of Nebraska pertaining to historical groundwater sampling at IRP Site 10. Included in the records provided by the State were the 1996 Site Assessment Closure Reports for #608-4 and #608-5 (Nebraska State Fire Marshall 1996b, 1996c, respectively). Prior to receipt of these reports, it was believed that the Former Vehicle Service Pit in Building 608 (TU015) might be the same pit as the Emergency Spill Pit #608-5; however, minimal details had been located for #608-5 and, most importantly, no records of sampling/analytical results for the former pit had been located. Thus, field sampling activities were conducted in 2013 under a conservative approach.

4.2.2 Former Detergent and/or Waste Oil Underground Storage Tanks at Building 608 (TU018)

The AOC titled Former Detergent and/or Waste Oil USTs at Building 608 (TU018) includes UST Tank #608-1, a 500-gal steel UST used to store waste oil from a nearby OWS, and UST Tank #608-2, a 2,000-gal fiberglass UST used to store "detergent." These two USTs were installed in 1975 and 1976, respectively.

UST Tank #608-1 was removed in 1995 as part of a Base-wide UST removal project; a memorandum dated November 6, 1995, states that UST Tank #608-1 "has been backfilled. There was contamination" (NGB 1995). No mention is made of UST #608-2. Similarly, the 1995 Closure Assessment Report for #608-1 makes no mention of tank #608-2 (Nebraska State Fire Marshall 1996a). As of September 2012, facility personnel were uncertain if UST #608-2 had been removed.

The Final WP (ANG 2013) recommended a geophysical survey be performed within the grassed area adjacent to the northwest corner of Building 608 to determine whether UST #608-2 remains in place. Once the UST's presence or absence was verified, the Final WP recommended the collection of six soil samples and up to three groundwater samples from three locations either in close proximity to the estimated tank walls or within the approximate footprint of the former UST locations for analysis of

VOCs, SVOCs, and TPH. The proposed sampling activities were conducted on May 9, 2013, and are detailed in Chapter 5.0.

4.2.3 Former Drop Tank Storage Area at Building 608 (SA019)

The Former Drop Tank Storage Area at Building 608 (SA019) was located west of Building 608. A concrete pad built for drop tank storage reportedly sloped away from Building 608 and onto a grassy area to the west (BB&E 2011b). The former drop tank storage area was used to store and potentially drain/maintain wing tanks from F4 fighters at Lincoln ANGB.

During the September 5, 2012, site visit, shop personnel indicated that any releases from the former drop tank storage area would have been directed into a 1,000-gal JP-4 waste tank (Tank #608-3) located to the southwest prior to its removal. Current runoff flows toward the southwest corner of the apron area; flow becomes concentrated as it leaves the pavement and enters the vegetated area adjacent to the perimeter fence.

Based upon information collected during the PA, the Final WP (ANG 2013) stated that the direction of water runoff would be confirmed by pouring a small amount of clean water on the ground surface and watching its flow. Once determined, the collection of six soil samples and up to three groundwater samples from three locations were recommended within the footprint of the former drop tank storage area for analysis of VOCs, SVOCs, TPH. The proposed sampling activities were conducted on May 8 and 9, 2013, and are detailed in Chapter 5.0.

4.3 BATTERY ACID NEUTRALIZATION PIT IN BUILDING 636 (TU017)

The Battery Acid Neutralization Pit in Building 636 (TU017) is still present but is no longer in use. It was constructed outside of the battery room during building construction in 1992. According to shop personnel, very little battery acid was discharged to the floor drain. This drain is located within the battery room and connects to the battery neutralization pit, which eventually connects to the sanitary sewer. A manhole 2 ft in diameter can be observed on the floor outside of the battery room (Room 116). Facility personnel were able to open this manhole and determine that the neutralization pit is made of polyvinyl chloride (PVC) and is only 2 ft deep with a diameter of 1.5 ft; no limestone was evident in the neutralization pit during the September 2012 site visit.

During the September 5, 2012, Installation-specific kickoff meeting, Mr. Wade Gregson and Mr. Ed Southwick of NDEQ indicated agreement with the assumption that, due to the 1992 installation date for this battery neutralization pit, it was likely that little to no battery acid was discharged to the battery room floor drain (most of the vehicle batteries after 1992 were sealed and did not require filling). NDEQ indicated that sampling would not be necessary at this location if the neutralization pit was found to be intact and structurally sound.

Figure 4-1 illustrates the current condition of the battery acid neutralization pit as observed by SAIC personnel on the afternoon of September 5, 2012. Based upon the kickoff discussion and the appearance of the former pit (intact and structurally sound), the Final WP (ANG 2013) recommended no sampling at this AOC.

Figure 4-1. Photograph of Battery Acid Neutralization Pit in Building 636 (TU017)

4.4 FORMER OIL/WATER SEPARATOR AT BUILDING 605 (OW020)

The Former OWS, a 500-gal concrete structure, was located east of Building 605. Following installation in 1973, the OWS received used solvents and oils via the Building 605 shop floor and trench drains, as well as the parts cleaning room in the Former Jet Engine Shop. This OWS, identified as Tank #605-1, was scheduled for removal in 1991 as part of MILCON 909559.

A 1,000-gal JP-4 waste UST was installed adjacent to this tank in 1973 and removed in approximately 1992. According to the Base Environmental Manager, this regulated UST was granted NFA by NDEQ.

A Closure Assessment Report for the OWS (Tank #605-1) was submitted to NDEQ following its removal in 1996. A copy of this report has not been located; however, NDEQ issued a letter stating that NFA was required at Tank #605-1 based upon the information provided in the Closure Assessment Report (NDEQ 1996).

Based upon the 1996 NFA letter from NDEQ and subsequent abandonment of site monitoring wells under NDEQ oversight, as documented in a letter dated October 30, 2003, the Final WP (ANG 2013) proposed no sampling at this location.

5.0 SITE INVESTIGATION FIELD PROGRAM

This chapter summarizes the SI field activities at Lincoln ANGB and the analytical results. All sampling and analytical activities were conducted in accordance with the procedures specified in the Final WP (ANG 2013), unless otherwise specified below. All boring logs are provided in Appendix B, and analytical data packages for soil and groundwater samples collected during the SI are presented in Appendix C. Geophysical results at the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) are summarized below with further details provided in Appendix D.

5.1 GENERAL APPROACH

5.1.1 Soil Sampling

Proposed soil sampling locations were based on historical data, potential source areas, and site conditions as observed during the PA. All soil samples were collected for lithologic description, field screening, and chemical analysis. With the exception of the Battery Acid Neutralization Pit in Building 635 (TU016), two soil samples per boring were planned. Sample intervals were based on the approximate interval potential leaks may have occurred (generally 6 to 10 ft BGS for most USTs/service pits) and/or visual/olfactory signs of contamination and/or photoionization detector readings. As planned, two soil samples were collected per soil boring at the Building 608 AOCs (TU015, TU018, and SA019). At the Former Vehicle Service Pit in Building 635 (TU014), only one soil sample was collected from one of the soil borings due to poor soil recovery and a shallow water table. At the Battery Acid Neutralization Pit in Building 635 (TU016), one soil sample was collected per soil boring as planned based on x-ray fluorescence (XRF) analysis of the soil core.

Borehole abandonment was performed by backfilling with a minimum 2-ft thickness of bentonite chips and hydrating the bentonite chips with clean water. The remainder of the borehole was backfilled with native soil. The concrete floor at the Former Vehicle Service Pit in Building 635 (TU014), the Former Vehicle Service Pit in Building 608 (TU015), and the Battery Acid Neutralization Pit in Building 635 (TU016) was restored to pre-existing conditions immediately following borehole abandonment. All boring logs are provided in Appendix B.

5.1.2 Groundwater Sampling

Temporary well points (TWPs) were installed in each soil boring to collect groundwater samples. Each TWP was constructed using 1-in.-diameter, schedule 40 PVC casing and 1-in.-diameter, machine-slotted, 0.010-in. slotted PVC screens. Each well screen was 10 ft in length. Groundwater samples were collected using new, disposable, polyethylene bailers. A groundwater sample was not collected from one of the soil borings at the Former Vehicle Service Pit in Building 635 (TU014) due to limited recharge. As planned, no groundwater samples were collected from soil borings at the Former Battery Acid Neutralization Pit in Building 635 (TU016).

5.1.3 Data Analysis

5.1.3.1 Risk-based screening criteria

All analytical data are compared to appropriate risk-based screening criteria and/or established regulatory criteria to determine whether further investigation is required. In general, soil concentrations are screened against May 2013 EPA regional screening levels (EPA RSLs) and soil screening levels (SSLs). For some constituents, there are two available EPA SSLs; EPA SSLs calculated based on the federal maximum contaminant level (MCL) in groundwater and EPA SSLs calculated based on the EPA tap water RSLs. The MCL-based EPA SSLs were the primary EPA SSL used in this screening; if no MCL-based EPA SSL exists, then the risk-based EPA SSL was used.

Analytical soil data are also compared to the NDEQ residential direct contact and migration to groundwater remediation goals (RGs) under the Voluntary Cleanup Program, which were established in September 2012 (NDEQ 2012). NDEQ migration to groundwater RGs are based upon the NDEQ groundwater RGs for direct contact (NDEQ 2012) and take into account a dilution factor of 20, the state-specific dilution attenuation factor.

Groundwater concentrations were screened against federal MCLs; if no MCL exists, the May 2013 EPA tap water RSL was used. In addition, groundwater was screened against the NDEQ groundwater RGs for direct contact.

5.1.3.2 Background data

No background soil data were collected because the majority of the potential constituents of concern (VOCs, SVOCs, and TPH) are not naturally occurring.

5.1.3.3 Data validation

Analytical data were validated following receipt to ensure that the precision and accuracy of the data were adequate for their intended use. All data, with the exception of reported results for methylene chloride and acetone, as described below, were determined to be appropriate for their intended use.

Detected concentrations below the level of quantitation (LOQ) are shown with a 'J' flag. The LOQ is the lowest concentration of a substance that produces a quantitative result within specified limits of precision and bias. Measurements between the detection limit and the LOQ assure the presence of the analyte with confidence, but their numeric values are estimates (DoD 2009).

Non-detects are reported as the limit of detection (LOD) followed by a 'U' flag. The LOD is the smallest amount or concentration of a substance that must be present in a sample to be detected at a 99% confidence level. The failure to obtain a detection is reported as "<LOD" because the false-negative rate at the LOD is 1% (DoD 2009).

Both volatile and semivolatile organic analyses were performed using methods selected to provide the lowest reasonable detection limits in soil and groundwater. In some instances, due to required sample dilutions or low screening criteria, desired detection limits in one or more samples for a particular analyte were not achievable. In the majority of instances, the achieved detection limit remains within an order of magnitude of the lowest screening criteria (e.g., the EPA SSL in soil) and one or more orders of magnitude below criteria for direct contact. In general, the achieved detection limits are considered acceptable for the purposes of this SI, which is to identify significant contamination that may pose a threat to human health and/or the environment.

Quality Control

One trip blank was collected and analyzed for VOCs. No VOCs were detected in the trip blank sample.

Two equipment rinsate samples were collected. One was analyzed for lead and the other for VOCs, SVOCs, and TPH. Acetone and toluene were detected in one of the rinsate samples at low estimated concentrations. One field blank sample was collected and analyzed for VOCs, SVOCs, TPH, and lead. Toluene and naphthalene were detected in the field blank sample at low estimated concentrations.

Laboratory Contaminants

Methylene chloride was detected in 17 of 21 soil samples collected at Lincoln ANGB during the SI, with reported concentrations ranging from 34.3 to 490 μg/kg. Acetone was detected in 10 soil samples with reported concentrations ranging from 13.0 to 187 μg/kg.

Methylene chloride and acetone are known potential laboratory contaminants. Neither acetone nor methylene chloride were anticipated to be detected in soil samples; in addition, samples from field efforts in two another states processed by the same off-site laboratory during the timeframe as the Lincoln ANGB samples were also reported to contain methylene chloride and acetone. An investigation conducted by the analytical laboratory confirmed that contamination may have occurred during sample preparation. Therefore, all methylene chloride and acetone results in soil were rejected. Further discussion on the rationale for this decision is presented in Appendix C.

The probable laboratory contamination of the soil samples is not considered to invalidate results for other constituents; therefore, re-sampling for re-analysis of acetone and methylene chloride is not warranted.

5.2 FORMER VEHICLE SERVICE PIT IN BUILDING 635 (TU014)

5.2.1 Field Activities

Soil and groundwater samples at the Former Vehicle Service Pit in Building 635 (TU014) were collected at the following locations (Figure 5-1):

- midway between the northern and southern perimeter of the bay, east of the suspected former vehicle service pit (TU014-SB1); and

- the interior side of the bay door, south of the suspected former vehicle service pit (TU014-SB2).

A total of three soil samples and one groundwater sample were collected from two boring locations. One soil sample was collected from TU014-SB1 from the 10- to 11-ft BGS interval, slightly deeper than the targeted depth corresponding to the bottom of the former pit, due to lack of recovery at 8 to 10 ft BGS. A second soil sample was not collected from this soil boring because of poor soil recovery and wet soil conditions indicating a shallow water table starting at 6.3 ft BGS. Falling water levels were observed during subsequent installation of the TWP, thus indicating that the wet soil conditions observed in the soil core may have been the result of a perched zone. Two soil samples were collected from TU014-SB2, one from the targeted depth (8.7 to 9.5 ft BGS) and one from a shallower interval (6.4 to 7.5 ft BGS).

A groundwater sample was not collected at TWP TU014-SB1. By the time the TWP was in place, the water level had fallen to approximately 18.5 ft BGS and there was insufficient volume to collect a groundwater sample. The following day, the water level in TWP TU014-SB1 had risen only slightly to 18.15 ft BGS; approximately 50 mL of groundwater was retrieved before the temporary well went dry. The static water level in TU014-SB2 was 9.66 ft BGS. One groundwater sample was collected from TU014-SB2.

Soil and groundwater samples were analyzed for VOCs, SVOCs, and TPH.

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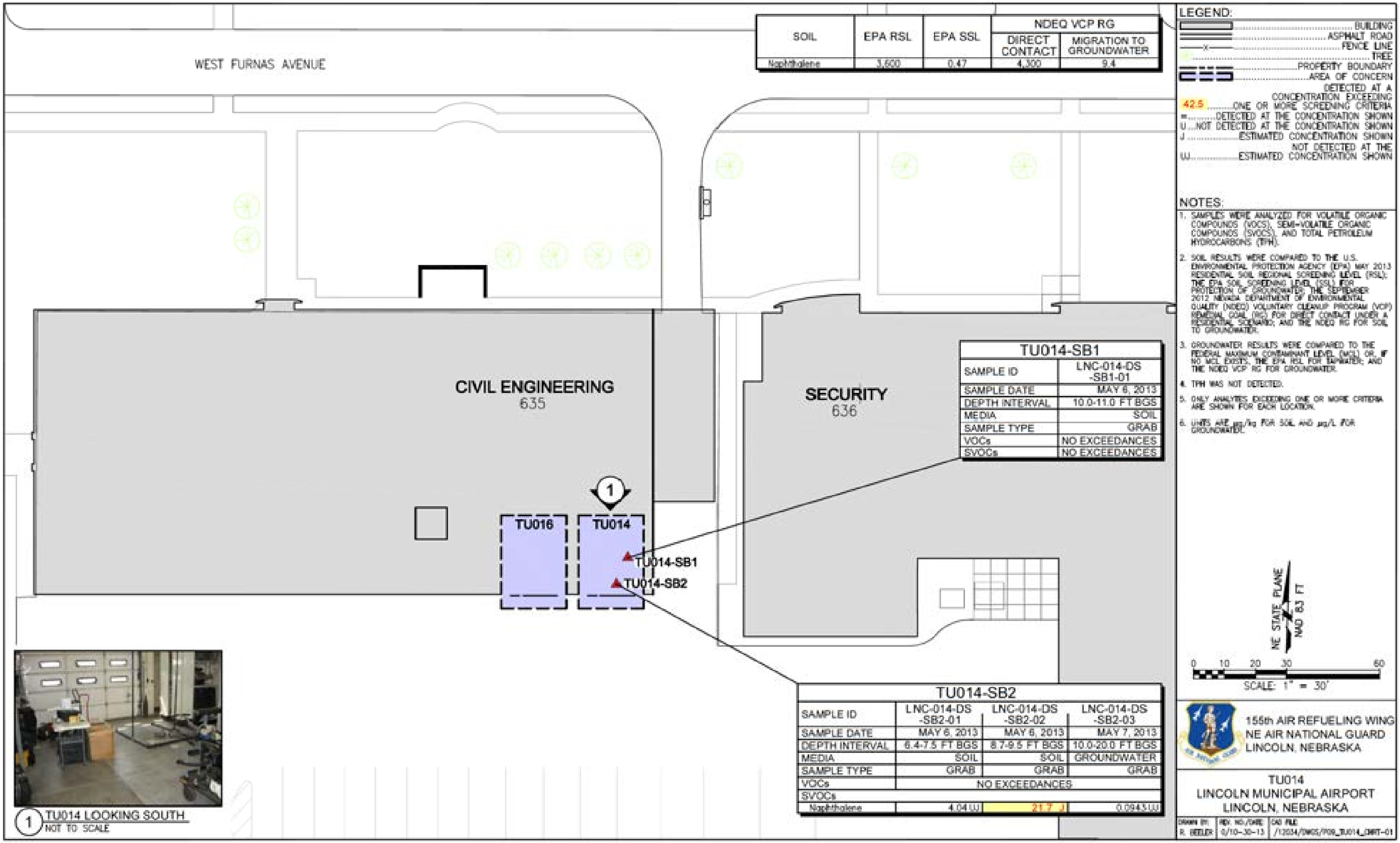


Figure 5-1. Constituents Detected Above Screening Criteria at the Former Vehicle Service Pit in Building 635 (TU014)

5.2.2 Results

Three soil samples and one groundwater sample were collected from the Former Vehicle Service Pit in Building 635 (TU014) during the SI. Table 5-1 summarizes the results and analysis of the soil and groundwater sampling.

5.2.2.1 Soil

One SVOC (naphthalene) was detected in soil at concentrations greater than screening criteria. All other VOCs and SVOCs were not detected or were detected at concentrations less than their respective screening criteria. TPH was not detected.

Naphthalene was detected in one soil sample at the Former Vehicle Service Pit in Building 635 (TU014) at sample location TU014-SB2 in the 8.7- to 9.5-ft BGS interval (Figure 5-1). Naphthalene was not detected in the shallower interval (6.4 to 7.5 ft BGS) of this soil boring. While the detected concentration does not exceed the EPA RSL (3,600 µg/kg) or the NDEQ direct contact RG (4,300 µg/kg), the detection exceeded the EPA SSL of 0.47 µg/kg and the NDEQ migration to groundwater RG (9.4 µg/kg).

5.2.2.2 Groundwater

No VOCs, SVOCs, or TPH were detected in groundwater collected at the Former Vehicle Service Pit in Building 635 (TU014).

5.2.3 Conclusions

In summary, one SVOC (naphthalene) was detected above one or more screening criteria in subsurface soil at the Former Vehicle Service Pit in Building 635 (TU014). TPH was not detected in soil or groundwater, and no VOCs or SVOCs were detected in groundwater.

5.3 BATTERY ACID NEUTRALIZATION PIT IN BUILDING 635 (TU016)

5.3.1 Field Activities

Soil samples at the Battery Acid Neutralization Pit in Building 635 (TU016) were collected at the following locations (Figure 5-2):

- approximately 6 ft west and 15 ft north of the east side of the western bay door, inside the building and north of the floor drain (TU016-SB1);
- approximately 9 ft west and 2 ft south of the east side of the western bay door, outside the building (TU016-SB2); and
- approximately 2 ft west and 2 ft south of the east side of the western bay door, outside the building (TU016-SB3).

Table 5-1. Detected Analytes in Soil and Groundwater at the Former Vehicle Service Pit in Building 635 (TU014)

Location					TU014-SB1		TU014-SB2		TU014-SB2				TU014-SB2	
Sample ID					LNC-014-DS-SB1-01		LNC-014-DS-SB2-01		LNC-014-DS-SB2-02				LNC-014-DP-SB2-01	
Sample Date					05/06/13		05/06/13		05/06/13				05/07/13	
Depth Interval (ft BGS)			NDEQ VCP RG		10.0 to 11.0		6.4 to 7.5		8.7 to 9.5			NDEQ	10.0 to 20.0	
Media	EPA	EPA	Direct	Migration to	Soil		Soil		Soil			VCP	Groundwater	
Sample Type	RSL	SSL	Contact	Groundwater	Grab		Grab		Grab		MCL	RG	Grab	
VOCs	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/L)*	*(µg/L)*	*(µg/L)*	
Acetone	61,000,000	2,400	16,000,000	22,000	33.4	R	187	R	99.6	R	12,000	5,400	25.0	U
2-Butanone	28,000,000	1,000	7,500,000	7,400	14.8	J	42.5	J	23.2	J	4,900	1,800	25.0	U
Methylene Chloride	56,000	1.3	12,000	26	**306**	**R**	**416**	**R**	**215**	**R**	5	5	5.00	U
SVOCs	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/L)*	*(µg/L)*	*(µg/L)*	
Acenaphthene	3,400,000	4,100	1,200,000	110,000	71.4	=	4.04	UJ	4.47	UJ	400	550	0.0943	UJ
Anthracene	17,000,000	42,000	5,900,000	1,800,000	14	=	4.04	UJ	4.47	UJ	1,300	43	0.0943	UJ
Benz(a)anthracene	150	10	150	110	3.33	J	4.04	UJ	5.94	J	0.029	0.016	0.0943	UJ
Benzo(a)pyrene	15	240	15	4,700	3.96	U	4.04	UJ	4.49	J	0.2	0.2	0.0943	UJ
Benzo(b)fluoranthene	150	35	150	280	2.48	J	4.04	UJ	8.09	J	0.029	0.012	0.0943	UJ
Benzo(g,h,i)perylene	NA	NA	NA	NA	3.96	U	4.04	UJ	4.67	J	NA	NA	0.0943	UJ
Benzo(k)fluoranthene	1,500	350	1,5 00	6,900	3.96	U	4.04	UJ	4.55	J	0.29	0.29	0.0943	UJ
Chrysene	15,000	1,100	15,000	11,000	2.22	J	4.04	UJ	10.7	J	2.9	1.6	0.0943	UJ
Fluoranthene	2,300,000	70,000	570,000	130,000	8.02	=	4.04	UJ	22	J	260	60	0.0943	UJ
Fluorene	2,300,000	220,000	780,000	140,000	47.4	=	4.04	UJ	4.47	UJ	200	370	0.0943	UJ
Indeno(1,2,3-cd)pyrene	150	200	150	890	3.96	U	4.04	UJ	5.35	J	0.029	0.011	0.0943	UJ
2-Methylnaphthalene	230,000	140	NA	NA	3.96	U	4.04	UJ	4.81	J	27	NA	0.0943	UJ
Naphthalene	3,600	0.47	4,300	9.4	3.96	U	4.04	UJ	**21.7**	**J**	0.14	0.14	0.0943	UJ
Phenanthrene	NA	NA	NA	NA	53.5	=	4.04	UJ	17.9	J	NA	NA	0.189	UJ
Pyrene	1,700,000	9,500	430,000	600,000	6.01	J	4.04	UJ	12.6	J	87	140	0.0943	UJ
TPH	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/L)*	*(mg/L)*	*(mg/L)*	
TPH-DRO	NA	NA	NA	NA	7.88	U	8.30	U	9.15	U	NA	NA	0.0962	UJ
TPH-GRO	NA	NA	NA	NA	6.54	U	7.39	U	6.79	U	NA	NA	0.100	U

Bold text denotes concentration shown exceeds criteria but data were rejected during validation.
Bold/highlighted text denotes detected at a concentration exceeding one or more screening criteria.
BGS = Below ground surface.
DRO = Diesel-range organics.
EPA = U. S. Environmental Protection Agency.
GRO = Gasoline-range organics.
ID = Identifier.
MCL = Maximum contaminant level (federal); if no MCL exists, the EPA RSL for tap water is shown.
NA = Not applicable.
NDEQ = Nebraska Department of Environmental Quality.
RSL = Regional screening level for residential scenario (May 2013; TR = 1E-06 and THQ = 1.0).
SSL = Soil screening level for migration to groundwater (MCL based; if no MCL-based SSL exists, then the RSL-based SSL is shown).
SVOC = Semivolatile organic compound.
TPH = Total petroleum hydrocarbon.
VCP RG = Voluntary Cleanup Program remediation goal (September 2012).
VOC = Volatile organic compound.
Data Qualifier
J = Estimated concentration.
R = Rejected during validation.
U = Not detected at the concentration shown.
UJ = Not detected at the estimated concentration shown.
'=' = Detected at the concentration shown.

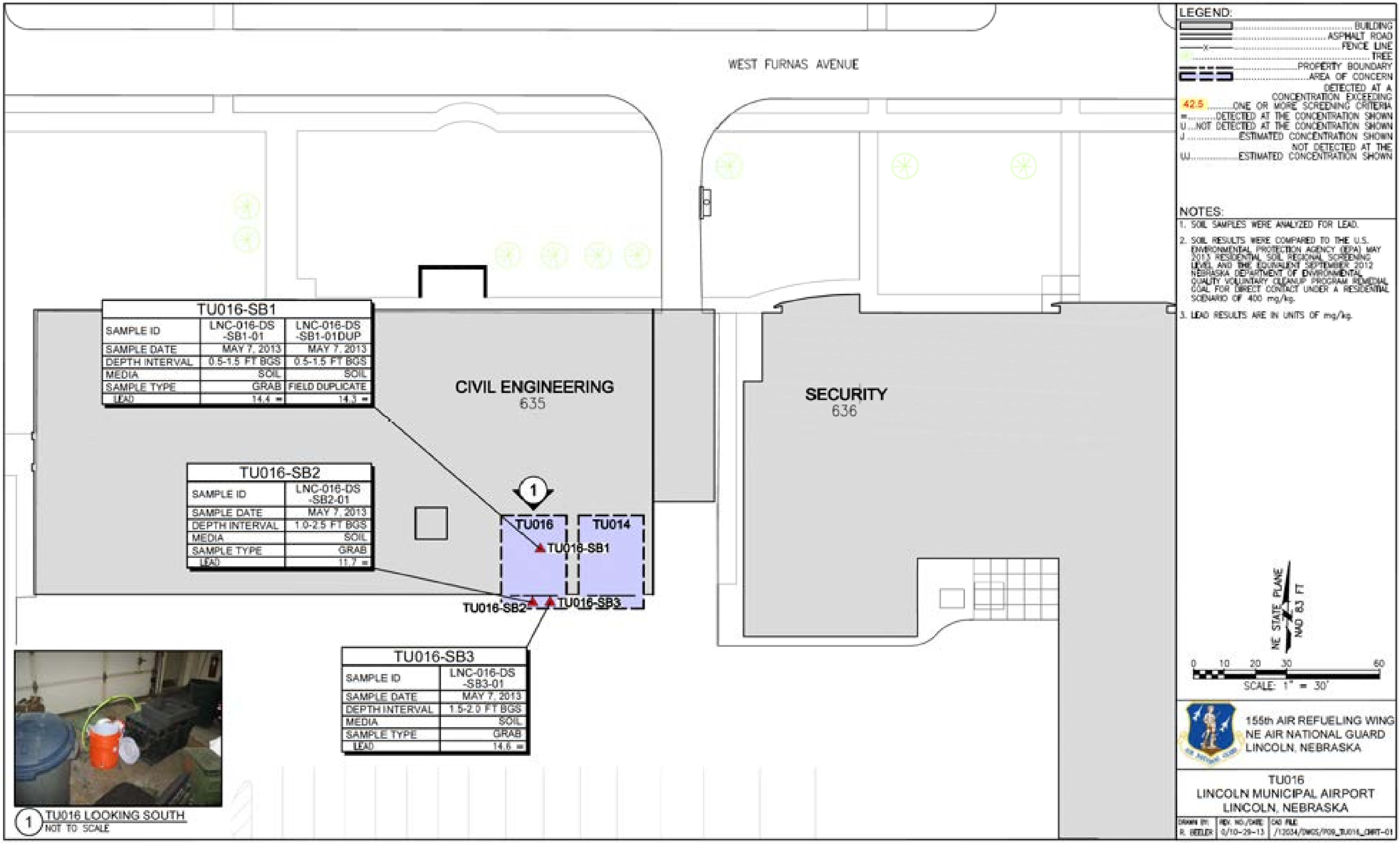


Figure 5-2. Constituents Detected Above Screening Criteria at the Battery Acid Neutralization Pit in Building 635 (TU016)

As described in the Final WP (ANG 2013), each soil boring was advanced to approximately 5 ft BGS. Field XRF screening for lead was conducted on the retrieved soil cores, with results ranging from below the LOD to 11±5 mg/kg. One soil sample for off-site analysis of lead was collected from each soil boring from the interval with the highest lead concentration based on the XRF screening: 0.5 to 1.5 ft BGS in TU016-SB1, 1.0 to 2.5 ft BGS in TU016-SB2, and 1.5 to 2.0 in TU016-SB3.

No groundwater samples were collected at the Former Battery Acid Neutralization Pit in Building 635 (TU016).

5.3.2 Results

Three soil samples were collected from the Battery Acid Neutralization Pit in Building 635 (TU016) during the SI. Table 5-2 summarizes the results and analysis of the soil sampling.

5.3.2.1 Soil

Lead was detected in all three soil samples at the Battery Acid Neutralization Pit in Building 635 (TU016) at concentrations ranging from 11.7 to 14.6 mg/kg. The maximum detected concentration (MDC) of 14.6 mg/kg was detected at sample location LNC016-SB3 in the 1.5- to 2.0-ft BGS interval (Figure 5-2). None of the detected concentrations exceed the EPA RSL and equivalent NDEQ VCP RG for lead of 400 mg/kg.

5.3.2.2 Groundwater

As planned, no groundwater samples were collected from soil borings at the Former Battery Acid Neutralization Pit in Building 635 (TU016).

5.3.3 Conclusions

In summary, lead was not detected in soil samples at the Former Battery Acid Neutralization Pit in Building 635 (TU016) at concentrations exceeding screening criteria.

5.4 FORMER VEHICLE SERVICE PIT IN BUILDING 608 (TU015)

5.4.1 Field Activities

Soil samples at the Former Vehicle Service Pit in Building 608 (TU015) were collected at the following locations (Figure 5-3):

- approximately 34 ft east and 3 ft south of the northwest corner of Building 608 along the northern edge of the former sump wall and adjacent to the bay door (TU015-SB1), and
- approximately 34 ft east and 13 ft south of the northwest corner of Building 608 along the southern edge of the former sump wall (TU015-SB2).

Two soil samples were collected at each soil boring: from 2.5 to 4.7 ft BGS and 8.3 to 10.0 ft BGS at soil boring TU015-SB1 and from 7.3 to 8.1 ft BGS and 8.5 to 9.3 ft BGS at soil boring TU015-SB2. Each of the soil borings was terminated at 20 ft BGS.

Table 5-2. Detected Analytes in Soil at the Battery Acid Neutralization Pit in Building 635 (TU016)

Location	Screening Level[a]	TU016-SB1	TU016-SB1	TU016-SB2	TU016-SB3
Sample ID		LNC-016-DS-SB1-01	LNC-016-DS-SB1-01DUP	LNC-016-DS-SB2-01	LNC-016-DS-SB3-01
Sample Date		5/7/13	05/07/13	05/07/13	05/07/13
Depth Interval (ft BGS)		0.5 to 1.5	0.5 to 1.5	1.0 to 2.5	1.5 to 2.0
Media		Soil	Soil	Soil	Soil
Sample Type		Grab	Field Duplicate	Grab	Grab
Lead (mg/kg)	400	14.4 =	14.3 =	11.7 =	14.6 =

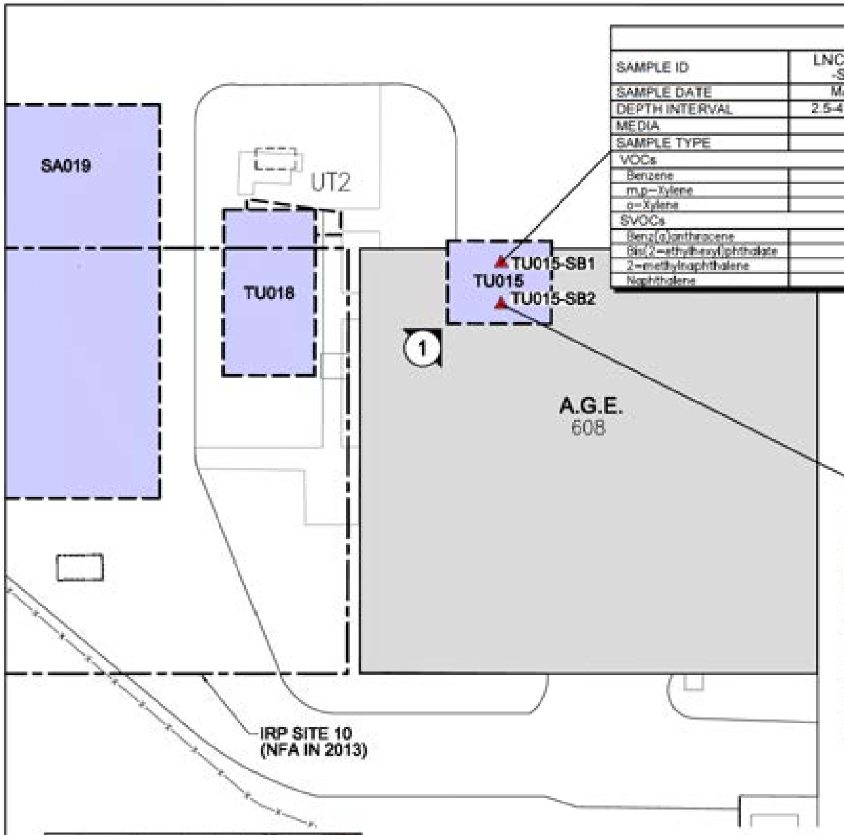
[a] Results are compared to the U. S. Environmental Protection Agency regional screening level and the equivalent Nebraska Department of Environmental Quality Voluntary Cleanup Program remediation goal for direct contact under a residential scenario of 400 mg/kg.

BGS = Below ground surface.

ID = Identifier.

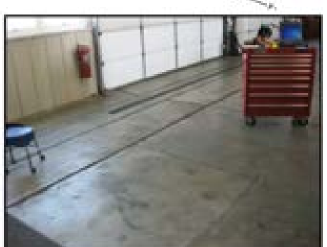
Data Qualifier

'=' = Detected at the concentration shown.



TU015-SB1						
SAMPLE ID	LNC-015-DS -SB1-01	LNC-015-DS -SB1-01DUP	LNC-015-DS -SB1-02	LNC-015-DS -SB1-02DUP	LNC-015-DP -SB1-01	LNC-015-DP -SB1-01DUP
SAMPLE DATE	MAY 8, 2013	MAY 8, 2013	MAY 8, 2013	MAY 8, 2013	MAY 8, 2013	MAY 8, 2013
DEPTH INTERVAL	2.5-4.7 FT BGS	2.5-4.7 FT BGS	8.3-10.0 FT BGS	8.3-10.0 FT BGS	10.0-20.0 FT BGS	10.0-20.0 FT BGS
MEDIA	SOIL	SOIL	SOIL	SOIL	GW	GW
SAMPLE TYPE	GRAB	FIELD DUPLICATE	GRAB	FIELD DUPLICATE	GRAB	FIELD DUPLICATE
VOCs						
Benzene	3.12 U	3.07 U	311 U	340 U	2.89 =	14.8 =
m,p-Xylene	6.24 U	6.13 U	2560 =	1510 =	19.2 =	109 =
o-Xylene	3.12 U	3.07 U	922 =	551 =	6.98 =	38.6 =
SVOCs						
Benz(a)anthracene	4.01 U	4.07 U	23.3 J	4.23 U	0.0962 U	0.0926 U
Bis(2-ethylhexyl)phthalate	201 U	204 U	2650 =	212 U	2.40 U	2.31 U
2-methylnaphthalene	4.01 U	4.07 U	1820 =	668 =	5.88 =	2.65 =
Naphthalene	4.01 U	4.07 U	94.3 =	154 =	2.46 =	1.14 =

TU015-SB2			
SAMPLE ID	LNC-015-DS -SB2-01	LNC-015-DS -SB2-02	LNC-015-DP -SB2-02
SAMPLE DATE	MAY 8, 2013	MAY 8, 2013	MAY 8, 2013
DEPTH INTERVAL	7.3-8.1 FT BGS	8.5-9.3 FT BGS	10.0-20.0 FT BGS
MEDIA	SOIL	SOIL	GW
SAMPLE TYPE	GRAB	GRAB	GRAB
VOCs			
Cyclohexane	9670 J	281 J	12.2 =
Ethylbenzene	4410 J	460 J	10.2 =
Isopropylbenzene	3160 J	339 U	3.79 =
m,p-Xylene	34100 J	3730 =	75.3 =
o-Xylene	10100 J	1410 =	24.6 =
SVOCs			
2-methylnaphthalene	228 =	40.6 =	2.63 =
Naphthalene	27.1 =	86.1 =	2.08 =



1 TU015 LOOKING NORTHEAST
NOT TO SCALE

SOIL	GROUNDWATER	
	MCL	NDEQ VCP RG
VOCs		
Benzene	5	5
SVOCs		
Benz(a)anthracene	0.029	0.016
Naphthalene	0.14	0.14

SOIL	EPA RSL	EPA SSL	NDEQ VCP RG	
			DIRECT CONTACT	MIGRATION TO GROUNDWATER
VOCs				
Benzene	1,100	2.6	1,300	51
Cyclohexane	7,000,000	130	2,100,000	65,000
Ethylbenzene	5,400	780	6,300	16,000
Isopropylbenzene	2,100,000	640	590,000	5,800
m,p-Xylene	630,000	190	190,000	200,000
o-Xylene	630,000	190	190,000	200,000
SVOCs				
Benz(a)anthracene	150	10	150	110
Bis(2-ethylhexyl)phthalate	35,000	1,400	35,000	29,000
2-methylnaphthalene	230,000	140	NA	NA
Naphthalene	3,600	0.47	4,300	9.4
THE m,p-Xylene AND o-Xylene CRITERIA SHOWN ARE FOR TOTAL XYLENE				

LEGEND:

BUILDING
ASPHALT ROAD
FENCE LINE
SURFACE WATER
PROPERTY BOUNDARY
AREA OF CONCERN
IRP SITE 10 (NFA IN 2013)
14.2 ....DETECTED CONCENTRATION EXCEEDING ONE OR MORE SCREENING CRITERIA
= ....DETECTED AT THE CONCENTRATION SHOWN
U.... NOT DETECTED AT THE CONCENTRATION SHOWN
J.... ESTIMATED CONCENTRATION SHOWN

NOTES:

1. SAMPLES WERE ANALYZED FOR VOLATILE ORGANIC COMPOUNDS (VOCS), SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCS), AND TOTAL PETROLEUM HYDROCARBONS (TPH).
2. SOIL RESULTS WERE COMPARED TO THE MAY 2013 U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) RESIDENTIAL SOIL REGIONAL SCREENING LEVEL (RSL); THE EPA SOIL SCREENING LEVEL (SSL) FOR PROTECTION OF GROUNDWATER; THE SEPTEMBER 2012 NEVADA DEPARTMENT OF ENVIRONMENTAL QUALITY (NDEQ) VOLUNTARY CLEANUP PROGRAM (VCP) REMEDIAL GOAL (RG) FOR DIRECT CONTACT UNDER A RESIDENTIAL SCENARIO; AND THE NDEQ VCP RG FOR SOIL TO GROUNDWATER.
3. GROUNDWATER RESULTS WERE COMPARED TO THE FEDERAL MAXIMUM CONTAMINANT LEVEL (MCL) OR, IF NO MCL EXISTS, THE EPA RSL FOR TAPWATER; AND THE NDEQ VCP RG FOR GROUNDWATER.
4. TPH WAS DETECTED IN SOIL AND GROUNDWATER BUT THERE ARE NO EPA OR NDEQ VCP CRITERION FOR TPH.
5. ONLY ANALYTES EXCEEDING ONE OR MORE CRITERIA ARE SHOWN FOR EACH LOCATION.
6. UNITS ARE IN µg/kg FOR SOIL AND µg/L FOR GROUNDWATER.

NE STATE PLANE NAD 83 FT

0 10 20 30 60
SCALE: 1" = 30'

155th AIR REFUELING WING
NE AIR NATIONAL GUARD
LINCOLN, NEBRASKA

TU015
LINCOLN MUNICIPAL AIRPORT
LINCOLN, NEBRASKA

DRAWN BY:	REV. NO./DATE:	CAD FILE:
R. BEELER	0/10-29-13	/12034/DWGS/F09_TU015_CHRT-01

Figure 5-3. Constituents Detected Above Screening Criteria at the Former Vehicle Service Pit in Building 608 (TU015)

Static water levels in the two TWPs were recorded as follows: 12.42 ft BGS in TU015-SB1 and 10.72 ft BGS in TU015-SB2. One groundwater sample was collected from each TWP.

Soil and groundwater samples were analyzed for VOCs, SVOCs, and TPH.

5.4.2 Results

Four soil samples and two groundwater samples were collected from the Former Vehicle Service Pit in Building 608 (TU015) during the SI. Table 5-3 summarizes the results and analysis of the soil and groundwater sampling.

5.4.2.1 Soil

Four VOCs (cyclohexane, ethylbenzene, isopropylbenzene, and xylene [both m,p-xylene and o-xylene isomers]) and four SVOCs (benz[a]anthracene, bis[2-ethylhexyl]phthalate, 2-methylnaphthalene, and naphthalene) were detected in soil at the Former Vehicle Service Pit in Building 608 (TU015) at concentrations greater than one or more screening criteria. All other VOCs and SVOCs were not detected or were detected at concentrations less than their respective screening criteria.

VOCs

Cyclohexane was detected in two of four soil samples with both detections in soil boring TU015-SB2. Detected concentrations in TU015-SB2 were 9,670J μg/kg in the 7.3- to 8.1-ft BGS interval and 281J μg/kg in the 8.5- to 9.3-ft BGS interval (Figure 5-3). While the detected concentrations do not exceed the EPA RSL (7,000,000 μg/kg), the NDEQ direct contact RG (2,100,000 μg/kg), or the NDEQ migration to groundwater RG (65,000 μg/kg), both detections exceed the EPA SSL of 130 μg/kg.

Ethylbenzene was detected in three of four soil samples at concentrations ranging from 192J to 4,410J μg/kg. The MDC was detected at sample location TU-015-SB2 in the 7.3- to 8.1-ft BGS interval (Figure 5-3). Ethylbenzene was detected in the deeper interval (8.5 to 9.3 ft BGS) of this soil boring at a concentration of 460J μg/kg. Only the MDC exceeds the EPA SSL (780 μg/kg); however, none of the detections exceed the EPA RSL (5,400 μg/kg), the NDEQ direct contact RG (6,300 μg/kg), or the NDEQ migration to groundwater RG (16,000 μg/kg).

Isopropylbenzene was detected in one soil sample at sample location TU015-SB2 in the 7.3- to 8.1-ft BGS interval (Figure 5-3). Isopropylbenzene was not detected in the deeper interval (8.5 to 9.3 ft BGS) of this soil boring. While the detected concentration (3,160J μg/kg) does not exceed the EPA RSL (2,100,000 μg/kg), the NDEQ direct contact RG (590,000 μg/kg), or the NDEQ migration to groundwater RG (5,600 μg/kg), it does exceed the EPA SSL (640 μg/kg).

Xylenes (m,p-xylene and o-xylene) were detected in three of four soil samples. The mixed isomer m,p-xylene was detected at concentrations ranging from 1,510 to 34,100 μg/kg, while the isomer o-xylene was detected at concentrations ranging from 551J to 10,100 μg/kg. The MDC for both xylene isomers was detected at sample location TU-015-SB2 in the 7.3- to 8.1-ft BGS interval (Figure 5-3). Both m,p-xylene and o-xylene were detected in the deeper interval (8.5 to 9.3 ft BGS) of this soil boring at concentrations of 3,730 and 1,410 μg/kg, respectively. While the detected concentrations do not exceed the EPA RSL (630,000 μg/kg), the NDEQ direct contact RG (190,000 μg/kg), or the NDEQ migration to groundwater RG (200,000 μg/kg), all detections exceed the EPA SSL of 190 μg/kg.

Table 5-3. Detected Analytes in Soil and Groundwater at the Former Vehicle Service Pit in Building 608 (TU015)

Location					TU015-SB1		TU015-SB1		TU015-SB1		TU015-SB1		TU015-SB2	
Sample ID					LNC-015-DS-SB1-01		LNC-015-DS-SB1-01DUP		LNC-015-DS-SB1-02		LNC-015-DS-SB1-02DUP		LNC-015-DS-SB2-01	
Sample Date					05/08/13		05/08/13		05/08/13		05/08/13		05/08/13	
Depth Interval (ft BGS)			NDEQ VCP RG		2.5 to 4.7		2.5 to 4.7		8.3 to 10.0		8.3 to 10.0		7.3 to 8.1	
Media	EPA	EPA		Migration to	Soil		Soil		Soil		Soil		Soil	
Sample Type	RSL	SSL	Direct Contact	Groundwater	Grab		Field Duplicate		Grab		Field Duplicate		Grab	
VOCs	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
Acetone	61,000,000	2,400	16,000,000	22,000	26.4	R	36.5	R	1,240	U	1,360	U	1,290	U
Benzene	1,100	2.6	1,300	51	3.12	U	3.07	U	311	U	340	U	323	U
cis-1,2-Dichloroethene	160,000	21	200,000	410	3.12	U	3.07	U	311	U	340	U	323	U
Cyclohexane	7,000,000	130	2,100,000	65,000	3.12	U	3.07	U	311	U	340	U	**9,670**	**J**
Ethylbenzene	5,400	780	6,300	16,000	3.12	U	3.07	U	312	J	192	J	**4,410**	**J**
Isopropylbenzene	2,100,000	640	590,000	5,600	3.12	U	3.07	U	311	U	340	U	**3,160**	**J**
m,p-Xylene[a]	630,000	190	190,000	200,000	6.24	U	6.13	U	**2,560**	**=**	**1,510**	**=**	**34,100**	**J**
Methylcyclohexane	NA	NA	NA	NA	3.12	U	3.07	U	315	J	378	J	29,800	J
Methylene Chloride	56,000	1.3	12,000	26	**290**	**R**	**450**	**R**	**378**	**R**	681	U	645	U
o-Xylene[a]	630,000	190	190,000	200,000	3.12	U	3.07	U	**922**	**=**	**551**	**J**	**10,100**	**J**
Toluene	5,000,000	690	1,300,000	14,000	3.12	U	3.07	U	311	U	340	U	315	J
SVOCs	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*		*(µg/kg)*	
Acenaphthene	3,400,000	400,000	1,200,000	110,000	4.01	U	4.07	U	29.3	=	2.76	J	8.21	J
Acenaphthylene	NA	NA	NA	NA	4.01	U	4.07	U	21.7	=	4.23	U	6.74	J
Anthracene	17,000,000	42,000	5,900,000	1,800,000	4.01	U	4.07	U	26.1	=	4.23	U	6.42	J
Benz(a)anthracene	150	10	150	110	4.01	U	4.07	U	**23.3**	**J**	4.23	U	3.57	J
Benzo(a)pyrene	15	240	15	4,700	4.01	U	4.07	U	4.09	U	4.23	U	4.20	U
Benzo(b)fluoranthene	150	35	150	280	4.01	U	4.07	U	4.09	U	4.23	U	4.20	U
Benzo(g,h,i)perylene	NA	NA	NA	NA	4.01	U	4.07	U	4.09	U	4.23	U	4.20	U
Benzo(k)fluoranthene	1,500	350	1,500	6,900	4.01	U	4.07	U	3.08	J	4.23	U	4.20	U
Bis(2-ethylhexyl)phthalate	35,000	1,400	35,000	29,000	201	U	204	U	**2,650**	**=**	212	U	770	=
Chrysene	15,000	3,500	15,000	11,000	4.01	U	4.07	U	22.6	J	4.23	U	2.75	J
Di-n-octylphthalate	610,000	44,000	NA	NA	201	U	204	U	328	J	212	U	306	J
Fluoranthene	2,300,000	630,000	570,000	130,000	4.01	U	4.07	U	18.4	=	4.23	U	3.64	J
Fluorene	2,300,000	70,000	780,000	140,000	4.01	U	4.07	U	4.09	U	4.23	U	18.3	=
Indeno(1,2,3-cd)pyrene	150	200	150	890	4.01	U	4.07	U	2.26	J	4.23	U	4.20	U
2-Methylnaphthalene	230,000	140	NA	NA	4.01	U	4.07	U	**1,820**	**=**	**668**	**=**	**228**	**=**
Naphthalene	3,600	0.47	4,300	9.4	4.01	U	4.07	U	**94.3**	**=**	**154**	**=**	**27.1**	**=**
Phenanthrene	NA	NA	NA	NA	4.01	U	4.07	U	94.3	=	3.32	J	24.7	=
Pyrene	1,700,000	9,500	430,000	600,000	4.01	U	4.07	U	41.1	=	4.23	U	6.07	J
TPH	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
TPH-DRO	NA	NA	NA	NA	8.28	U	8.40	U	120	=	9.48	J	115	=
TPH-GRO	NA	NA	NA	NA	6.31	U	6.06	U	19.3	=	13.7	=	810	J

Table 5-3. Detected Analytes in Soil and Groundwater at the Former Vehicle Service Pit in Building 608 (TU015) (continued)

Location					TU015-SB2				TU015-SB1		TU015-SB1		TU015-SB2	
Sample ID					LNC-015-DS-SB2-02				LNC-015-DP-SB1-01		LNC-015-DP-SB1-01DUP		LNC-015-DP-SB2-01	
Sample Date					05/08/13				05/08/13		05/08/13		05/08/13	
Depth Interval (ft BGS)			NDEQ VCP RG		8.5 to 9.3			NDEQ	10.0 to 20.0		10.0 to 20.0		10.0 to 20.0	
Media	EPA	EPA	Direct	Migration to	Soil			VCP	Groundwater		Groundwater		Groundwater	
Sample Type	RSL	SSL	Contact	Groundwater	Grab		MCL	RG	Grab		Field Duplicate		Grab	
VOCs	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/L)*	*(µg/L)*	*(µg/L)*		*(µg/L)*		*(µg/L)*	
Acetone	61,000,000	2,400	16,000,000	22,000	1360	U	12,000	5,400	5.00	U	4.57	J	5.37	J
Benzene	1,100	2.6	1,300	51	339	U	5	5	2.89	=	**14.8**	**=**	1.55	=
cis-1,2-Dichloroethene	160,000	21	200,000	410	339	U	70	70	0.500	U	0.500	U	0.34	J
Cyclohexane	7,000,000	130	2,100,000	65,000	**281**	**J**	13,000	3,100	4.6	=	23.4	=	12.2	=
Ethylbenzene	5,400	780	6,300	16,000	460	J	700	700	2.73	=	15.6	=	10.2	=
Isopropylbenzene	2,100,000	640	590,000	5,600	339	U	390	170	0.71	J	3.67	=	3.79	=
m,p-Xylene[a]	630,000	190	190,000	200,000	**3730**	**=**	1,000	10,000	19.2	=	109	=	75.3	=
Methylcyclohexane	NA	NA	NA	NA	718	=	NA	NA	4.82	=	25.8	=	21.8	=
Methylene Chloride	56,000	1.3	12,000	26	678	U	5	5	1.00	U	1.00	U	1.00	U
o-Xylene[a]	630,000	190	190,000	200,000	**1410**	**=**	1,000	10,000	6.98	=	38.6	=	24.6	=
Toluene	5,000,000	690	1,300,000	14,000	201	J	1,000	1,000	3.5	=	20.1	=	2.07	U
SVOCs	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*		*(µg/L)*	*(µg/L)*	*(µg/L)*		*(µg/L)*		*(µg/L)*	
Acenaphthene	3,400,000	400,000	1,200,000	110,000	3.95	U	400	550	0.0962	U	0.0926	U	0.0943	U
Acenaphthylene	NA	NA	NA	NA	3.95	U	NA	NA	0.0962	U	0.0926	U	0.0943	U
Anthracene	17,000,000	42,000	5,900,000	1,800,000	3.95	U	1,300	43	0.0962	U	0.0926	U	0.0943	U
Benz(a)anthracene	150	10	150	110	3.63	J	0.029	0.016	0.0962	U	0.0926	U	0.0943	U
Benzo(a)pyrene	15	240	15	4,700	2.67	J	0.2	0.2	0.0962	U	0.0926	U	0.0943	U
Benzo(b)fluoranthene	150	35	150	280	3.00	J	0.029	0.012	0.0962	U	0.0926	U	0.0943	U
Benzo(g,h,i)perylene	NA	NA	NA	NA	2.13	J	NA	NA	0.0962	U	0.0926	U	0.0943	U
Benzo(k)fluoranthene	1,500	350	1,500	6,900	3.08	J	0.29	0.29	0.0962	U	0.0926	U	0.0943	U
Bis(2-ethylhexyl)phthalate	35,000	1,400	35,000	29,000	198	U	6	6	2.40	U	2.31	U	2.36	U
Chrysene	15,000	3,500	15,000	11,000	4.96	J	2.9	1.6	0.0962	U	0.0926	U	0.0943	U
Di-n-octylphthalate	610,000	44,000	NA	NA	198	U	160	NA	2.40	U	2.31	U	2.36	U
Fluoranthene	2,300,000	630,000	570,000	130,000	7.06	J	630	60	0.0962	U	0.0926	U	0.0943	U
Fluorene	2,300,000	70,000	780,000	140,000	3.95	U	200	370	0.0962	U	0.0926	U	0.0943	U
Indeno(1,2,3-cd)pyrene	150	200	150	890	2.17	J	0.029	0.011	0.0962	U	0.0926	U	0.0943	U
2-Methylnaphthalene	230,000	140	NA	NA	40.6	=	27	NA	5.88	=	2.65	=	2.63	=
Naphthalene	3,600	0.47	4,300	9.4	**86.1**	**=**	0.14	0.14	**2.46**	**=**	**1.14**	**=**	**2.08**	**=**
Phenanthrene	NA	NA	NA	NA	4.86	J	NA	NA	0.192	U	0.185	U	0.189	U
Pyrene	1,700,000	9,500	430,000	600,000	5.52	J	87	140	0.0962	U	0.0472	J	0.0943	U
TPH	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*		*(mg/L)*	*(mg/L)*	*(mg/L)*		*(mg/L)*		*(mg/L)*	
TPH-DRO	NA	NA	NA	NA	17.1	=	NA	NA	0.0962	U	0.142	J	0.159	J
TPH-GRO	NA	NA	NA	NA	15	J	NA	NA	0.196	=	0.122	J	0.499	=

[a] Criterion shown is for total xylenes.
Bold text denotes concentration shown exceeds criteria but data were rejected during validation.
Bold/highlighted text denotes detected at a concentration exceeding one or more screening criteria.
BGS = Below ground surface.
DRO = Diesel-range organics.
EPA = U. S. Environmental Protection Agency.
GRO = Gasoline-range organics.
ID = Identifier.
MCL = Maximum contaminant level (federal); if no MCL exists, the EPA RSL for tap water is shown.

NA = Not applicable.
NDEQ = Nebraska Department of Environmental Quality.
RSL = Regional screening level for residential scenario (May 2013; TR = 1E-06 and THQ = 1.0).
SSL = Soil screening level for migration to groundwater (MCL based; if no MCL-based SSL exists, then the RSL-based SSL is shown).
SVOC = Semivolatile organic compound.
TPH = Total petroleum hydrocarbon.
VCP RG = Voluntary Cleanup Program remediation goal (September 2012).
VOC = Volatile organic compound.

Data Qualifier
J = Estimated concentration.
R = Rejected during validation.
U = Not detected at the concentration shown.
'=' = Detected at the concentration shown.

SVOCs

Benz(a)anthracene was detected in three of four soil samples at concentrations ranging from 3.57J to 23.3J µg/kg. The MDC was detected at sample location TU-015-SB1 in the 8.3- to 10-ft BGS interval (Figure 5-3).

Benz(a)anthracene was not detected in the shallower interval (2.5 to 4.7 ft BGS) of this soil boring. Only the MDC exceeds the EPA SSL (10 µg/kg); however, none of the detections exceed the EPA RSL (150 µg/kg) and equivalent NDEQ direct contact RG (150 µg/kg) or the NDEQ migration to groundwater RG (110 µg/kg).

Bis(2-ethylhexyl)phthalate was detected in two of four soil samples. Detected concentrations were 2,650 µg/kg in TU015-SB1 in the 8.3- to 10.0-ft BGS interval and 770 µg/kg in TU015-SB2 in the 7.3- to 8.1-ft BGS interval (Figure 5-3). Bis(2-ethylhexyl)phthalate was not detected in the other sample intervals of these two soil borings. Only the MDC exceeds the EPA SSL (1,400 µg/kg); however, none of the detections exceed the EPA RSL and equivalent NDEQ direct contact RG (35,000 µg/kg) or the NDEQ migration to groundwater RG (29,000 µg/kg).

2-Methylnaphthalene was detected in three of four soil samples at concentrations ranging from 40.6 to 1,820 µg/kg. The MDC was detected at sample location TU-015-SB1 in the 8.3- to 10-ft BGS interval (Figure 5-3). 2-Methylnaphthalene was not detected in the shallower interval (2.5 to 4.7 ft BGS) of this soil boring. Two of the three detections exceed the EPA SSL (140 µg/kg); however, none of the detections exceed the EPA RSL of 230,000 µg/kg. There are no NDEQ soil screening criteria for 2-methylnaphthalene.

Naphthalene was detected in three of four soil samples at concentrations ranging from 27.1 to 94.3 µg/kg. The MDC was detected at sample location TU-015-SB1 in the 8.3- to 10.0-ft BGS interval (Figure 5-3). Naphthalene was not detected in the shallower interval (2.5 to 4.7 ft BGS) of this soil boring. While the detected concentrations do not exceed the EPA RSL (3,600 µg/kg) or the NDEQ direct contact RG (4,300 µg/kg), all detections exceed the EPA SSL (0.47 µg/kg) and the NDEQ migration to groundwater RG (9.4 µg/kg).

TPH

TPH-diesel-range organics (DRO) was detected in three of four soil samples at concentrations ranging from 17.1 to 120 mg/kg. The MDC was detected at sample location TU-015-SB1 in the 8.3- to 10-ft BGS interval (Figure 5-3). TPH-DRO was not detected in the shallower interval (2.5 to 4.7 ft BGS) of this soil boring. There are no EPA RSL, EPA SSL, or NDEQ RG criteria for TPH-DRO.

TPH-gasoline-range organics (GRO) was detected in three of four soil samples at concentrations ranging from 15J to 810J mg/kg. The MDC was detected at sample location TU-015-SB2 in the 7.3- to 8.1-ft BGS interval (Figure 5-3). TPH-GRO was detected in the deeper interval (8.5 to 9.3 ft BGS) of this soil boring. There are no EPA RSL, EPA SSL, or NDEQ RG criteria for TPH-GRO.

5.4.2.2 Groundwater

One VOC (benzene) and one SVOC (naphthalene) were detected in groundwater at the Former Vehicle Service Pit in Building 608 (TU015) at concentrations greater than one or more screening criteria. All other VOCs and SVOCs were not detected or were detected at concentrations less than their respective screening criteria.

Benzene was detected in both groundwater samples. Detected concentrations were 2.89 µg/L in TU015-SB1 and 1.55 µg/L in TU015-SB2 (Figure 5-3). In addition, benzene was detected in the field duplicate sample collected from TU015-SB1 at a concentration of 14.8 µg/L. The only detected concentration of benzene that exceeded the MCL (5 µg/L) and NDEQ RG (5 µg/L) for groundwater was collected from the field duplicate sample.

Naphthalene was detected in both groundwater samples. Detected concentrations were 2.46 µg/L in TU015-SB1 and 2.08 µg/L in TU015-SB2 (Figure 5-3). Both detections exceeded the EPA RSL and equivalent NDEQ RG (0.14 µg/L) for groundwater.

TPH-DRO was detected in one of two groundwater samples at a concentration of 0.159J mg/L in TU015-SB2. TPH-GRO was detected in both groundwater samples at concentrations of 0.196 mg/L in TU015-SB1 and 0.499 mg/L in TU015-SB2. There is no MCL, EPA RSL, or NDEQ RG for TPH in groundwater.

5.4.3 Conclusions

In summary, four VOCs (cyclohexane, ethylbenzene, isopropylbenzene, and xylene [both m,p-xylene and o-xylene isomers]) and four SVOCs (benz[a]anthracene, bis[2-ethylhexyl]phthalate, 2-methylnaphthalene, and naphthalene) were detected in one or more subsurface soil samples at the Former Vehicle Service Pit in Building 608 (TU015) above one or more screening criteria for the protection of groundwater; no constituents detected in soil exceeded residential direct contact criteria. All eight constituents detected in soil above screening criteria for the protection of groundwater were also detected in groundwater; although, only one (naphthalene) was detected in groundwater above screening criteria. Benzene was also detected in groundwater above screening criteria in a field duplicate sample.

Soil boring TU015-SB2 demonstrated the highest concentrations of VOCs and TPH-GRO in soil, while TU015-SB1 yielded the highest concentrations of SVOCs and TPH-DRO in soil.

5.5 FORMER DETERGENT AND/OR WASTE OIL UNDERGROUND STORAGE TANKS AT BUILDING 608 (TU018)

5.5.1 Field Activities

Soil samples at the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) were collected at the following locations (Figure 5-4):

- approximately 4 ft west and 3 ft north of the northwest corner of Building 608, in the grassy area southwest of former tank #608-1 (TU018-SB1);

- approximately 12 ft west and 3 ft south of the northwest corner of Building 608, in the grassy area west of unknown tank #608-2 (TU018-SB2); and

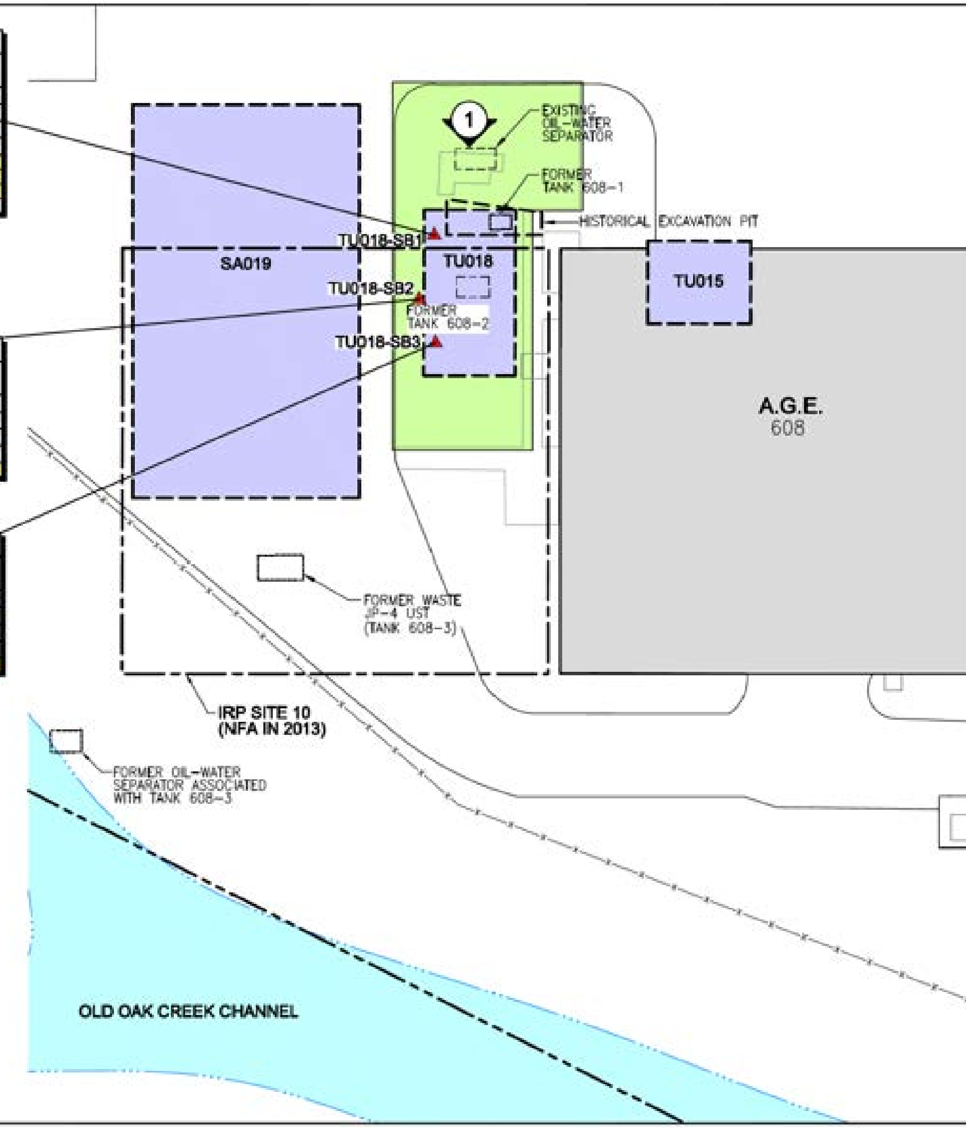
- approximately 22 ft west and 3 ft south of the northwest corner of Building 608, in the grassy area southwest of unknown tank #608-2 (TU018-SB3).

Prior to sample collection, a geophysical survey was conducted to confirm the presence or absence of former detergent tank #608-2, as described in Section 5.5.1.2.

TU018-SB1			
SAMPLE ID	LNC-018-DS -SB1-01	LNC-018-DS -SB1-02	LNC-018-DP -SB1-01
SAMPLE DATE	MAY 9, 2013	MAY 9, 2013	MAY 9, 2013
DEPTH INTERVAL	5.3-6.0 FT BGS	11.0-12.0 FT BGS	6.5-16.5 FT BGS
MEDIA	SOIL	SOIL	GW
SAMPLE TYPE	GRAB	GRAB	GRAB
Benz(a)anthracene	3.89 U	3.82 U	0.0841 J
Benzo(b)fluoranthene	3.89 U	3.82 U	0.0739 J
Indeno(1,2,3-cd)pyrene	3.89 U	3.82 U	0.0611 J
Naphthalene	3.89 U	3.82 U	0.100 U

TU018-SB2			
SAMPLE ID	LNC-018-DS -SB2-01	LNC-018-DS -SB2-02	LNC-018-DP -SB2-01
SAMPLE DATE	MAY 9, 2013	MAY 9, 2013	MAY 9, 2013
DEPTH INTERVAL	5.0-6.0 FT BGS	11.6-12.5 FT BGS	6.0-16.0 FT BGS
MEDIA	SOIL	SOIL	GW
SAMPLE TYPE	GRAB	GRAB	GRAB
Naphthalene	4.09 U	3.96 U	8.8 =

TU018-SB3			
SAMPLE ID	LNC-018-DS -SB3-01	LNC-018-DS -SB3-02	LNC-018-DP -SB3-01
SAMPLE DATE	MAY 9, 2013	MAY 9, 2013	MAY 9, 2013
DEPTH INTERVAL	5.0-6.0 FT BGS	11.0-11.9 FT BGS	7.0-17.0 FT BGS
MEDIA	SOIL	SOIL	GW
SAMPLE TYPE	GRAB	GRAB	GRAB
Naphthalene	3.96 U	4.01 U	10.0 =



1 TU018 LOOKING SOUTH
NOT TO SCALE

LEGEND:

- BUILDING
- ASPHALT ROAD
- FENCE LINE
- SURFACE WATER
- PROPERTY BOUNDARY
- AREA OF CONCERN
- GEOPHYSICAL SURVEY AREA
- IRP SITE 10 (NFA IN 2013)
- 14.2 ... DETECTED CONCENTRATION EXCEEDING ONE OR MORE SCREENING CRITERIA
- = ... DETECTED AT THE CONCENTRATION SHOWN
- U ... NOT DETECTED AT THE CONCENTRATION SHOWN
- J ... ESTIMATED CONCENTRATION SHOWN

NOTES:

1. SAMPLES WERE ANALYZED FOR VOLATILE ORGANIC COMPOUNDS (VOCS), SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCS), AND TOTAL PETROLEUM HYDROCARBONS (TPH).
2. SOIL RESULTS WERE COMPARED TO THE MAY 2013 U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) RESIDENTIAL SOIL REGIONAL SCREENING LEVEL (RSL); THE EPA SOIL SCREENING LEVEL (SSL) FOR PROTECTION OF GROUNDWATER; THE SEPTEMBER 2012 NEVADA DEPARTMENT OF ENVIRONMENTAL QUALITY (NDEQ) VOLUNTARY CLEANUP PROGRAM (VCP) REMEDIAL GOAL (RG) FOR DIRECT CONTACT UNDER A RESIDENTIAL SCENARIO; AND THE NDEQ VCP RG FOR SOIL TO GROUNDWATER.
3. GROUNDWATER RESULTS WERE COMPARED TO THE FEDERAL MAXIMUM CONTAMINANT LEVEL (MCL) OR, IF NO MCL EXISTS, THE EPA RSL FOR TAPWATER; AND THE NDEQ VCP RG FOR GROUNDWATER.
4. NO VOCS WERE DETECTED ABOVE SCREENING CRITERIA.
5. TPH WAS NOT DETECTED IN SOIL. TPH WAS DETECTED IN GROUNDWATER BUT THERE ARE NO EPA OR NDEQ VCP CRITERIA FOR TPH.
6. ONLY ANALYTES EXCEEDING ONE OR MORE CRITERIA ARE SHOWN FOR EACH LOCATION.
7. UNITS ARE IN µg/kg FOR SOIL AND µg/L FOR GROUNDWATER.
8. HISTORICAL EXCAVATION PIT BOUNDARY FROM 2011 IRP SITE 10 PROPOSED PLAN.

GROUNDWATER	MCL	NDEQ VCP RG
Benz(a)anthracene	0.029	0.016
Benzo(b)fluoranthene	0.029	0.012
Indeno(1,2,3-cd)pyrene	0.029	0.011
Naphthalene	0.14	0.14

NE STATE PLANE NAD 83 FT

0 10 20 30 60
SCALE: 1" = 30'

155th AIR REFUELING WING
NE AIR NATIONAL GUARD
LINCOLN, NEBRASKA

TU018
LINCOLN MUNICIPAL AIRPORT
LINCOLN, NEBRASKA

DRAWN BY:	REV. NO./DATE:	CAD FILE:
R. BEELER	0/10-30-13	/12034/DWGS/F09_TU018_CHRT-01

Figure 5-4. Constituents Detected Above Screening Criteria at the Former Detergent and/or Waste Oil USTs at Building 608 (TU018)

Two soil samples were collected at each soil boring: from 5.3 to 6.0 ft BGS and 11.0 to 12.0 ft BGS at soil boring TU018-SB1, from 5.0 to 6.0 ft BGS and 11.6 to 12.5 ft BGS at soil boring TU018-SB2, and from 5.0 to 6.0 ft BGS and 11.0 to 11.9 ft BGS at soil boring TU018-SB3. Each of the soil borings was terminated at 20 ft.

Static water levels in the three TWPs were recorded as follows: 13.74 ft BGS in TU018-SB1, 13.76 ft BGS in TU018-SB2, and 13.72 ft BGS in TU018-SB8. One groundwater sample was collected from each TWP.

Soil and groundwater samples were analyzed for VOCs, SVOCs, and TPH.

5.5.2 Results

Six soil samples and three groundwater samples were collected from the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) during the SI. Table 5-4 summarizes the results and analysis of the soil and groundwater sampling.

5.5.2.1 Geophysical survey

The primary objective of the geophysical survey effort was to acquire sufficient data to determine whether UST #608-2 remains in place. No UST was substantiated within the survey area. The complete geophysical survey report is included as Appendix D.

5.5.2.2 Soil

Methylene chloride is the only constituent in soil to exceed soil screening criteria; however, as described in Section 5.1.3.3, all methylene chloride results were rejected. All other VOCs and SVOCs were not detected or were detected at concentrations less than their respective screening criteria. TPH was not detected in soil.

5.5.2.3 Groundwater

Four SVOCs (benz[a]anthracene, benzo[b]fluoranthene, indeno[1,2,3-cd]pyrene, and naphthalene) were detected in groundwater at the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) at concentrations greater than one or more screening criteria. All other VOCs and SVOCs were not detected or were detected at concentrations less than their respective screening criteria.

SVOCs

Benz(a)anthracene was detected in one groundwater sample at TWP TU018-SB1 at a concentration of 0.0841J µg/L (Figure 5-4). This detection exceeded the EPA RSL (0.029 µg/L) and the NDEQ RG (0.016 µg/L).

Benzo(a)fluoranthene was detected in one groundwater sample at TWP TU018-SB1 at a concentration of 0.0739J µg/L. This detection exceeded the EPA RSL (0.029 µg/L) and the NDEQ RG (0.012 µg/L).

Indeno(1,2,3-cd)pyrene was detected in one groundwater sample at TWP TU018-SB1 at a concentration of 0.0611J µg/L. This detection exceeded the EPA RSL (0.029 µg/L) and the NDEQ RG (0.011 µg/L).

Table 5-4. Detected Analytes in Soil and Groundwater at Former Detergent and/or Waste Oil USTs at Building 608 (TU018)

Location					TU018-SB1	TU018-SB1	TU018-SB2	TU018-SB2	TU018-SB3	TU018-SB3
Sample ID					LNC-018-DS-SB1-01	LNC-018-DS-SB1-02	LNC-018-DS-SB2-01	LNC-018-DS-SB2-02	LNC-018-DS-SB3-01	LNC-018-DS-SB3-02
Sample Date					05/09/13	05/09/13	05/09/13	05/09/13	05/09/13	05/09/13
Depth Interval (ft BGS)			NDEQ VCP RG		5.3 to 6.0	11.0 to 12.0	5.0 to 6.0	11.6 to 12.5	5.0 to 6.0	11.0 to 11.9
Media	EPA RSL	EPA SSL	Direct Contact	Migration to Groundwater	Soil	Soil	Soil	Soil	Soil	Soil
Sample Type					Grab	Grab	Grab	Grab	Grab	Grab
VOCs	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*
Acetone	61,000,000	2,400	16,000,000	22,000	13 R	11.8 U	13.3 U	40.4 R	13.7 U	33.3 R
2-Butanone	28,000,000	1,000	7,500,000	7,400	6.65 U	5.88 U	6.63 U	5.34 J	6.84 U	11.7 U
Carbon Disulfide	820,000	210	240,000	1,500	3.32 U	2.94 U	3.32 U	3.34 U	3.42 U	2.92 U
Cyclohexane	7,000,000	130	2,100,000	65,000	3.32 U	2.94 U	3.32 U	3.34 U	3.42 U	2.92 U
Ethylbenzene	5,400	780	6,300	16,000	3.32 U	2.94 U	3.32 U	3.34 U	3.42 U	2.92 U
Isopropylbenzene	2,100,000	640	590,000	5,600	3.32 U	2.94 U	3.32 U	3.34 U	3.42 U	2.92 U
m,p-Xylene	630,000	190	190,000	200,000	6.65 U	5.88 U	6.63 U	6.68 U	6.84 U	11.7 U
Methylene Chloride	56,000	1.3	12,000	26	**315 R**	**219 R**	**34.3 R**	**324 R**	**245 R**	**206 R**
SVOCs	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*	*(µg/kg)*
Acenaphthene	3,400,000	4,100	1,200,000	110,000	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
Benz(a)anthracene	150	10	150	110	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
Benzo(a)pyrene	15	240	15	4,700	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
Benzo(b)fluoranthene	150	35	150	280	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
Benzo(k)fluoranthene	1,500	350	1,500	6,900	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
Chrysene	15,000	1,100	15,000	11,000	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
Fluoranthene	2,300,000	70,000	570,000	130,000	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
Fluorene	2,300,000	220,000	780,000	140,000	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
Indeno(1,2,3-cd)pyrene	150	200	150	890	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
2-Methylnaphthalene	230,000	140	NA	NA	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
Naphthalene	3,600	0.47	4,300	9.4	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
Phenanthrene	NA	NA	NA	NA	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
Pyrene	1,700,000	9,500	430,000	600,000	3.89 U	3.82 U	4.09 U	3.96 U	3.96 U	4.01 U
TPH	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
TPH-DRO	NA	NA	NA	NA	8.14 U	8.0 U	8.20 U	8.07 U	8.13 U	8.01 U
TPH-GRO	NA	NA	NA	NA	6.14 U	6.19 U	6.61 U	6.06 U	6.56 U	5.79 U

Table 5-4. Detected Analytes in Soil and Groundwater at Former Detergent and/or Waste Oil USTs at Building 608 (TU018) (continued)

Sample ID	MCL	NDEQ VCP RG	TU018-SB1	TU018-SB2	TU018-SB3
Sample ID			LNC-018-DP-SB1-01	LNC-018-DP-SB2-01	LNC-018-DP-SB3-01
Sample Date			05/09/13	05/09/13	05/09/13
Depth Interval (ft BGS)			6.5 to 16.5	6.0 to 16.0	7.0 to 17.0
Media			Groundwater	Groundwater	Groundwater
Sample Type			Grab	Grab	Grab
VOCs	*(µg/L)*	*(µg/L)*	*(µg/L)*	*(µg/L)*	*(µg/L)*
Acetone	12,000	5,400	9.95 J	3.12 J	4.30 J
2-Butanone	4,900	1,800	5.00 U	5.00 U	5.00 U
Carbon Disulfide	720	250	0.500 U	5.88 =	3.00 =
Cyclohexane	13,000	3,100	0.500 U	0.570 J	0.500 U
Ethylbenzene	700	700	0.500 U	42.3 =	2.37 =
Isopropylbenzene	390	170	0.500 U	13.0 =	0.840 J
m,p-Xylene	1,000	10,000	1.00 U	15.0 =	0.810 J
Methylene Chloride	5	5	1.00 U	1.00 U	1.00 U
SVOCs	*(µg/L)*	*(µg/L)*	*(µg/L)*	*(µg/L)*	*(µg/L)*
Acenaphthene	400	550	0.100 U	0.0758 J	0.0512 J
Benz(a)anthracene	0.029	0.016	**0.0841 J**	0.100 U	0.100 U
Benzo(a)pyrene	0.2	0.2	0.0648 J	0.100 U	0.100 U
Benzo(b)fluoranthene	0.029	0.012	**0.0739 J**	0.100 U	0.100 U
Benzo(k)fluoranthene	0.29	0.29	0.0812 J	0.100 U	0.100 U
Chrysene	2.9	1.6	0.116 J	0.100 U	0.100 U
Fluoranthene	630	60	0.245 =	0.0516 J	0.0698 J
Fluorene	200	370	0.100 U	0.0544 J	0.0563 J
Indeno(1,2,3-cd)pyrene	0.029	0.011	**0.0611 J**	0.100 U	0.100 U
2-Methylnaphthalene	27	NA	0.100 U	1.89 =	1.44 =
Naphthalene	0.14	0.14	0.100 U	**8.88 =**	**10.0 =**
Phenanthrene	NA	NA	0.179 J	0.099 J	0.119 J
Pyrene	87	140	0.189 J	0.100 U	0.0720 J
TPH	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*
TPH-DRO	NA	NA	0.100 UJ	0.657 =	0.211 J
TPH-GRO	NA	NA	0.100 U	0.363 =	0.100 U

Bold text denotes concentration shown exceeds criteria but data were rejected during validation.
Bold/highlighted text denotes detected at a concentration exceeding one or more screening criteria.
BGS = Below ground surface.
DRO = Diesel-range organics.
EPA = U. S. Environmental Protection Agency.
GRO = Gasoline-range organics.
ID = Identifier.
MCL = Maximum contaminant level (federal); if no MCL exists, the EPA RSL for tap water is shown.
NA = Not applicable.
NDEQ = Nebraska Department of Environmental Quality.
RSL = Regional screening level for residential scenario (May 2013; TR = 1E-06 and THQ = 1.0).
SSL = Soil screening level for migration to groundwater (MCL based; if no MCL-based SSL exists, then the RSL-based SSL is shown).
SVOC = Semivolatile organic compound.
TPH = Total petroleum hydrocarbon.
UST = Underground storage tank.
VCP RG = Voluntary Cleanup Program remediation goal (September 2012).
VOC = Volatile organic compound.

Data Qualifier
J = Estimated concentration.
R = Rejected during validation.
U = Not detected at the concentration shown.
UJ = Not detected at the estimated concentration shown.
'=' = Detected at the concentration shown.

Naphthalene was detected in two of three groundwater samples. Detected concentrations were 8.88 µg/L in TU018-SB2 and 10.0 µg/L in TU018-SB3 (Figure 5-4). Both detections exceeded the EPA RSL and equivalent NDEQ RG (0.14 µg/L) for groundwater.

TPH

TPH-DRO was detected in two of three groundwater samples at concentrations of 0.657 mg/L in TU018-SB2 and 0.211J mg/L in TU018-SB3. TPH-GRO was detected in one of three groundwater samples at a concentration of 0.363 mg/L in TU018-SB2. There is no MCL, EPA RSL, or NDEQ RG for TPH in groundwater.

5.5.3 Conclusions

Four SVOCs were detected at concentrations exceeding one or more screening criteria in groundwater at the Former Detergent and/or Waste Oil USTs at Building 608 (TU018). TPH was also detected in groundwater. No VOCs or SVOCs were detected above screening criteria in soil samples, and no TPH was detected in soil.

5.6 FORMER DROP TANK STORAGE AREA AT BUILDING 608 (SA019)

5.6.1 Field Activities

Soil samples at the Former Drop Tank Storage Area at Building 608 (SA019) were collected at the following locations (Figure 5-5):

- within the concrete pad approximately 50 ft west of the northwest corner of Building 608 (SA019-SB1),
- within the concrete pad approximately 80 ft west of the northwest corner of Building 608 (SA019-SB2), and
- in a grassy area approximately 110 ft west and 16 ft south of the northwest corner of Building 608 (SA019-SB3). This location was selected following field confirmation of surface flow to the southwest. The boring was placed adjacent to the fence in a shallow channel created by concentrated flow during precipitation events.

Two soil samples were collected at each soil boring: from 7.2 to 7.9 ft BGS and 8.5 to 9.2 ft BGS at soil boring SA019-SB1, from 6.0 to 7.0 ft BGS and 8.0 to 9.0 ft BGS at soil boring SA019-SB2, and from 1.9 to 3.3 ft BGS and 6.6 to 7.7 ft BGS at soil boring SA019-SB3. Each of the soil borings was terminated at 20 ft BGS.

Static water levels in the three TWPs were recorded as follows: 10.70 ft BGS in SA019-SB1, 12.24 ft BGS in SA019-SB2, and 14.28 ft BGS in SA019-SB3. One groundwater sample was collected from each TWP.

Soil and groundwater samples were analyzed for VOCs, SVOCs, and TPH.

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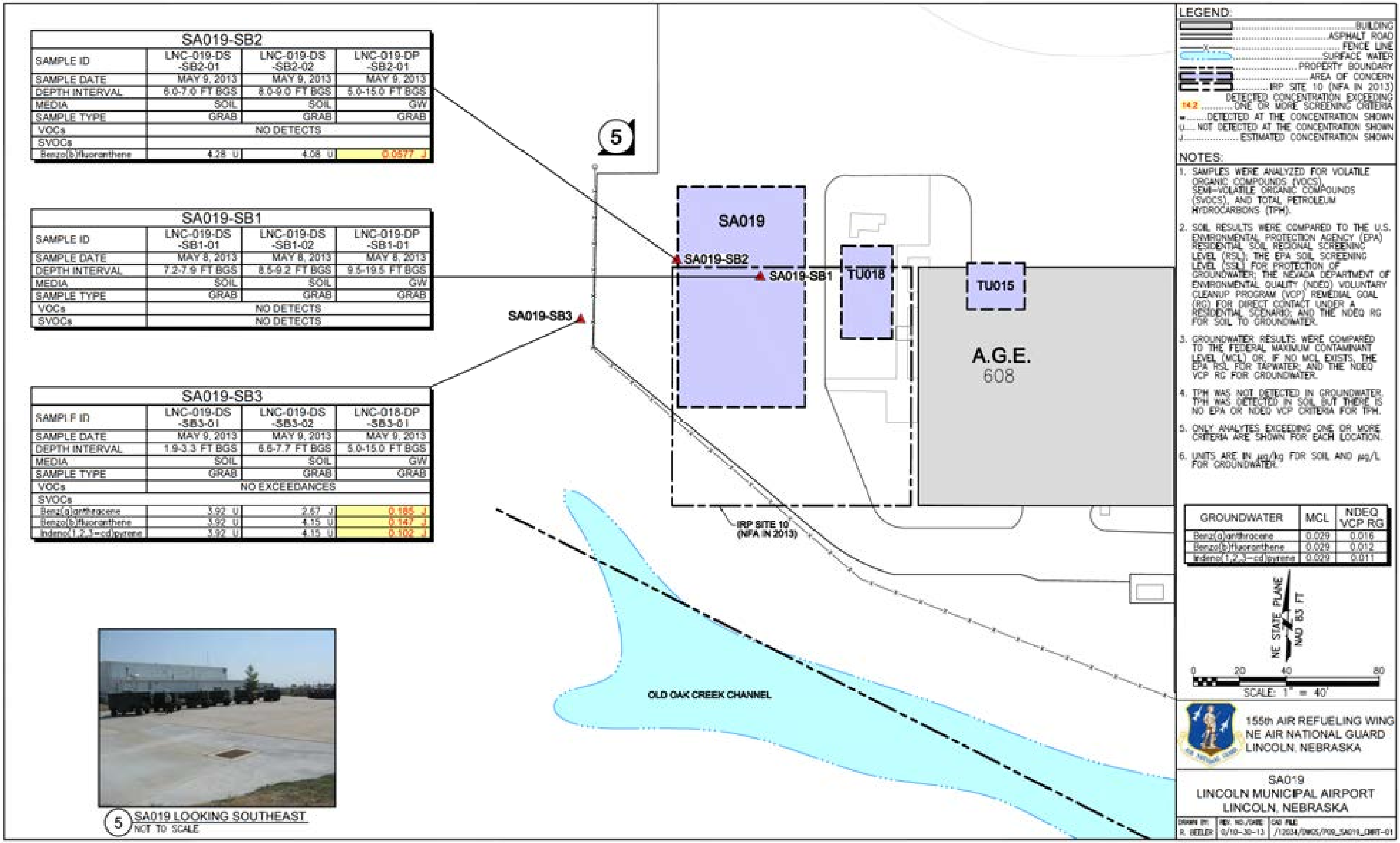

Figure 5-5. Constituents Detected Above Screening Criteria at the Former Drop Tank Storage Area at Building 608 (SA019)

5.6.2 Results

Six soil samples and three groundwater samples were collected from the Former Drop Tank Storage Area at Building 608 (SA019) during the SI. Table 5-5 summarizes the results and analysis of the soil and groundwater sampling.

5.6.2.1 Soil

Methylene chloride is the only constituent in soil to exceed soil screening criteria; however, as described in Section 5.1.3.3, all methylene chloride results were rejected. All other VOCs and SVOCs were not detected or were detected at concentrations less than their respective screening criteria.

TPH-DRO was detected in one of six soil samples at a concentration of 228J mg/kg in SA019-SB3 from the 1.9- to 3.3-ft BGS interval. TPH-DRO was detected in two of six soil samples at concentrations of 4.08J mg/kg in SA019-SB1 from the 7.2- to 7.9-ft BGS interval and a concentration of 65.2 mg/kg in SA019-SB3 from the 1.9- to 3.3-ft BGS interval. There are no EPA RSL, EPA SSL, or NDEQ RG criteria for TPH-GRO.

5.6.2.2 Groundwater

Three SVOCs (benz[a]anthracene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) were detected in groundwater at the Former Drop Tank Storage Area at Building 608 (SA019) at concentrations greater than one or more screening criteria. All other VOCs and SVOCs were not detected or were detected at concentrations less than their respective screening criteria. TPH was not detected.

Benz(a)anthracene was detected in one groundwater sample at SA019-SB3 at a concentration of 0.185J µg/L (Figure 5-5). This detection exceeded the EPA RSL (0.029 µg/L) and the NDEQ RG (0.016 µg/L).

Benzo(a)fluoranthene was detected in two of three groundwater samples. Detected concentrations were 0.0577J µg/L in SA019-SB2 and 0.147J µg/L in SA019-SB3 (Figure 5-5). Both detections exceeded the EPA RSL (0.029 µg/L) and the NDEQ RG (0.012 µg/L).

Indeno(1,2,3-cd)pyrene was detected in one groundwater sample at SA019-SB3 at a concentration of 0.102J µg/L. This detection exceeded the EPA RSL (0.029 µg/L) and the NDEQ RG (0.011 µg/L).

5.6.3 Conclusions

Three SVOCs (benz[a]anthracene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) were detected in groundwater above one or more screening criteria at the Former Drop Tank Storage Area at Building 608 (SA019). All three constituents exceeded criteria in the groundwater sample collected from SA019-SB3. Benzo(a)fluoranthene also exceeded screening criteria in groundwater collected from SA019-SB2.

No VOCs or SVOCs were detected above screening criteria in soil; however, TPH was detected at concentrations of 228J mg/kg (TPH-DRO) and 65.2 mg/kg (TPH-GRO) in the 1.9- to 3.3-ft BGS interval of SA019-SB3. TPH-GRO was also detected in SA019-SB1 at a concentration of 4.08J mg/kg.

Table 5-5. Detected Analytes in Soil and Groundwater at the Former Drop Tank Storage Area at Building 608 (SA019)

Location					SA019-SB1		SA019-SB1		SA019-SB2		SA019-SB2		SA019-SB3		SA019-SB3	
Sample ID					LNC-019-DS-SB1-01		LNC-019-DS-SB1-02		LNC-019-DS-SB2-01		LNC-019-DS-SB2-02		LNC-019-DS-SB3-01		LNC-019-DS-SB3-02	
Sample Date					05/08/13		05/08/13		05/09/13		05/09/13		05/09/13		05/09/13	
Depth Interval (ft BGS)			NDEQ VCP RG		7.2 to 7.9		8.5. to 9.2		6.0 to 7.0		8.0 to 9.0		1.9 to 3.3		6.6 to 7.7	
Media	EPA	EPA		Migration to	Soil		Soil		Soil		Soil		Soil		Soil	
Sample Type	RSL	SSL	Direct Contact	Groundwater	Grab		Grab		Grab		Grab		Grab		Grab	
VOCs	*(μg/kg)*	*(μg/kg)*	*(μg/kg)*	*(μg/kg)*	*(μg/kg)*		*(μg/kg)*		*(μg/kg)*		*(μg/kg)*		*(μg/kg)*		*(μg/kg)*	
Acetone	61,000,000	2,400	16,000,000	22,000	42.6	R	14.9	U	13.1	U	13.7	U	177	R	14.0	U
2-Butanone	28,000,000	1,000	7,500,000	7,400	6.39	U	7.43	U	6.55	U	6.84	U	45.4	J	7.01	U
Carbon Disulfide	820,000	210	240,000	1,500	3.19	U	3.71	U	3.27	U	3.42	U	1.73	J	3.51	U
Chloromethane	120,000	49	36,000	240	6.39	U	7.43	U	6.55	U	6.84	U	6.19	U	7.01	U
Methylene Chloride	56,000	1.3	12,000	26	**122**	**R**	**152**	**R**	6.55	U	**302**	**R**	**490**	**R**	**218**	**R**
SVOCs	*(μg/kg)*	*(μg/kg)*	*(μg/kg)*	*(μg/kg)*	*(μg/kg)*		*(μg/kg)*		*(μg/kg)*		*(μg/kg)*		*(μg/kg)*		*(μg/kg)*	
Acenaphthene	3,400,000	4,100	1,200,000	110,000	3.98	U	4.09	U	4.28	U	4.08	U	3.92	U	4.15	U
Anthracene	17,000,000	42,000	5,900,000	1,800,000	3.98	U	4.09	U	4.28	U	4.08	U	3.92	U	4.15	U
Benz(a)anthracene	150	10	150	110	3.98	U	4.09	U	4.28	U	4.08	U	3.92	U	2.67	J
Benzo(a)pyrene	15	240	15	4,700	3.98	U	4.09	U	4.28	U	4.08	U	3.92	U	4.15	U
Benzo(b)fluoranthene	150	35	150	280	3.98	U	4.09	U	4.28	U	4.08	U	3.92	U	4.15	U
Benzo(g,h,i)perylene	NA	NA	NA	NA	3.98	U	4.09	U	4.28	U	4.08	U	3.92	U	4.15	U
Benzo(k)fluoranthene	1,500	350	1,500	6,900	3.98	U	4.09	U	4.28	U	4.08	U	3.92	U	4.15	U
Chrysene	15,000	1,100	15,000	11,000	3.98	U	4.09	U	4.28	U	4.08	U	3.92	U	4.15	U
Fluoranthene	2,300,000	70,000	570,000	130,000	3.98	U	4.09	U	4.28	U	4.08	U	2.25	J	2.29	J
Indeno(1,2,3-cd)pyrene	150	35	150	890	3.98	U	4.09	U	4.28	U	4.08	U	3.92	U	4.15	U
Phenanthrene	NA	NA	NA	NA	3.98	U	4.09	U	4.28	U	4.08	U	2.77	J	2.72	J
Pyrene	1,700,000	9,500	430,000	600,000	3.98	U	4.09	U	4.28	U	4.08	U	3.92	U	4.15	U
TPH	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*		*(mg/kg)*	
TPH-DRO	NA	NA	NA	NA	7.97	U	8.02	U	8.24	U	8.45	U	228	J	8.42	U
TPH-GRO	NA	NA	NA	NA	4.08	J	7.22	U	6.97	U	6.83	U	65.2	=	6.15	U

Table 5-5. Detected Analytes in Soil and Groundwater at the Former Drop Tank Storage Area at Building 608 (SA019) (continued)

Location			SA019-SB1		SA019-SB2		SA019-SB3	
Sample ID			LNC-019-DP-SB1-01		LNC-019-DP-SB2-01		LNC-019-DP-SB3-01	
Sample Date			05/08/13		05/09/13		05/09/13	
Depth Interval (ft BGS)		NDEP	9.5 to 19.5		5.0 to 15.0		5.0 to 15.0	
Media		VCP	Groundwater		Groundwater		Groundwater	
Sample Type	MCL	RG	Grab		Grab		Grab	
VOCs			*(µg/L)*		*(µg/L)*		*(µg/L)*	
Acetone	12,000	5,400	4.36	J	4.00	J	5.00	U
2-Butanone	4,900	1,800	5.00	U	5.00	U	5.00	U
Carbon Disulfide	720	250	0.400	J	0.270	J	0.500	U
Chloromethane	190	47	0.440	J	0.500	U	0.500	U
Methylene Chloride	5	5	1.00	U	1.00	U	1.00	U
SVOCs	*(µg/L)*	*(µg/L)*	*(µg/L)*		*(µg/L)*		*(µg/L)*	
Acenaphthene	400	550	0.100	U	0.0926	U	0.0653	J
Anthracene	1,300	43	0.100	U	0.0926	U	0.0600	J
Benz(a)anthracene	0.029	0.016	0.100	U	0.0926	U	**0.185**	**J**
Benzo(a)pyrene	0.2	0.2	0.100	U	0.0926	U	0.151	J
Benzo(b)fluoranthene	0.029	0.012	0.100	U	**0.0577**	**J**	**0.147**	**J**
Benzo(g,h,i)perylene	NA	NA	0.100	U	0.00926	U	0.101	J
Benzo(k)fluoranthene	0.29	0.29	0.100	U	0.0926	U	0.166	J
Chrysene	2.9	1.6	0.100	U	0.0649	J	0.259	=
Fluoranthene	260	60	0.100	U	0.108	J	0.548	=
Indeno(1,2,3-cd)pyrene	0.029	0.011	0.100	U	0.0926	U	**0.102**	**J**
Phenanthrene	NA	NA	0.0574	J	0.0940	J	0.329	J
Pyrene	87	140	0.100	U	0.108	J	0.468	=
TPH	*(mg/L)*	*(mg/L)*	*(mg/L)*		*(mg/L)*		*(mg/L)*	
TPH-DRO	NA	NA	0.100	U	0.0962	UJ	0.0926	U
TPH-GRO	NA	NA	0.100	U	0.100	U	0.100	U

Bold text denotes concentration shown exceeds criteria but data were rejected during validation.
Bold/highlighted text denotes detected at a concentration exceeding one or more screening criteria.
BGS = Below ground surface.
DRO = Diesel-range organics.
EPA = U. S. Environmental Protection Agency.
GRO = Gasoline-range organics.
ID = Identifier.
MCL = Maximum contaminant level (federal); if no MCL exists, the EPA RSL for tap water is shown.
NA = Not applicable.
NDEQ = Nebraska Department of Environmental Quality.
RSL = Regional screening level for residential scenario (May 2013; TR = 1E-06 and THQ = 1.0).
SSL = Soil screening level for migration to groundwater (MCL based; if no MCL-based SSL exists, then the RSL-based SSL is shown).
SVOC = Semivolatile organic compound.
TPH = Total petroleum hydrocarbon.
VCP RG = Voluntary Cleanup Program remediation goal (September 2012).
VOC = Volatile organic compound.
Data Qualifier

- J = Estimated concentration.
- R = Rejected during validation.
- U = Not detected at the concentration shown.
- UJ = Not detected at the estimated concentration shown.
- '=' = Detected at the concentration shown.

6.0 INVENTORY OF WATER SUPPLY AND MONITORING WELLS

At the time of the 1995 SI (ANG 1995), the closest irrigation and commercial wells were located more than 2.5 miles away from the Base. The closest municipal well was located more than 4.25 miles away from the Base. In August 2013, a review of the Nebraska Department of Natural Resources (NDNR) registered groundwater wells database was conducted to determine whether any additional wells have been installed within a 1-mile radius of the Base (NDNR 2013). NDNR was also contacted directly to confirm that there are not any public water supply wells in the area. With the exception of 10 on-Base monitoring wells associated with historical investigations, there are no wells within a 1-mile radius of the Lincoln ANGB.

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7.0 AREA OF CONCERN PATHWAY AND ENVIRONMENTAL HAZARD ASSESSMENTS

HRS is the primary tool used by EPA to determine whether a site is placed on the National Priorities List. This numerically based screening system assigns numeric values to factors related to risk conditions at a site

- Likelihood that a site has released or has the potential to release hazardous substances into the environment.

- Characteristics of the waste.

- People or sensitive environments (targets) affected by the waste.

HRS evaluates four pathways of exposure (i.e., routes through which humans and the environment can be impacted by site contamination)

- groundwater migration (drinking water),
- surface water migration (drinking water, human food chain, and sensitive environments),
- soil exposure (resident population, nearby population, and sensitive environments), and
- air migration (population and sensitive environmental).

Exposure pathways describe the course a chemical or physical agent takes from the source to the exposed receptor. The following five components comprise an exposure pathway:

- source (facility operations, spill, etc.),
- exposure media (concrete, soil, groundwater, etc.),
- exposure point (slab surface, drinking water well, etc.),
- exposure route (ingestion, inhalation, and external exposure), and
- receptor (industrial worker, resident, and wildlife).

If any of these elements is missing, the pathway is incomplete and is not considered further in the HRS assessment. A pathway is considered complete when all five components are present to permit potential exposure of a receptor to a source of contamination. It is important to note that the HRS guidance defines a source as "any area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that may have become contaminated from hazardous substance migration." Also, an area of observed contamination "covered by a permanent, or otherwise maintained, essentially impenetrable material (e.g., asphalt)" is excluded from the area of observed contamination for the purposes of HRS scoring (EPA 1995).

In 2012, seven AOCs were identified for PA/SI activities at the Lincoln ANGB under the CRP. Based upon the results of historical records reviews during the PA phase, two AOCs were determined not to warrant field investigation: the Battery Neutralization Pit in Building 636 (TU017) and the Former OWS in Building 605 (OW020). No HRS scoring was conducted for these two AOCs.

Soil and groundwater sampling were conducted at the remaining five AOCs in May 2013: the Former Vehicle Service Pit in Building 635 (TU014), the Battery Acid Neutralization Pit in Building 635 (TU016) – soil sampling only, the Former Vehicle Service Pit in Building 608 (TU015), the Former

Detergent and/or Waste Oil USTs at Building 608 (TU018), and the Former Drop Tank Storage Area at Building 608 (SA019).

Three of the sampled AOCs (the Former Vehicle Service Pit in Building 635 [TU014], the Former Vehicle Service Pit in Building 608 [TU015], and the Battery Acid Neutralization Pit in Building 635 [TU016]) are covered by "essentially impenetrable material." Thus, no complete exposure pathway exists. HRS scoring was not conducted for these AOCs.

Four SVOCs were detected at concentrations exceeding one or more screening criteria in groundwater at the Former Detergent and/or Waste Oil USTs at Building 608 (TU018); TPH was also detected in groundwater at this AOC. However, no drinking water receptors were identified within a 4-mile radius. Thus, no HRS scoring was conducted for the Former Detergent and/or Waste Oil USTs at Building 608 (TU018).

Similarly, three SVOCs were detected in groundwater at the Former Drop Tank Storage Area at Building 608 (SA019). However, no drinking water receptors were identified within a 4-mile radius. TPH was detected in soil at the Former Drop Tank Storage Area at Building 608 (SA019); however, HRS does not consider TPH a specific contaminant. Thus, no HRS scoring was conducted for the Former Drop Tank Storage Area at Building 608 (SA019).

8.0 CONCLUSIONS AND RECOMMENDATIONS

On-site PA activities were conducted in conjunction with an Installation-specific kickoff meeting at Lincoln ANGB the week of September 5, 2012. SI field activities, which included soil sampling at five of the seven AOCs and groundwater sampling at four of the seven AOCs, were conducted from May 6 through May 10, 2013. Geophysical surveying was conducted at the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) on May 6 and 7, 2013, to confirm the presence or absence of remaining subsurface infrastructure.

8.1 CONCLUSIONS

8.1.1 Former Vehicle Service Pit in Building 635 (TU014)

The Former Vehicle Service Pit in Building 635 (TU014) is located within what is now a storage room (Room 118C) for Base Civil Engineering. Although the pit has been filled in, and a new concrete floor was poured, no historical environmental sampling is believed to have been conducted. During SI field activities, a total of three soil samples and one groundwater sample were collected from two boring locations and analyzed for VOCs, SVOCs, and TPH.

Soil. One SVOC (naphthalene) was detected in soil at concentrations greater than one or more screening criteria.

Naphthalene was detected in one soil sample at sample location TU014-SB2 in the 8.7- to 9.5-ft BGS interval at a concentration of 21.7J μg/kg. Naphthalene was not detected in the shallower interval (6.4 to 7.5 ft BGS) of this soil boring. While the detected concentration does not exceed the EPA RSL (3,600 μg/kg) or the NDEQ direct contact RG (4,300 μg/kg), the detection exceeded the EPA SSL of 0.47 μg/kg and the NDEQ migration to groundwater RG (9.4 μg/kg).

All other VOCs and SVOCs were not detected in soil or were detected at concentrations less than their respective screening criteria. TPH was not detected in soil.

Groundwater. No VOCs, SVOCs, or TPH were detected in groundwater.

No HRS scoring was conducted for the Former Vehicle Service Pit in Building 635 (TU014) as a single naphthalene exceedance of the EPA SSL is not considered an observable contaminant source. Furthermore, no impacts to groundwater were noted in the groundwater sample collected from the same boring as the naphthalene soil exceedance. Impacted soil lies beneath a concrete floor, and there are no current plans to alter site conditions in the foreseeable future.

8.1.2 Battery Acid Neutralization Pit in Building 635 (TU016)

The Battery Acid Neutralization Pit in Building 635 (TU016) was reportedly located in what is now an equipment storage room for EOD personnel. No subsurface battery neutralization pit was evident based on visual observations during the September 2012 site visit, and no plumbing map for Building 635 could be located to confirm the former presence of a neutralization pit. During SI field activities, three soil borings were advanced to approximately 5 ft BGS. Field XRF screening for lead was conducted on the retrieved soil cores, with results ranging from below the LOD to 11±5 mg/kg. One soil sample for off-site analysis of lead was collected from each soil boring from the interval with the highest lead concentration based on the XRF screening; these intervals ranged from 0.5 to 2.5 ft BGS.

Lead was detected in all three samples analyzed by the off-site laboratory at concentrations ranging from 11.7 to 14.6 mg/kg. None of the detected concentrations exceed the EPA RSL and equivalent NDEQ VCP RG for lead of 400 mg/kg.

No HRS scoring was conducted for the Battery Acid Neutralization Pit in Building 635 (TU016) as there is no complete exposure pathway and concentrations of lead, which may or may not represent impacts to soil, do not exceed screening criteria.

8.1.3 Former Vehicle Service Pit in Building 608 (TU015)

The Former Vehicle Service Pit in Building 608 (TU015), presumably used for F4 wing tanks, was reported to be a concrete sump approximately 4 ft wide, 4 ft long, and 5 to 6 ft deep. Multiple subsurface pipes from other parts of the building reportedly drained to this sump before its abandonment in 1995. At that time, the piping was "blown out" to remove residual petroleum and then filled with concrete. The former sump was filled with sand prior to being capped with concrete. One groundwater sample and two soil samples were collected prior to abandonment of the former concrete sump and analyzed for TPH; however, these data were not located prior to SI field activities. In 2013, a total of four soil samples and two groundwater samples were collected from two boring locations and analyzed for VOCs, SVOCs, and TPH.

Soil. Four VOCs (cyclohexane, ethylbenzene, isopropylbenzene, and xylene [both m,p-xylene and o-xylene isomers]) and four SVOCs (benz[a]anthracene, bis[2-ethylhexyl]phthalate, 2-methylnaphthalene, and naphthalene) were detected in one or more subsurface soil samples at the Former Vehicle Service Pit in Building 608 (TU015) above one or more screening criteria for the protection of groundwater; no constituents detected in soil exceeded residential direct contact criteria. All other VOCs and SVOCs were not detected or were detected at concentrations less than their respective screening criteria.

TPH was detected in three of four soil samples, with a maximum detected TPH-DRO concentration of 120 mg/kg in TU015-SB1 in the 8.3- to 10.0-ft BGS interval and a maximum detected TPH-GRO concentration of 810J mg/kg in TU015-SB2. Soil boring TU015-SB2 demonstrated the highest concentrations of VOCs and TPH-GRO in soil, while TU015-SB1 yielded the highest concentrations of SVOCs and TPH-DRO in soil.

Groundwater. TPH and all eight constituents detected in soil above screening criteria for the protection of groundwater were also detected in groundwater; although, only one (naphthalene) was detected in groundwater above screening criteria. Naphthalene was detected at 2.46 μg/L in TU015-SB1 and at 2.08 μg/L in TU015-SB2; both detections exceeded the EPA RSL and equivalent NDEQ RG (0.14 μg/L) for groundwater. Benzene was also detected in both groundwater samples at 2.89 μg/L in TU015-SB1 and at 1.55 μg/L in TU015-SB2. The only detected concentration of benzene that exceeded the MCL and equivalent NDEQ RG (5 μg/L) for groundwater came from the field duplicate sample (14.8 μg/L).

Groundwater results are consistent with historical petroleum groundwater impacts in the Building 608 area (e.g., IRP Site 10, which was granted NFA in 2013) and are not necessarily indicative of a new source. However, the consistency among individual contaminants detected in soil and groundwater at this AOC indicate that soil contamination may be serving as a secondary contaminant source for local groundwater.

No HRS scoring was conducted for the Former Vehicle Service Pit in Building 608 (TU015) as there is no complete exposure pathway. Impacted soil lies beneath a concrete floor, and there are no current plans to alter site conditions in the foreseeable future.

8.1.4 Former Detergent and/or Waste Oil Underground Storage Tanks at Building 608 (TU018)

The Former Detergent and/or Waste Oil USTs at Building 608 (TU018) AOC includes UST Tank #608-1, a 500-gal steel UST used to store waste oil from a nearby OWS, and UST Tank #602-8, a 2,000-gal fiberglass UST used to store "detergent." These two USTs were installed in 1975 and 1976, respectively. UST Tank #608-1 was removed in 1995 as part of a Base-wide UST removal project; a memorandum dated November 6, 1995, states that UST Tank #608-1 "has been backfilled. There was contamination" (NGB 1995). No mention is made of UST #608-2. As of September 2012, facility personnel were uncertain if UST #608-2 had been removed.

During SI field activities, a geophysical survey, using electromagnetic and ground-penetrating radar technologies, was conducted to confirm the presence or absence of former detergent Tank #608-2. No UST was substantiated within the survey area. Subsequently, a total of six soil and three groundwater samples were collected from three boring locations and analyzed for VOCs, SVOCs, and TPH.

Soil. Methylene chloride was the only detected constituent in soil to exceed soil screening criteria; however, all methylene chloride results were rejected due to probable laboratory contamination. All other VOCs and SVOCs were not detected or were detected at concentrations less than their respective screening criteria. TPH was not detected in soil.

Groundwater. Four SVOCs (benz[a]anthracene, benzo[b]fluoranthene, indeno(1,2,3-cd)pyrene, and naphthalene) were detected in groundwater at concentrations greater than one or more screening criteria. Benz(a)anthracene, benzo(a)fluoranthene, and indeno(1,2,3-cd)pyrene were detected at concentrations less than 0.1 µg/L, while naphthalene was detected at an MDC of 10.0 µg/L. All other VOCs and SVOCs were not detected or were detected at concentrations less than their respective screening criteria. TPH-DRO was detected in two samples with an MDC of 0.657 mg/L, and TPH-GRO was detected in one of three groundwater samples at a concentration of 0.363 mg/L.

These results are consistent with historical groundwater impacts in the Building 608 area (e.g., IRP Site 10, which was granted NFA in 2013) and are not necessarily indicative of a new source. No HRS scoring was conducted for the Former Detergent and/or Waste Oil USTs at Building 608 (TU018) as there is no complete exposure pathway and no source was identified specific to the former USTs.

8.1.5 Former Drop Tank Storage Area at Building 608 (SA019)

The Former Drop Tank Storage Area at Building 608 (SA019), located west of the building, was used to store and potentially drain/maintain wing tanks from F4 fighters at Lincoln ANGB. During the September 5, 2012, site visit, shop personnel indicated that any releases from the former drop tank storage area would have been directed into a 1,000-gal JP-4 waste tank (Tank #608-3) located to the southwest prior to its removal. Current runoff flows toward the southwest corner of the apron area; flow becomes concentrated as it leaves the pavement and enters the vegetated area adjacent to the perimeter fence. During SI field activities, a total of six soil samples and three groundwater samples were collected from three boring locations and analyzed for VOCs, SVOCs, and TPH.

Soil. Methylene chloride was the only constituent in soil to exceed soil screening criteria; however, all methylene chloride results were rejected due to probable laboratory contamination. All other VOCs and SVOCs were not detected or were detected at concentrations less than their respective screening criteria. TPH was detected in two soil samples, with the MDC of TPH-DRO (228J mg/kg) and TPH-GRO (65.2 mg/kg) both detected in the 1.9- to 3.3-ft BGS interval of SA019-SB3.

Groundwater. Three SVOCs (benz[a]anthracene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) were detected in groundwater at concentrations greater than one or more screening criteria. All three polycyclic aromatic hydrocarbons were detected at concentrations below 0.2 µg/L; the MDC for all three occurred at SA019-SB3. All other VOCs and SVOCs were not detected or were detected at concentrations less than their respective screening criteria. TPH was not detected.

Groundwater results are consistent with known historical petroleum impacts in the Building 608 area (e.g., IRP Site 10, which was granted NFA in 2013) and are not necessarily indicative of a new source. No HRS scoring was conducted for the Former Drop Tank Storage Area at Building 608 (TU018) as there is no complete exposure pathway.

8.1.6 Battery Acid Neutralization Pit in Building 636 (TU017)

The Battery Acid Neutralization Pit in Building 635 (TU017) was constructed outside of the battery room during building construction in 1992. According to shop personnel, very little battery acid was discharged to the floor drain. During the September 5, 2012, Installation-specific kickoff meeting, Mr. Wade Gregson and Mr. Ed Southwick of NDEQ indicated agreement with the assumption that, due to the 1992 installation date for this battery neutralization pit, it was likely that little to no battery acid was discharged to the battery room floor drain (most of the vehicle batteries after 1992 were sealed and did not require filling). NDEQ indicated that sampling would not be necessary at this location if the neutralization pit was found to be intact and structurally sound. A photograph of the pit taken on September 5, 2012, illustrates that the pit is intact and structurally sound and, thus, no sampling was conducted at the Battery Acid Neutralization Pit in Building 635 (TU017). Further investigation of this AOC is not warranted.

8.1.7 Former Oil/Water Separator at Building 605 (OW020)

The Former OWS at Building 605 (OW020) (also known as Tank #6055-1) was a 500-gal concrete structure installed in 1973. The OWS received used solvents and oils via the Building 605 shop floor and trench drains, as well as from the parts cleaning room in the Former Jet Engine Shop. In 1996, NDEQ issued a letter stating that NFA was required at Tank #605-1 based upon a Closure Assessment Report (NDEQ 1996). Subsequently, monitoring wells in the Building 605 area were abandoned under NDEQ oversight. Based upon review of these historical records, no sampling was conducted at the Former OWS at Building 605 (OW020). Further investigation of this AOC is not warranted.

8.2 RECOMMENDATIONS

Based upon the results of PA activities, the Battery Acid Neutralization Pit in Building 636 (TU017) was determined not to warrant further investigation. The Former OWS at Building 605 (OW020) was determined to have been granted NFA by NDEQ in 1996. Administrative closure of these two AOCs within the CRP is recommended.Lead was not detected in soil above screening criteria at the Battery Acid Neutralization Pit in Building 635 (TU016), and the only constituent detected above screening criteria at the Former Vehicle Service Pit in Building 635 (TU014) was naphthalene. The detected concentration does not warrant further investigation or remedial action. NFA is recommended for the following:

- the Former Vehicle Service Pit in Building 635 (TU014), and
- the Battery Acid Neutralization Pit in Building 635 (TU016).

Analytical results of groundwater sampling at all three Building 608 AOCs (the Former Vehicle Service Pit in Building 608 [TU015], the Former Detergent and/or Waste Oil USTs at Building 608 [TU018], and the Former Drop Tank Storage Area at Building 608 [SA019]) are consistent with historical petroleum groundwater impacts in the Building 608 area (e.g., IRP Site 10, which was granted NFA in 2013) and are not necessarily indicative of new source(s). However, the consistency among individual contaminants detected in both soil and groundwater beneath Building 608 and the significant soil contaminant concentrations identified in the SI indicate that a remedial investigation at the Former Vehicle Service Pit at Building 608 (TU015) is warranted. As petroleum impacts to groundwater are evident throughout the vicinity (see Figure 8-1), additional investigation is recommended at the Building 608 AOCs:

- the Former Vehicle Service Pit in Building 608 (TU015),
- the Former Detergent and/or Waste Oil USTs at Building 608 (TU018), and
- the Former Drop Tank Storage Area at Building 608 (SA019).

Table 8-1 summarizes information relevant to the ongoing DQO process for each of the three AOCs recommended for further investigation. Completed Remedial Action Cost Engineering Requirements worksheets are included as Appendix E for NGB programming purposes.

Table 8-1. Information Relevant to the DQO Process

AOC	Constituents Detected Above Screening Criteria	Sampling Recommendation(s)	Objectives
Former Vehicle Service Pit in Building 608 (TU015)	Soil: cyclohexane, ethylbenzene, isopropylbenzene, xylene (both m,p-xylene and o-xylene isomers), benz(a)anthracene, bis(2-ethylhexyl)phthalate, 2-methylnaphthalene, and naphthalene Groundwater: naphthalene and benzene	Soil: 12 soil samples Groundwater: 3 wells (9 total at Building 608)	Determine the nature and extent of contaminated media. Evaluate the risk posed by current concentrations in soil and groundwater, including vapor intrusion at Building 608
Former Detergent and/or Waste Oil USTs at Building 608 (TU018)	Soil: none Groundwater: benz(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, and naphthalene	Soil: none Groundwater: 3 wells (9 total at Building 608)	Determine the nature and extent of contaminated media. Evaluate the risk posed by current concentrations in groundwater, including vapor intrusion at Building 608
Former Drop Tank Storage Area at Building 608 (SA019)	Soil: none Groundwater: benz(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene	Soil: none Groundwater: 3 wells (9 total at Building 608)	Determine the nature and extent of contaminated media. Evaluate the risk posed by current concentrations in groundwater, including vapor intrusion at Building 608

AOC = Area of concern.
DQO = Data quality objective.
UST = Underground storage tank.

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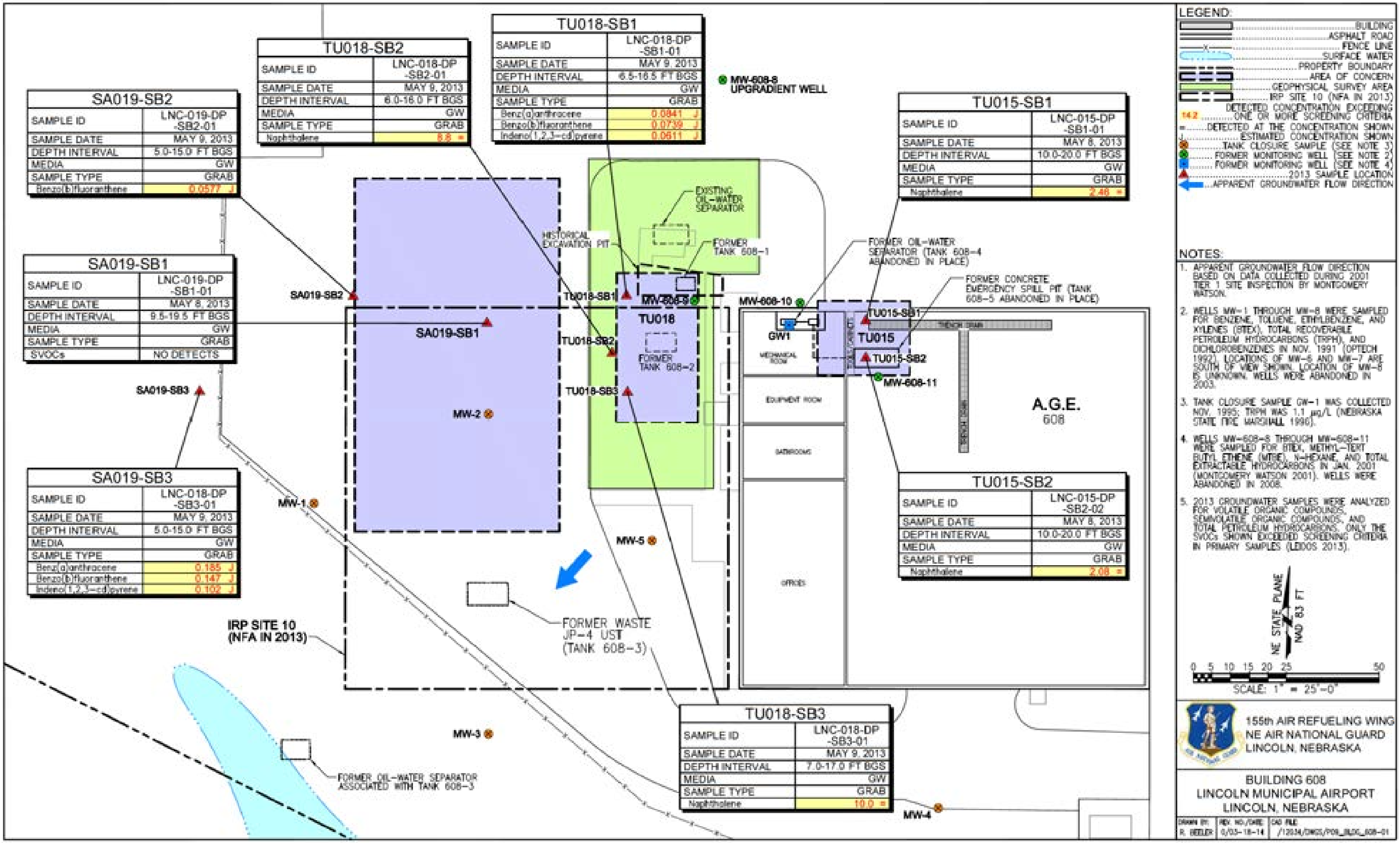

Figure 8-1. Detected SVOCs in Groundwater Near Building 608

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9.0 REFERENCES

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APPENDIX A
HISTORICAL DOCUMENTS

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TABLE OF CONTENTS

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GENERAL BASE DOCUMENTS

1991_USTs

1992_Bldg 635 USTs

1992_LUST Report

1992_UST Removal Program Plans

1993_UST Status

1999_Spills Status

2000_USTs Removal Status

2009_Bldgs 635 636 UST Closure

2011_IRP Sites and Status per EBS

Lincoln Appx C from 2011 EBS

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(USTLOG PRWRPT MIS)
STATE, BASE, PRODUCT

FILE 31K

STATE	BASE	KEY FIELD	TANK ID	CAP	YR INST	PROD	USE STAT	EMPTY	CT	BLDG	PROJECT	MILCONYR
										(abandoned		
NEBRASKA	LINCOLN	NGCB45	637	6,000	55	10	5	Y	1	Waste JP-4 @ 637 (G.A.P.)	NGCB 909559 R/UG	Fuel Storage Tanks FY 95
NEBRASKA	LINCOLN	NGCB50	POL-1	105,000	59	10	1	N	1	JP-4 @ Fuel Farm	? 909793 ?	
NEBRASKA	LINCOLN	NGCB51	POL-2	210,000	59	10	1	N	1	JP-4 @ Fuel Farm	? ?	
NEBRASKA	LINCOLN	NGCB52	POL-3	210,000	59	10	1	N	1	JP-4 @ Fuel Farm	? ?	
NEBRASKA	LINCOLN	NGCB42	635-2	2,000	55	30	3	N	1	Diesel @ 635 (Motor pool)	NGCB 909793	
NEBRASKA	LINCOLN	NGCB48	640-1	2,000	72	30	1	N	1	Diesel @ 640 (Army Motor pool)	ARMY	REMOVES
NEBRASKA	LINCOLN	NGCB46	655	26,000	55	31	1	N	1	Fuel oil @ 655 (Heating plant)	909559	
NEBRASKA	LINCOLN	NGCB47	624-2	10,000	56	31	1	N	1	Fuel oil @ (Army Hanger 624)	909559 [illegible]	
NEBRASKA	LINCOLN	NGCB43	635-3	10,000	79	40	1	N	1	Unl. Gas @ 635 (Motor Pool)	909793	
NEBRASKA	LINCOLN	NGCB49	640-3	2,000	85	40	1	N	1	Unl. Gas @ 640 (Army Motor pool)	— ARMY	REMOVES
NEBRASKA	LINCOLN	NGCB30	600-1	500	65	60	5	Y	1	Waste oil @ 600 (Hangar)	909559	
NEBRASKA	LINCOLN	NGCB32	605-2	1,000	73	50	1	Y	1	Waste JP-4 @ 605 (Engine Shop)	909559	
NEBRASKA	LINCOLN	NGCB33	608-1	500	75	60	1	N	1	Separator Overflow @ 608 (Fuel Cell R)	"	
~~NEBRASKA~~	~~LINCOLN~~	~~NGCB35~~	~~608-3~~	~~1,000~~	~~75~~	~~60~~	~~4~~	~~N~~	~~1~~			Removed MAR
NEBRASKA	LINCOLN	NGCB31	605-1	500	73	51	1	Y	1	O/W Sep @ 605 (Engine Shop)	909559	
NEBRASKA	LINCOLN	NGCB36	608-4	250	75	51	1	Y	1	Oil Interceptor @ 608 (Fuel Cell R.)	— ALREADY	ABOVE GROUND
NEBRASKA	LINCOLN	NGCB40	633-2	100	75	61	1	Y	1	Oil Interceptor @ 633 (AGE)	919614	
NEBRASKA	LINCOLN	NGCB41	635-1	500	79	51	1	Y	1	O/W Sep @ 635 (Motor pool)	909559	
NEBRASKA	LINCOLN	NGCB55	203-2	200	72	51	1	Y	1	O/W Sep @ 203 (Hush House)	"	
NEBRASKA	LINCOLN	NGCB37	608-5	2,600	75	63	1	Y	1	Emergency Spillpit @ 608 (Fuel Cell)	"	
NEBRASKA	LINCOLN	NGCB39	633-1	300	75	63	1	Y	1	" " " @ 633 (AGE)	919614	
NEBRASKA	LINCOLN	NGCB53	POL-4	3,000	57	53	1	N	1	Waste JP-4 @ Fuel Farm	909793 ?	
NEBRASKA	LINCOLN	NGCB34	608-2	2,000	75	90	1	N	1	Detergent (Aqueous) @ Fuel Cell	909559	
NEBRASKA	LINCOLN	NGCB44	635-4	130	79	90	1	N	1	Wash Bay Pit @ 635 (Motor pool)	"	
NEBRASKA	LINCOLN	NGCB38	632	550	75	92	5	Y	1	Waste oil @ 632 (AGE)	919614	
NEBRASKA	LINCOLN	NGCB54	203-1	100	72	92	1	Y	1	Sep overflow @ 203 (Hush House)	909559	

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Stow Freeze working?

MEMO FOR RECORD

Response to State Fire Marshall Orders per 28 April Inspection

1. Tanks 635-2 and 635-3.

   a. Inventory will now be monitored daily.

   b. Measurements of water level will be measured and recorded.

   c. Warning and operations signs are posted.

   d. Annual tank tightness testing was performed in Nov 91 and is currently being contracted to occur in June or July 93.

2. Tanks 624-2 and 655.

   a. Inventory measurements will be performed Apr - Nov.

3. Tanks 203-2, 605-1, 608-1, 632, and 635-1. All expeditiously emptied and all are to dropped from SFM Order.

4. Tanks 640-1 and 640-2. ARNG FMO is handling these tanks.

DEE/CPT Krajnik/19 May 92/1251/tp

Report Date 2/20/92

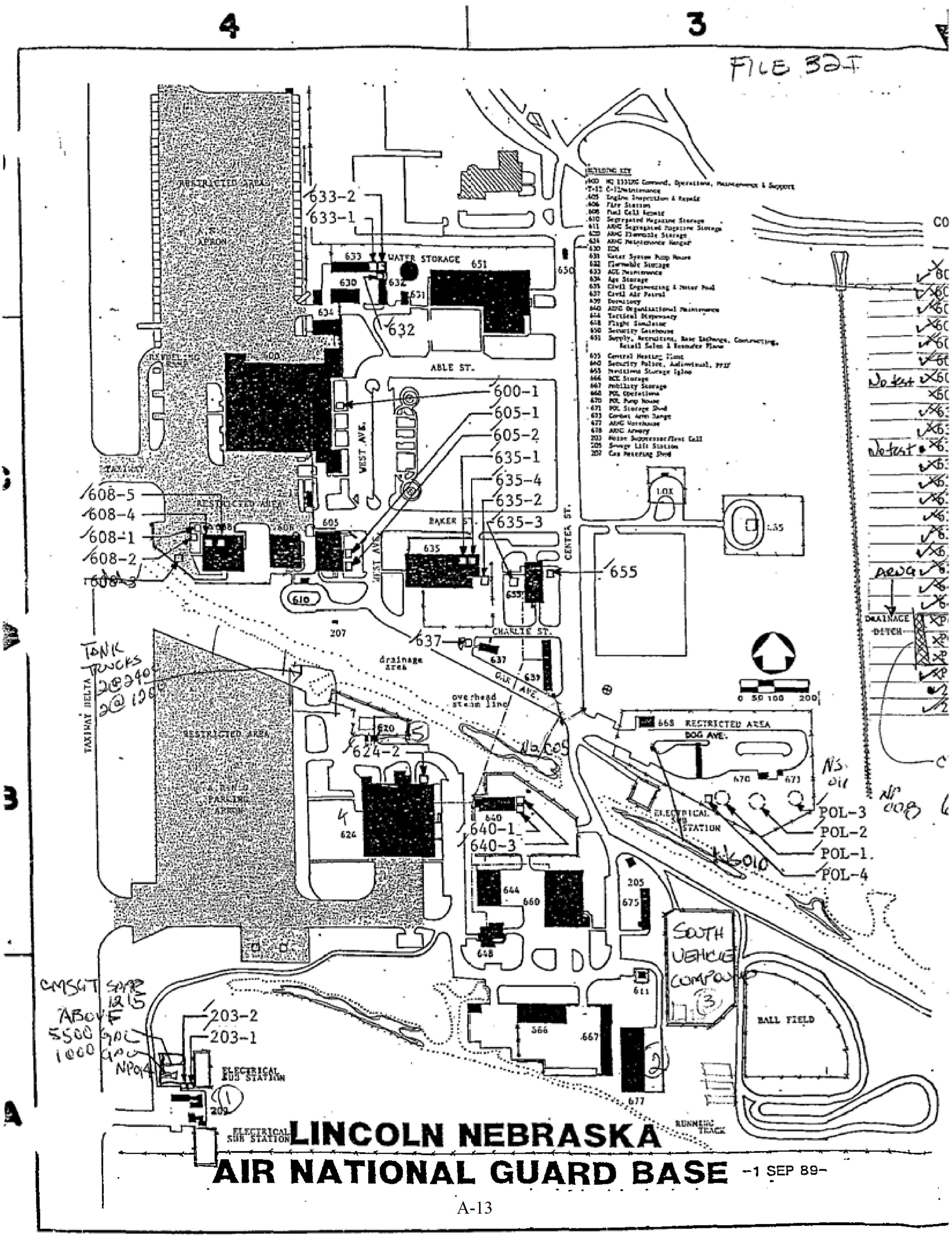
Underground Storage Tank Leak Detection
Compliance for Lincoln ANG Base

State	Base	Key Field	Tank ID	Cap	Yr Inst	Prod	Reg	Last Test	Annual Tk Tightness Test Date	Type Test
Nebraska	Lincoln	NGCB42	635-2	2,000	55	30	R	23 Nov 91	11/23/91	Float/helium gas
		Remarks-Diesel								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB46	655	26,000	55	31	R	26 Nov 91	11/26/91	Float/helium gas
		Remarks-Fuel Oil								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB47	624-2	10,000	56	31	R	23 Nov 91	11/23/91	Float/helium gas
		Remarks-Fuel Oil								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB53	POL-4	3,000	59	10	R	20 Nov 91	11/20/91	Float/helium gas
		Remarks-Waste JP-4								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB31	605-1	500	73	61	R	25 Nov 91	11/25/91	Float/helium gas
		Remarks-Oil/water separator								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no

State	Base	Key Field	Tank ID	Cap	Yr Inst	Prod	Reg	Last Test	Annual Tk Date	Tightness Test Type Test
Nebraska	Lincoln	NGCB32	605-2	1,000	73	60	R	25 Nov 91	11/25/91	Float/helium gas
		Remarks·Waste Oil								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB48	640-1	2,000	72	30	R	22 Nov 91	11/22/91	Float/helium gas
		Remarks·Diesel								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB55	203-2	200	72	61	R	21 Nov 91	11/21/91	Float/helium gas
		Remarks·Oil/water separator								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB33	608-1	500	75	60	R	25 Nov 91	11/25/91	Float/helium gas
		Remarks·Waste oil/separator overflow (expeditiously emptied)								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB36	608-4	250	75	61	R	25 Nov 91	11/25/91	Float/helium gas
		Remarks·Suspended tank/not underground/oil interceptor								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB41	635-1	500	79	61	R	26 Nov 91	11/26/91	Float/helium gas
		Remarks·Oil/water separator								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no

State	Base	Key Field	Tank ID	Cap	Yr Inst	Prod	Reg	Last Test	Annual Tk Tightness Test Date	Type Test
Nebraska	Lincoln	NGCB43	635-3	10,000	79	40	R	23 Nov 91	11/23/91	Float/helium gas
		Remarks-Unleaded gas								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB44	635-4	180	79	90	R	26 Nov 91	11/26/91	Float/helium gas
		Remarks.Wash Bay Pit								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB49	640-3	2,000	85	40	R	22 Nov 91	11/22/91	Float/helium gas
		Remarks-Unleaded gas								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB30	600-1	500	65	60	R	26 Nov 91	11/26/91	Float/helium gas
		Remarks-Working closure with state/Waste Oil								Status Fail
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB34	608-2	2,000	76	90	NR	25 Nov 91	11/25/91	Float/helium gas
		Remarks-Detergent/working closure with state								Status Fail
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB35	608-3	1,000	75	60	NR			
		Remarks-Removed April 91								Status
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no

State	Base	Key Field	Tank ID	Cap	Yr Inst	Prod	Reg	Last Test	Annual Tk Tightness Test Date	Type Test
Nebraska	Lincoln	NGCB37	608-5	2,600	75	90	NR	25 Nov 91	11/25/91	Float/helium gas
		Remarks·Emergency spill pit								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB38	632	550	75	60	R	25 Nov 91	11/25/91	Float/helium gas
		Remarks·Waste Oil								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB39	633-1	300	75	90	NR	25 Nov 91	11/25/91	Float/helium gas
		Remarks·Emergency spill pit								Status Pass
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no
Nebraska	Lincoln	NGCB45	637	8,000	55	30	NR	25 Nov 91	11/25/91	Float/helium gas
		Remarks·Working closure with state								Status Fail
		Circle 1 abandond tank=perm/temp/remvd								Empty=yes/no



LINCOLN NEBRASKA AIR NATIONAL GUARD BASE

-1 SEP 89-

Upgrade/cleanup

TEST OR REMOVE BY 22 DEC 19__ / Then annually afterwards.

NER	USE	SIZE	TYPE	INSTALLED		YEAR REGISTERED	TIGHTNESS TEST?	REMARKS
*	Waste Oil	500 gal	Welded Steel	1965	90	May 1986	?	
	Oil/Water Sep	500 gal	Concrete	1973	~~91~~	May 1986	Exempt	
*	Waste JP-4	1,000 gal	Welded Steel	1973	~~91~~	May 1986	?	
	Sep Overflow	500 gal	Welded Steel	1975	92	May 1986	?	
*	Detergent	2,000 gal	Fiberglass	1976	92	May 1986		Not In Use
*	~~Waste JP-4~~	~~1,000 gal~~	~~Welded Steel~~	~~1975~~		~~May 1986~~	Removed	Apr 91
	Oil Interceptor	250 gal	Welded Steel	1975	~~98~~		Exempt	Suspended, Not Buried
	Emer Spill Pit	2,600 gal	~~Concrete~~	1975			Exempt	
*	Waste Oil	550 gal	Fiberglass	1975	92	May 1986		
	Emer Spill Pit	300 gal	Concrete	1975			Exempt	
	Oil Interceptor	100 gal	Cast Iron	1975			Exempt	Suspended, Not Buried
	Oil/Water Sep	500 gal	Concrete	1979		May 1986	Exempt	Maintenance Bay
	Diesel	2,000 gal	Welded Steel	1955	89	May 1986	12 Jan 90	
	Unleaded Gas	10,000 gal	Welded Steel	1979	92	May 1986	19 Jan 90	
	Wash Bay Pit	180 gal	Concrete	1979			Exempt	Not listed w/ SFM
*	Waste JP-4	8,000 gal	Welded Steel	1955	89	May 1986		
	Fuel Oil	26,000 gal	Welded Steel	1955	~~89~~	May 1986	~~Exempt~~	DEFERRED FROM RELEASE DETECTION / MANUAL TANK Gauging monthly
	Fuel Oil	10,000 gal	Welded Steel	1956	~~89~~	May 1986	~~Exempt~~	
	Diesel	2,000 gal	Welded Steel	1972	91	May 1986		ARNG
	Unleaded Gas	2,000 gal	Welded Steel	1985	93	May 1986		ARNG
	JP-4	2,500 BBL	Welded Steel	1959	89	May 1986	2 Feb 90	
	JP-4	5,000 BBL	Welded Steel	1959	89	May 1986	19 Jan 90	
	JP-4	5,000 BBL	Welded Steel	1959	89	May 1986	12 Jan 90	
	Waste JP-4	3,000 gal	Concrete	1959		May 1986	Exempt	
*	Sep Overflow	100 gal	Welded Steel	1973	91	May 1986	Exempt	
	Oil/Water Sep	200 gal	Concrete	1973	91	May 1986	Exempt	

SED & TESTED SUMMER 1991

—As by call to State Fire Marshall (Fred — 471-2027) 1 May 91

-4 OIL/WATER SEPARATOR WASH RACK TO SANITARY 1991 CONCRETE

U.S. AIR FORCE

LINCOLN NE. AIR NATIONAL GUARD BASE

TITLE

UST PROFILE PLAN

SIZE B | A.F. CODE IDENT NO. | DRAWING NO | MAJOR SNOBERGER 21 FEB 1990

SCALE | SHEET 1 OF

ile 81K

UST Removal - Proposed Schedule

Oct 90

Tank #	Location	Use	Size/type	Removal Date Proposed	Removal Date Requireme
637	Motor Pool	Waste JP-4	8,000/steel	ASAP-FY91	CY 8
601-1	Tire Shop	" ,oil,...	500/steel	ASAP-FY91	CY 9
605-2	Engine Shop	"	1,000/steel	FY91	CY 9
* 608-2	So. Apron	Detergent	fiberglass/2,000	FY 92	CY 9
608-3	Pod Strg. Area	Waste JP4	1000 gal/steel	"	"
632-	AGE	Waste Oil	550 / fiberglass	"	"
203-1	Sound Supr.	Sep. Overflow	100 / steel	"	"

Proposal: Olsson Associates to write specs. (& drawings (?)) for removal of these seven tanks. Remove the first 3 UST's at the earliest possible date; remove the remainder by 22 Dec 92.

Scott

NGB UST experts: * Mike Minior / DEV 858-8155
Joy Hoyle / DEV -8141
Bill Morrison / DEU -8077

MEMO FOR RECORD

Underground Storage Tank Management Program

USTs listed below with related information concerning testing, removal, monitoring, etc.

Tank ID	CAP	Removal Project	(Apr - Nov) Monthly Monitoring	Daily Monitoring	Required Date of Testing	Remarks
637	8,000	Remove USTs			N/A	Abandoned
POL-1	110,000	Apron/POL		**X	*Nov 92	
POL-2	220,000	Apron/POL		**X	*Nov 92	
POL-3	220,000	Apron/POL		**X	*Nov 92	
POL-4	3,000	Apron/POL			*Nov 92	
635-1	500	Remove USTs			N/A	
635-2	2,000	Apron/POL		X	Nov 92	3714-State ID #
635-3	10,000	Apron/POL		X	Nov 92	3714-State ID #
635-4	180	Remove USTs			N/A	
655	26,000	Replace Heating Plants	X		*Nov 92	HO-0843-State I
624-2	10,000	Replace Heating Plants	X		N/A	HO-0843-State ID
600-1	500	Remove USTs			N/A	Abandoned
605-1	500	Remove USTs			N/A	
605-2	1,000	Remove USTs			N/A	Abandoned
608-1	500	Remove USTs			N/A	
608-4	250	Remove USTs			N/A	
608-5	2,600	Remove USTs			N/A	
633-1	300	Fuel Systems Maint Dock			N/A	
633-2	100	Fuel Systems Maint Dock			N/A	
203-1	100	Remove USTs			N/A	
203-2	200	Remove USTs			N/A	
632	550	Fuel Systems Maint Dock			N/A	

Total tanks--22

* Required by DEQ, <u>not</u> Title 159.

** AF Requirement/<u>not</u> Title 159.

DEE/CPT KRAJNIK/19 May 93/1251\tp

SPILLNO	STF	SPST	OWNCO	SPLOC	SPCITY
24023-S-0940	SS	?	AIR NAT'L GUARD	AIR GUARD BASE	LINCOLN
100692-JB-1345	SS	1	AIR NATIONAL GUARD	N END MAIN TERMINAL RAMP	LINCOLN
090996-GW-1520	PB	8	AIR NATIONAL GUARD	LANG BASE #640-1 & #640-3	LINCOLN
041694-JB-1155	SS	5	AIR NATIONAL GUARD	AIR GUARD FUEL FARM	LINCOLN
073191-RF-1200	14	5	AIR NATIONAL GUARD	SITE 10 2301 W. ADAMS	LINCOLN
071196-NM-1115	SS	5	AIR NATIONAL GUARD	NW BLDG 608,SE CRNR OF APRON	LINCOLN
081591-RF-1200	14	9	AIR NATIONAL GUARD	2301 WESR ADAMS NO OF CREEK	LINCOLN
030696-AP-0000	AP	5	NE AIR NATIONAL GUARD	NEANG #605-2	LINCOLN
022996-GW-1335	14	5	NEBR AIR NAT GUARD	NEBR ANG BASE BLDG 600	LINCOLN
AP5070	AP	5	NEBRASKA AIR NAT GUARD	#624-3, #624-4	LINCOLN
010896-NH-1530	SS	5	NEBRASKA AIR NATL GUARD	FUEL CELL MAINTENANCE HANGER	LINCOLN
102595-NH-1600	SS	5	NEBRASKA AIR NATL GUARD	FUEL CELL MAINT HANGAR	LINCOLN
040996-GW-0935	PB	8	USP & FO/NE AIR NAT GUARD	NEBR ANG BASE BLDG 608	LINCOLN
022996-GW-1420	14	5	USP&FO/NE AIR NAT GUARD	LINCOLN AIR GRD BASE BLDG 637	LINCOLN
071796-AP-0004	AP	5	USP&FO/NE AIR NAT GUARD	NE ANG BASE BLDG 605	LINCOLN
112295-NH-1300	14	5	USP&FO/NE AIR NAT GUARD	LINCOLN AIR GRD BASE BLDG 655	LINCOLN
091896-99-0000	AP	5	USP&FO/NE AIR NAT GUARD	NEBR ANG BASE #624-2	LINCOLN

5 = closed
9 = active
8 = back logged

155TH AIR REFUELING WING
UST REMOVAL PROGRAM

CONTAINER ID	USE	SIZE	TYPE	INSTALLED	RPM	MILCON	ANALYTICALS
600-1	Waste Oil	500 gal	Welded Steel	1965		NGCB 909559A	
606-1	Oil/Water Sep	500 gal	Concrete	1973		909559	
605-2	Waste JP-4	1,000 gal	Welded Steel	1973		909559	
608-1	Sep Overflow	500 gal	Welded Steel	1975		909559A	
608-2 Roggy	Detergent	2,000 gal	Fiberglass	1976	X		
608-3	Waste JP-4	1,000 gal	Welded Steel	1975	X		
608-4	Oil Interceptor	250 gal	Welded Steel	1975		909559A	
608-5 milner	Emer Spill Pit	2,600 gal/1,800 gal	Concrete	1975		909559A	
632 talk to	Waste Oil	550 gal	Fiberglass	1975		NGCB 919614	
633-1 Dennis	Emer Spill Pit	300 gal	Concrete	1975		" "	
633-2 Fuel cell Hanger	Oil Interceptor	100 gal	Cast Iron	1975		" "	
635-1 project	Oil/Water Sep	500 gal	Concrete	1979		929826A	
635-2 fuel ops	Diesel	2,000 gal	Welded Steel	1955		" "	
635-3	Unleaded Gas	10,000 gal	Welded Steel	1979		" "	
635-4	Wash Bay Pit	180 gal	Concrete	1979		" "	
637	Waste JP-4	8,000 gal	Welded Steel	1955		909559A	
655	Fuel Oil	26,000 gal	Welded Steel	1955		NGCB 929723	
624-2 (AASF)	Fuel Oil	10,000 gal	Welded Steel	1956			
640-1 ARmy	Diesel	2,000 gal	Welded Steel	1972			
640-3 ARmy	Unleaded Gas	2,000 gal	Welded Steel	1985			
POL-1	JP-4	2,500 bbl	Welded Steel	1959	IRP		
POL-2	JP-4	5,000 bbl	Welded Steel	1959	IRP		
POL-3	JP-4	5,000 bbl	Welded Steel	1959	IRP		
POL-4	Waste JP-4	3,000 gal	Concrete	1959	IRP		
203-1	Sep Overflow	100 gal	Welded Steel	1973	~~NGCB 909559~~	NGCB 909559	
203-2	Oil/Water Sep	200 gal	Concrete	1973	~~"~~	" "	

Dave Heineman
Governor

STATE OF NEBRASKA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Michael J. Linder
Director
Suite 400, The Atrium
1200 'N' Street
P.O. Box 98922
Lincoln, Nebraska 68509-8922
Phone (402) 471-2186
FAX (402) 471-2909
website: www.deq.state.ne.us

MAY 27 2009

FILE COPY

Lt Col Jay Rutten
NEANG
2411 W Butler Avenue
Lincoln NE 68524

RE:	Soil Sampling Report
Facility Name:	Base Security
Address:	Buildings 635 & 636, 2420 W Butler Ave
City:	Lincoln
DEQ Incident Number:	UG# 072996-GW-1450
IIS#:	59696

Dear Lt. Col. Rutten:

We have received the Soil Sample Results Report for the boring drilled on October 22, 2008, at the above referenced facility location. The report indicated soil contamination near and at the water table. The boring was located near the area where two underground storage tanks (USTs) along with associated lines and a dispenser were removed on June 16, 1997. On December 29, 2000, the NEANG installed three monitor wells in accordance with the Department's Risk-Based Corrective Action (RBCA) Tier 1 investigation guidance. Based on the information provided in the Tier 1 report, the release was closed on October 30, 2003. After reviewing the 2003 Tier 1 report again, it appears the contamination detected on October 22, 2008, is related to the release from the former UST system. The new field information does not indicate the file should be re-opened. As such, the Department will be combining this information with the previous incident and the release file will remain closed. No further remedial actions will be required at this time. However, if a problem arises in the future as a result of this release, Nebraska Air National Guard will remain responsible for further remedial actions.

If you have any questions, please feel free to contact me at (402) 471-3378. Also, it is important that you contact me if your address or phone number changes. Thank you for your cooperation.

Sincerely,

Nancy Mann

Nancy Mann
Petroleum Remediation Section
Water Quality Division

2009130967

Table 4-1. Results from State and Federal Database Search Lincoln ANGB, Nebraska

Map ID*	Site Name and Address	Distance/ Direction	Databases Reporting Site Information	Additional Details from Databases
A	Nebraska ANG 2420 W. Butler Ave Lincoln, NE 68524	Adjacent Property	AST HIST AST SHWS NPDES AIRS RCRA-TSDF RCRA-SQG FINDS MANIFEST UST	SQG with violations found. One 3,000-gallon AST in service.
7	Nebraska ANG – IRP Site 10 2301 W. Adams Street Lincoln, NE 68524	Adjacent Property	LUST	None
E25	Army Aviation Support Facility 624 Municipal Airport Lincoln, NE 68524	Adjacent Property	CERC-NFRAP RCRA-CESQG	None
B8/B9	Lincoln AFB 2400 W. Adams Street Lincoln, NE 68524	Adjacent Property	SHWS UIC NE Tier 2	None
D17	JP-4 Fuel Farm 2301 W. Adams Ave Lincoln, NE 68524	Adjacent Property	LUST	High-risk site, current active investigation or remediation
C11/C12	Duncan Aviation Hangar Municipal Airport 2400 W. Adams Street Lincoln, NE 68524	⅛ mile E	UST LUST	None
C13	Lincoln Airport Authority Airline Terminal Bldg 2400 W. Adams Street Lincoln, NE 68524	⅛ mile E	UST LUST	None
C15	Federal Aviation Admin. Radio Tower Site 2400 W. Adams Street Lincoln, NE 68524	⅛ mile E	UST	None
16	Nebraska Army National Guard 2950 N. Park Road Lincoln, NE 68524	⅛ mile E	RCRA-SQG FINDS MANIFEST	SQG
F	Molex Incorporated 1400 W. Bond Circle Lincoln, NE 68521	½ mile E	RCRA-SQG FINDS LUST	None
30	Airport Plaza 66 2925 NW 12th Street Lincoln, NE 68521	½ mile E	LUST	None
31	Airport AMOCO 3100 NW 12th Street Lincoln, NE 68521	½ mile E	FINDS LUST UST HIST UST	None

*From Radius Map Report in Appendix D.

Table 4-2. IRP Sites in Surrounding Adjacent Property
Lincoln ANGB, Nebraska

Site Number	Site Name	Disposed Material	Operation Date	Date Identified	Status
1	POL Storage Area	Aviation gasoline, JP-4	1950s-1999	1987	Removed free product, removed contaminated soil, and treated soil and groundwater from 1983 to 2009; DEQ approved closure on 2 Feb 2010
2	West End of Old Oak Creek	Motor oils, JP-4, heavy metals, hydraulic oils, PD-680, paint remover	1952-1986	1987	DEQ approved closure on 2 Feb 2010
3	Former Tank Cleaning Area	Waste oil, JP-4, paint thinners, solvents, acids	1970s-1982	1987	DEQ approved closure on 9 Aug 2006
4	Road Area Where Dust Control Occurred	Waste oils, paint thinners, diesel fuel	1958-1972	1987	DEQ approved closure on 7 May 2006
5	Army National Guard Oil Storage Area	Waste oil	1950s-1997	1987	Removed UST, DEQ approved closure on 7 Dec 2000
6	Hydraulic Fluid Spill Area	Hydraulic fluid	1950s-1997	1987	DEQ approved closure on 7 May 2007
7	Army National Guard Fence, North of Building 640	Sterilizing agents	Mid-1970s	1987	DEQ approved closure on 7 May 2007
8	Hazardous Waste Storage Area South of Building 666	Hazardous waste	1960-1985	1987	DEQ approved closure on 7 May 2007
9	F-86 Crash Site	JP-4	1960	1987	Removed contaminated soils, DEQ approved closure on 21 Apr 2000
10	1,000-gallon JP-4 UST and OWS	Oil, JP-4	1991	1992	Removed UST, DEQ approved closure on 1 Dec 1992
13	Heating Oil Spill	Oil	1956-2001	1992	Removed UST, DEQ approved closure on 24 Sept 2008

Source: MWH 2011

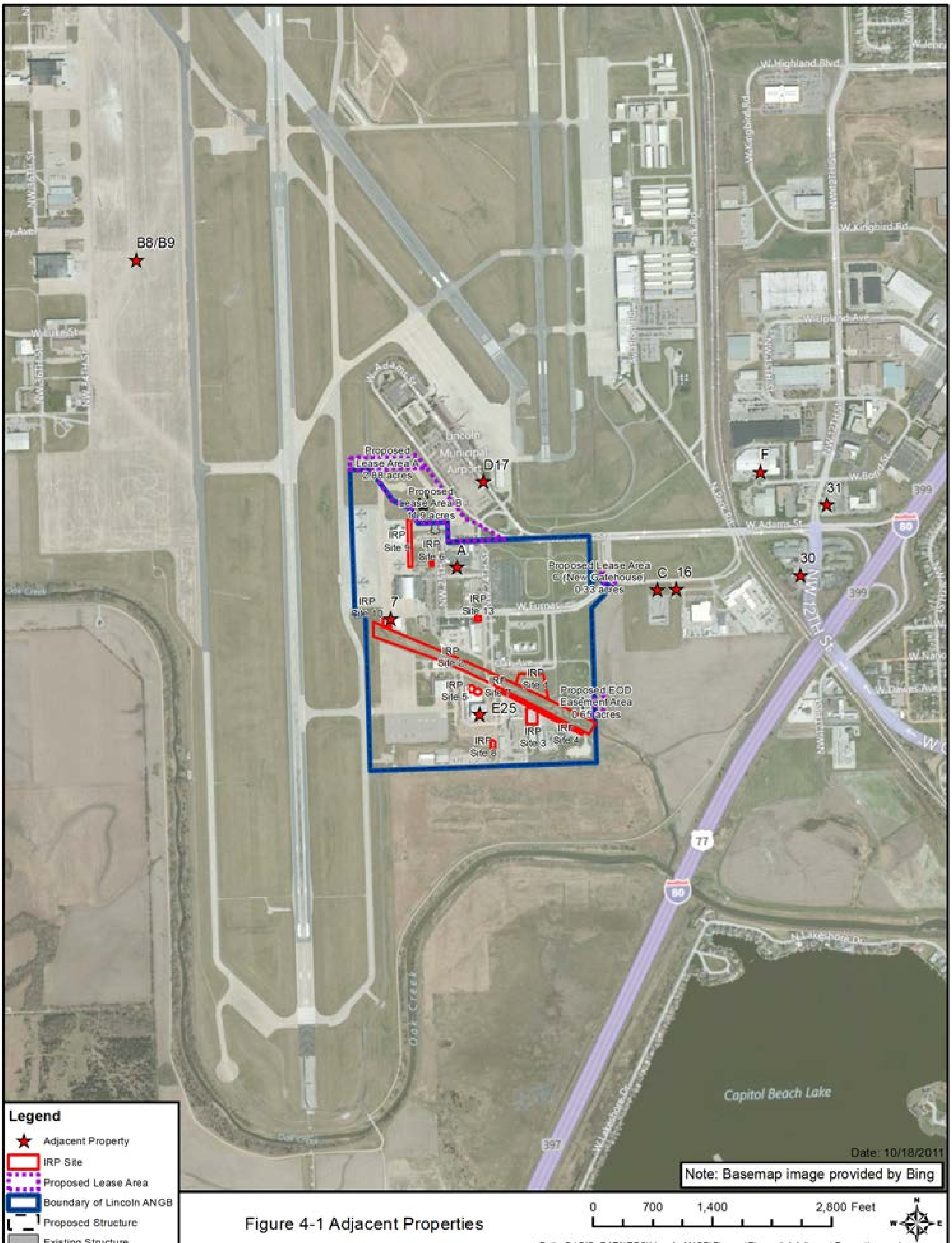


Figure 4-1 Adjacent Properties

HISTORICAL AERIAL PHOTOGRAPHS AND TOPOGRAPHS

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Aerial Photographs 1953 to 2005

Lincoln Air National Guard Base
2420 West Butler Avenue
Lincoln, NE 68524

Inquiry Number: 3143112.5
August 09, 2011

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

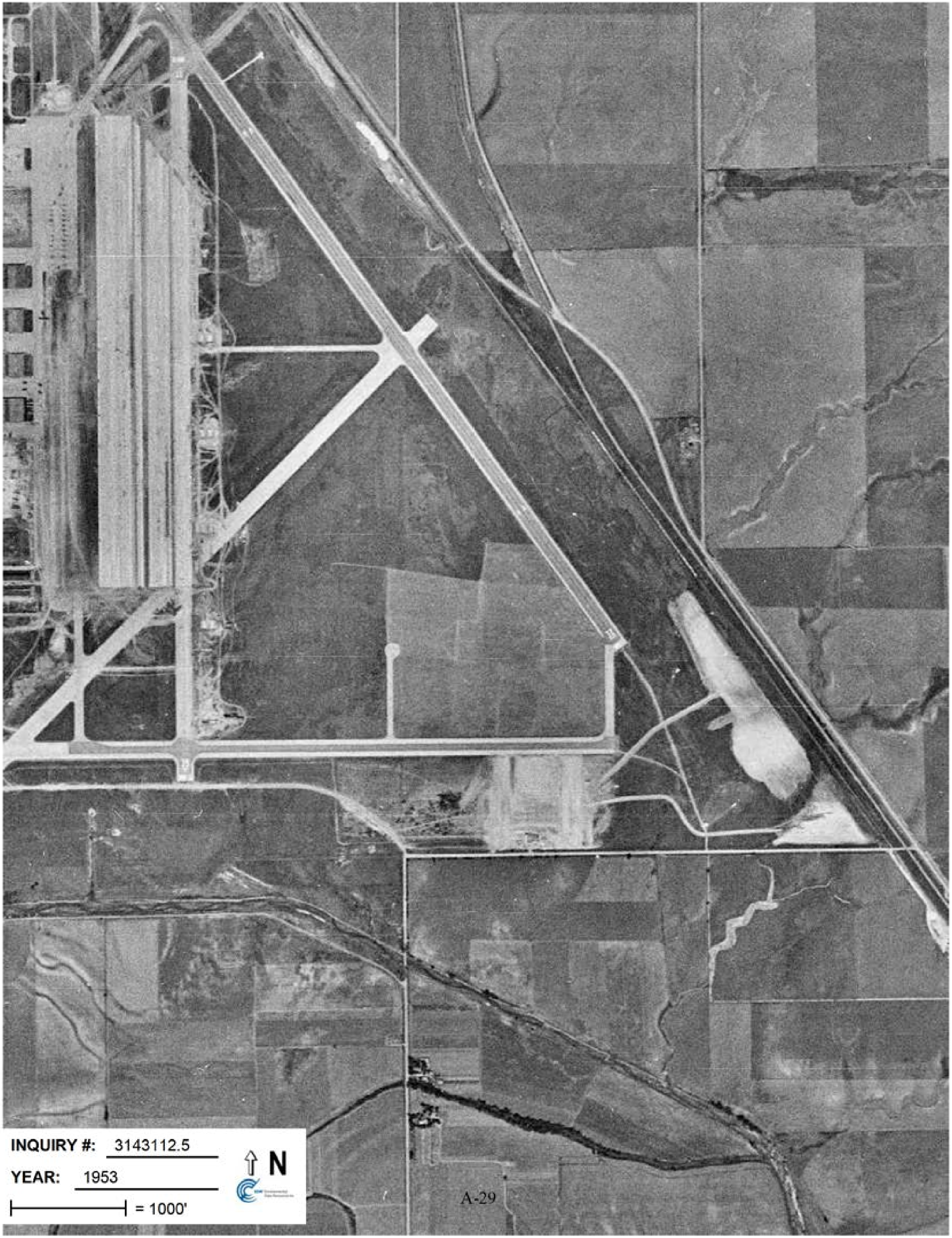
Aerial Photography August 09, 2011

Target Property:

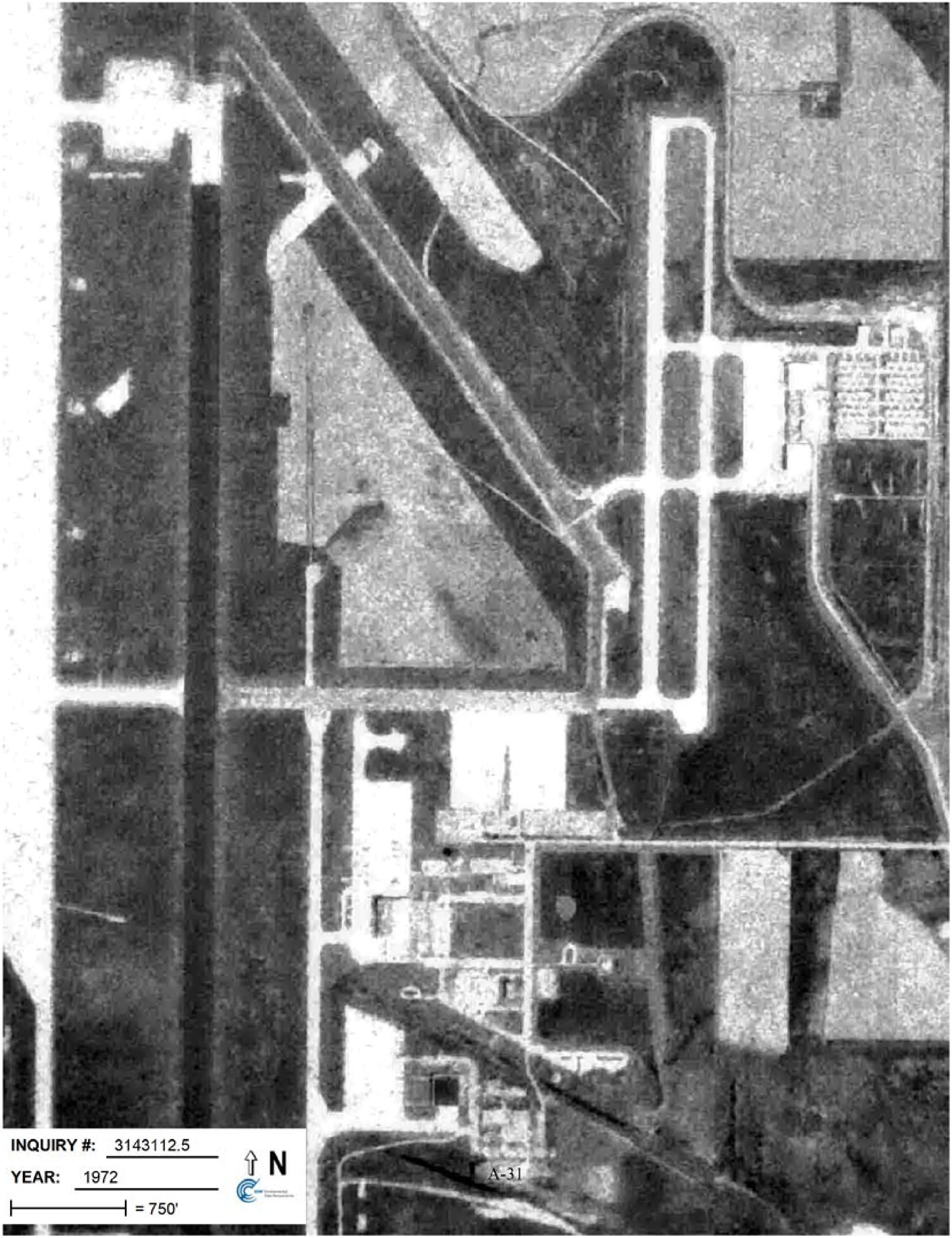
2420 West Butler Avenue

Lincoln, NE 68524

Year	***Scale***	***Details***	***Source***
1953	Aerial Photograph. Scale: 1"=1000'	Panel #: 40096-G7, Emerald, NE:/Flight Date: September 12, 1953	EDR
1961	Aerial Photograph. Scale: 1"=500'	Panel #: 40096-G7, Emerald, NE:/Flight Date: April 13, 1961	EDR
1972	Aerial Photograph. Scale: 1"=750'	Panel #: 40096-G7, Emerald, NE:/Flight Date: May 18, 1972	EDR
1978	Aerial Photograph. Scale: 1"=1000'	Panel #: 40096-G7, Emerald, NE:/Flight Date: May 10, 1978	EDR
1981	Aerial Photograph. Scale: 1"=1000'	Panel #: 40096-G7, Emerald, NE:/Flight Date: September 20, 1981	EDR
1987	Aerial Photograph. Scale: 1"=1000'	Panel #: 40096-G7, Emerald, NE:/Flight Date: August 29, 1987	EDR
1994	Aerial Photograph. Scale: 1"=750'	Panel #: 40096-G7, Emerald, NE:/Flight Date: March 18, 1994	EDR
1999	Aerial Photograph. Scale: 1"=604'	Panel #: 40096-G7, Emerald, NE:/Composite DOQQ - acquisition dates: April 06, 1999	EDR
2005	Aerial Photograph. Scale: 1"=604'	Panel #: 40096-G7, Emerald, NE:/Flight Year: 2005	EDR
2006	Aerial Photograph. Scale: 1"=604'	Panel #: 40096-G7, Emerald, NE:/Flight Year: 2006	EDR
2007	Aerial Photograph. Scale: 1"=604'	Panel #: 40096-G7, Emerald, NE:/Flight Year: 2007	EDR


INQUIRY #: 3143112.5
YEAR: 1953
N
= 1000'


INQUIRY #: 3143112.5
YEAR: 1961
N
= 500'



A-31
INQUIRY #: 3143112.5
YEAR: 1972
N
= 750'


INQUIRY #: 3143112.5
YEAR: 1978
= 1000'
N

INQUIRY #: 3143112.5
YEAR: 1981
= 1000'
N


INQUIRY #: 3143112.5
YEAR: 1987
= 1000'
N


INQUIRY #: 3143112.5
YEAR: 1994
N
= 750'


32
35
R
INQUIRY #: 3143112.5
YEAR: 1999
= 604'
N


INQUIRY #: 3143112.5
YEAR: 2005
N
= 604'

Aerial Photographs 2006 to 2007


35
INQUIRY #: 3143112.5
YEAR: 2006
= 604'
N


32
35
INQUIRY #: 3143112.5
YEAR: 2007
N
= 604'

Historical Topographic Map Report

Lincoln Air National Guard Base
2420 West Butler Avenue
Lincoln, NE 68524

Inquiry Number: 3143112.4
August 08, 2011

EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

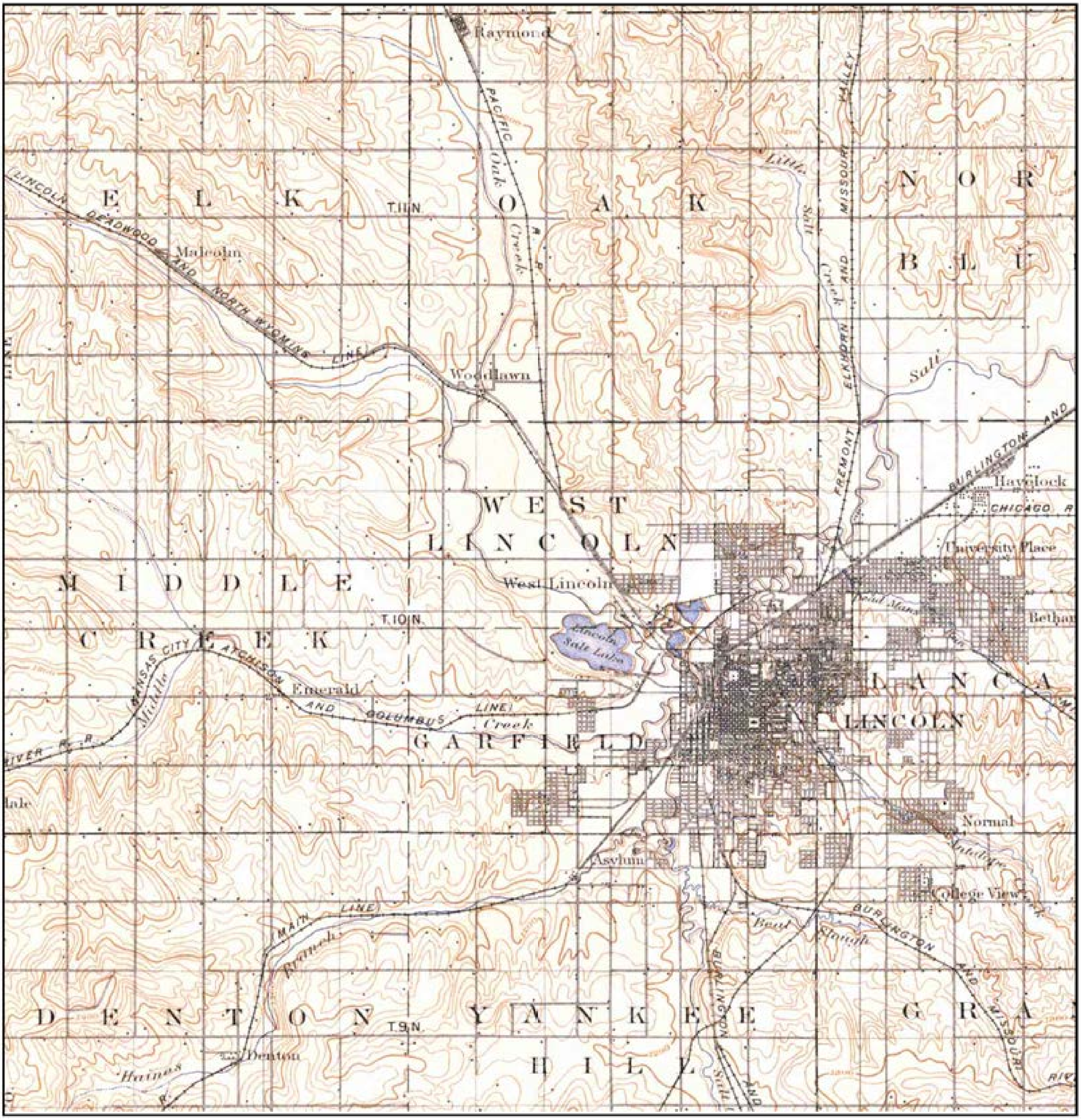
440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

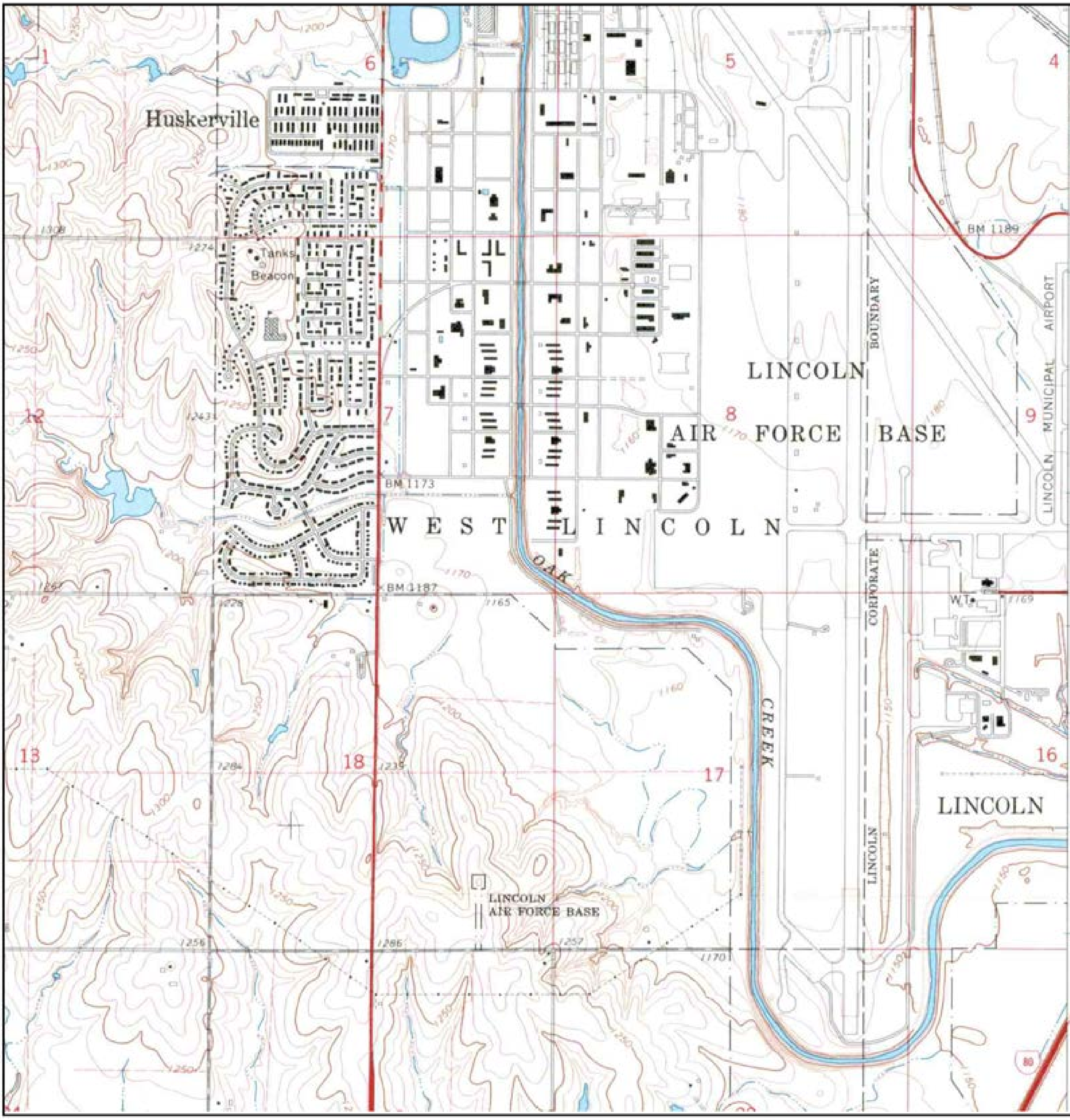
Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Historical Topographic Map



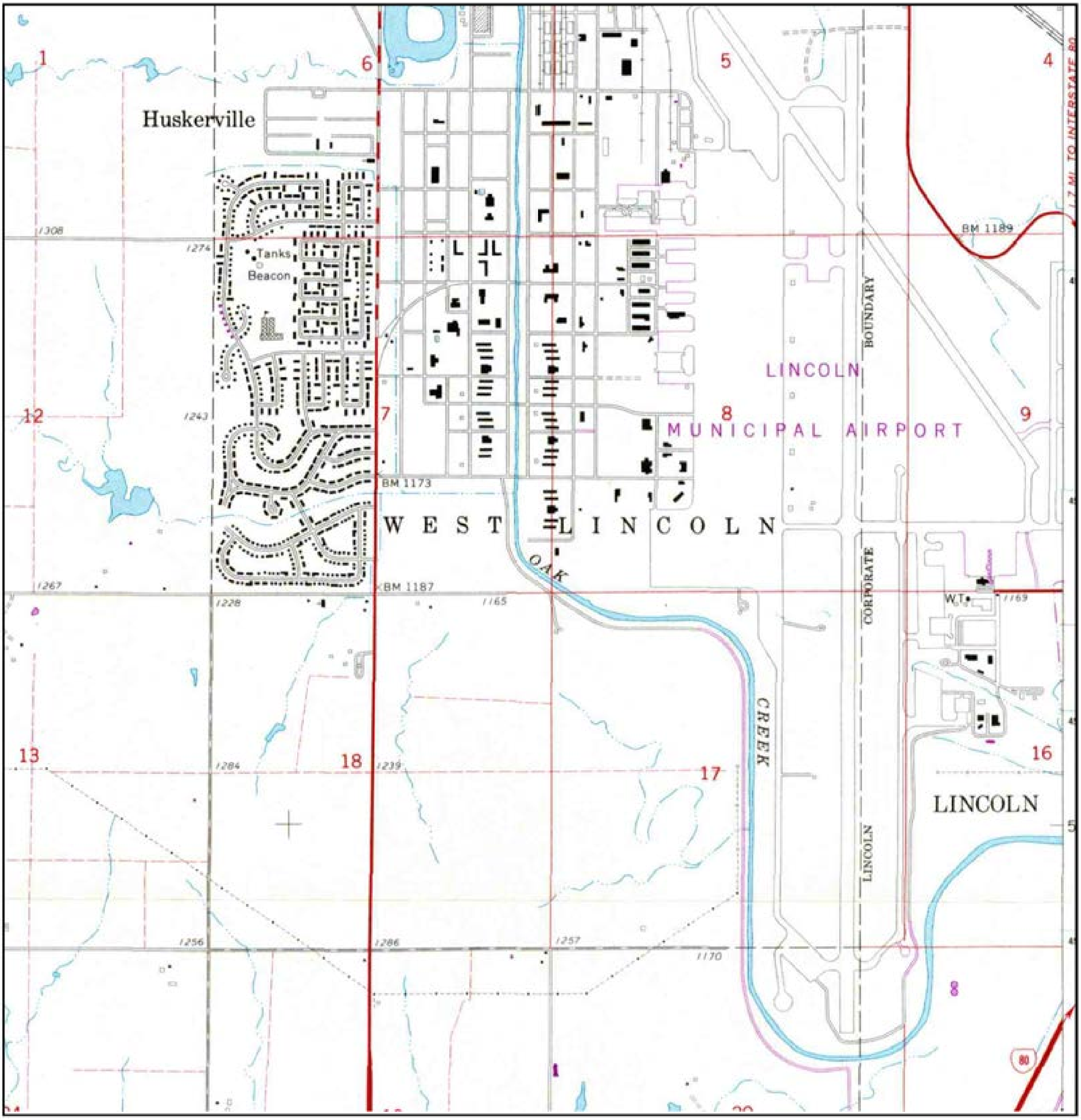
N	TARGET QUAD NAME: LINCOLN MAP YEAR: 1897 SERIES: 30 SCALE: 1:125000	SITE NAME: Lincoln Air National Guard Base ADDRESS: 2420 West Butler Avenue Lincoln, NE 68524 LAT/LONG: 40.8442 / -96.7564	CLIENT: SAIC CONTACT: John Whelpley INQUIRY#: 3143112.4 RESEARCH DATE: 08/08/2011

Historical Topographic Map



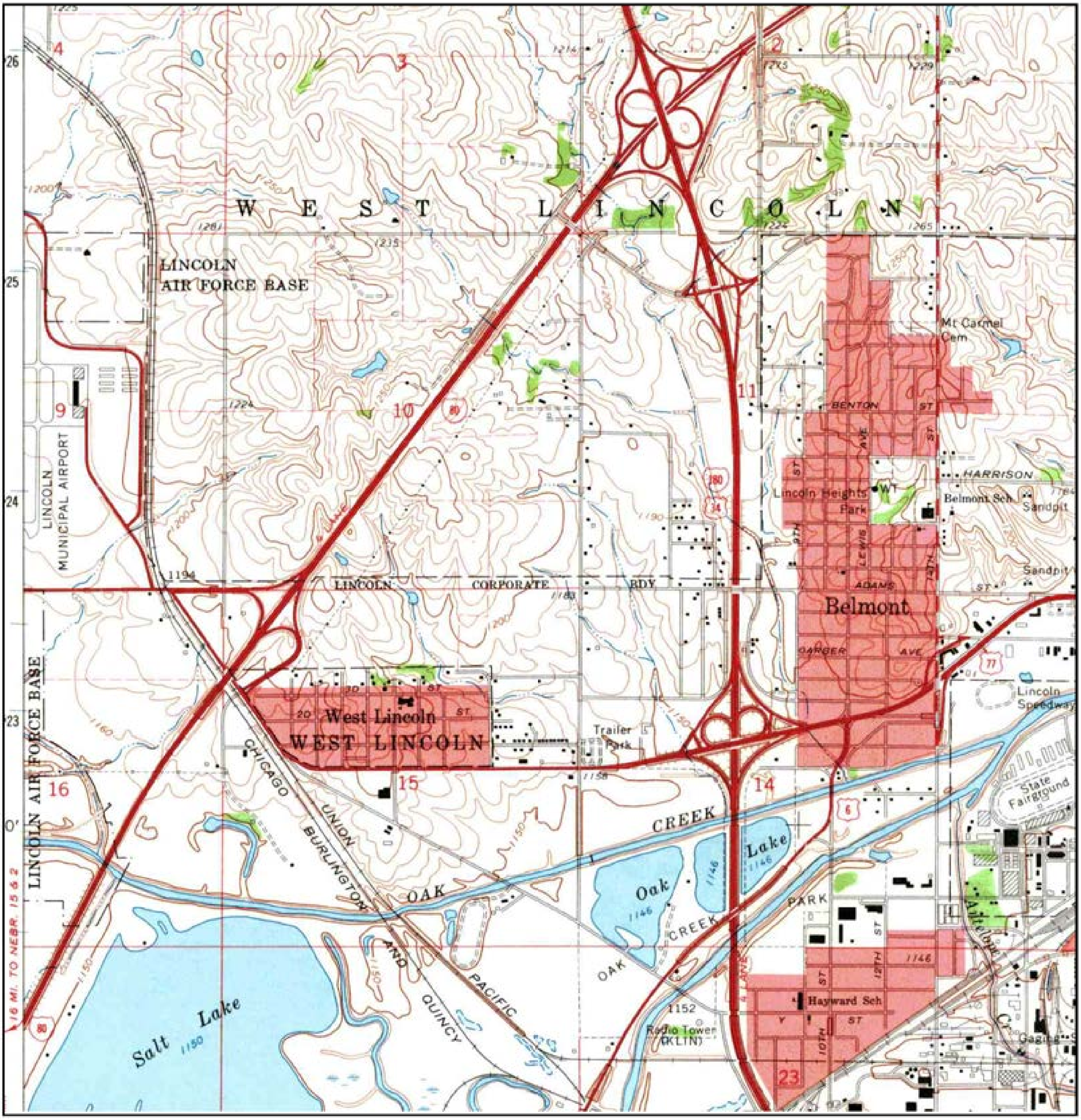
N	TARGET QUAD NAME: EMERALD MAP YEAR: 1964 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lincoln Air National Guard Base ADDRESS: 2420 West Butler Avenue Lincoln, NE 68524 LAT/LONG: 40.8442 / -96.7564	CLIENT: SAIC CONTACT: John Whelpley INQUIRY#: 3143112.4 RESEARCH DATE: 08/08/2011

Historical Topographic Map



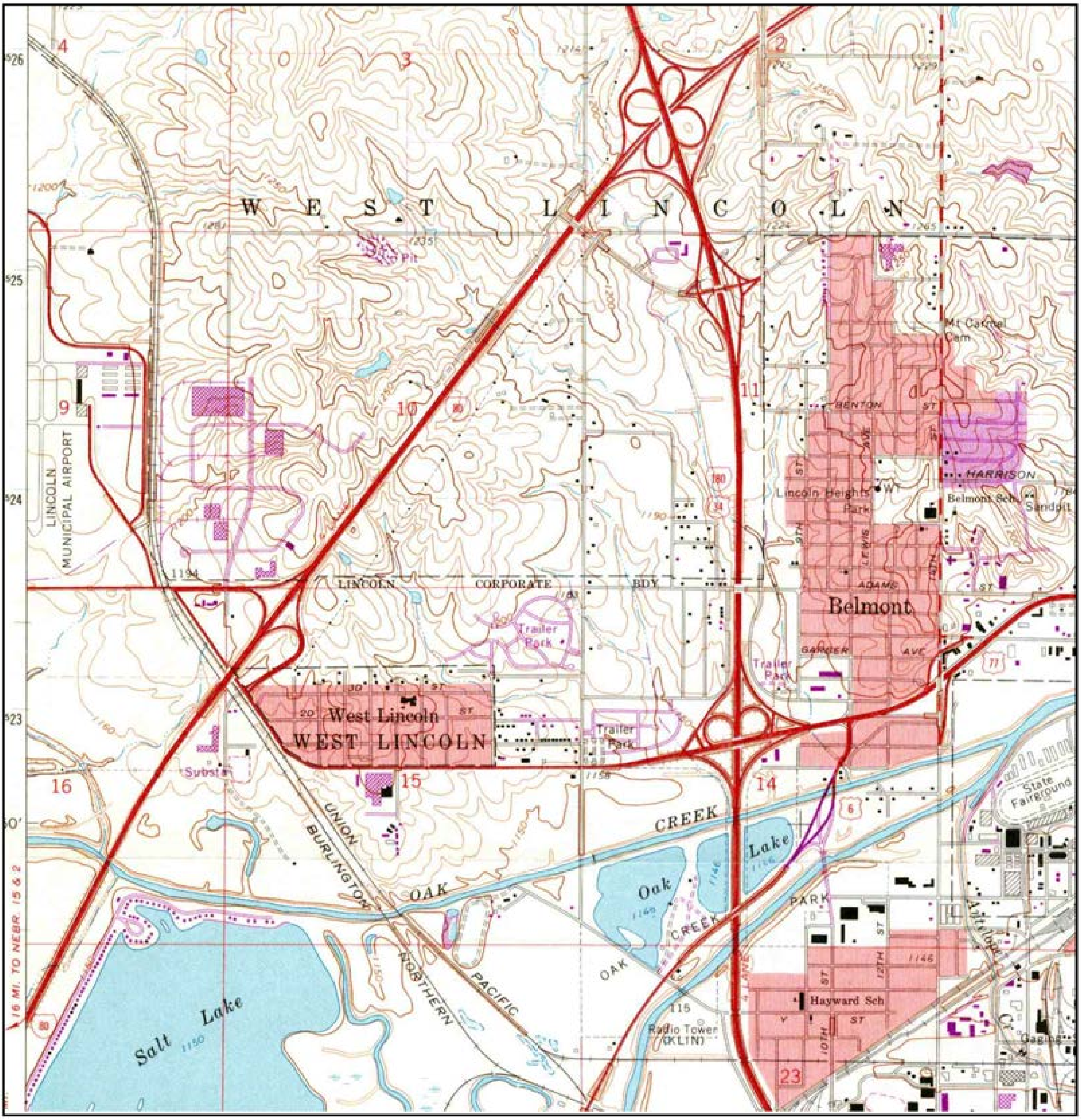
TARGET QUAD NAME: EMERALD MAP YEAR: 1972 PHOTOREVISED:1964 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lincoln Air National Guard Base ADDRESS: 2420 West Butler Avenue Lincoln, NE 68524 LAT/LONG: 40.8442 / -96.7564	CLIENT: SAIC CONTACT: John Whelpley INQUIRY#: 3143112.4 RESEARCH DATE: 08/08/2011

Historical Topographic Map



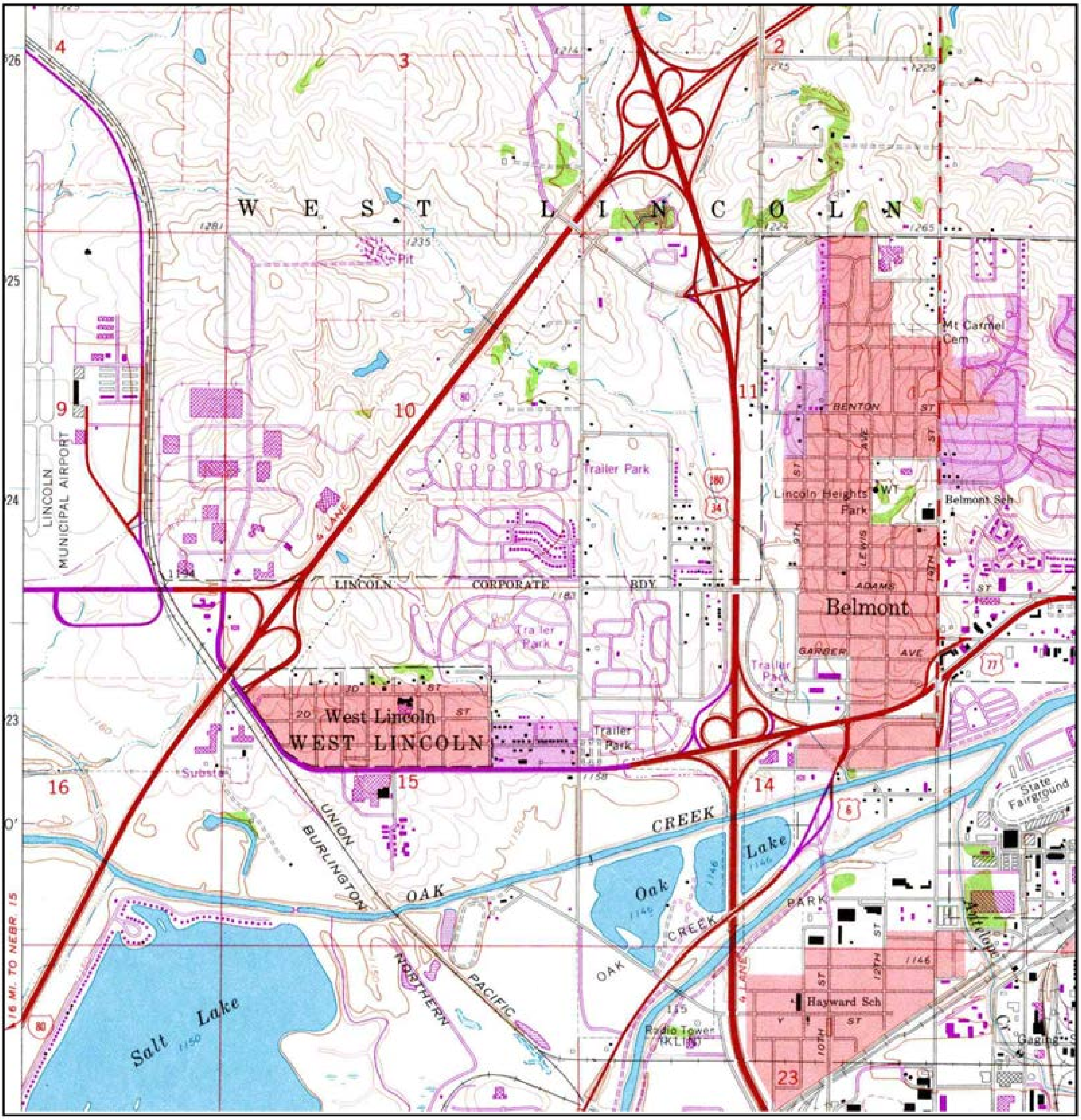
N	ADJOINING QUAD NAME: LINCOLN MAP YEAR: 1964 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lincoln Air National Guard Base ADDRESS: 2420 West Butler Avenue Lincoln, NE 68524 LAT/LONG: 40.8442 / -96.7564	CLIENT: SAIC CONTACT: John Whelpley INQUIRY#: 3143112.4 RESEARCH DATE: 08/08/2011

Historical Topographic Map



N	ADJOINING QUAD NAME: LINCOLN MAP YEAR: 1972 PHOTOREVISED: 1964 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lincoln Air National Guard Base ADDRESS: 2420 West Butler Avenue Lincoln, NE 68524 LAT/LONG: 40.8442 / -96.7564	CLIENT: SAIC CONTACT: John Whelpley INQUIRY#: 3143112.4 RESEARCH DATE: 08/08/2011

Historical Topographic Map



N	ADJOINING QUAD NAME: LINCOLN MAP YEAR: 1980 PHOTOREVISED:1964 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Lincoln Air National Guard Base ADDRESS: 2420 West Butler Avenue Lincoln, NE 68524 LAT/LONG: 40.8442 / -96.7564	CLIENT: SAIC CONTACT: John Whelpley INQUIRY#: 3143112.4 RESEARCH DATE: 08/08/2011

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BUILDING 608 AREA (TU015, TU018, AND SA019)

1992 Site Assessment by OpTech_NE ANG at Lincoln

1995 CAR Tank 608-1_NE ANG at Lincoln

1995 CAR Tank 608-4_NE ANG at Lincoln

1885 CAR Tank 608-5_NE ANG at Lincoln

2001 Tier 1 Site Investigation by MW_NE ANG at Lincoln

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SITE ASSESSMENT

LINCOLN AIR NATIONAL GUARD BASE
LINCOLN, NEBRASKA

National Guard Bureau
Contract No. DAHA90-91-C-0003

OPERATIONAL TECHNOLOGIES
CORPORATION
4100 N.W. Loop 410, Suite 230
San Antonio, Texas 78229-4253
Telephone: (512) 731-0000

March 1992

SITE ASSESSMENT

IN SUPPORT OF THE

155TH TACTICAL RECONNAISSANCE GROUP
NEBRASKA AIR NATIONAL GUARD
LINCOLN AIR NATIONAL GUARD BASE
LINCOLN, NEBRASKA

ENVIRONMENTAL SERVICES DIVISION

OPERATIONAL TECHNOLOGIES CORPORATION

4100 N.W. LOOP 410, SUITE 230

SAN ANTONIO, TEXAS 78229

MARCH 1992

SUBMITTED FOR OPTECH BY:

JOHN MORRIS, GEOLOGIST
PROJECT MANAGER

APPROVED FOR SUBMISSION BY:

C.B. HARRAH, Ph.D., P.E., CIH
PROGRAM DIRECTOR

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LIST OF PROJECT ACRONYMS

155th Tactical Reconnaissance Group (155 TRG)

Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)

Bio-Environmental Engineering Services (BEES)

Centimeters per second (cm/s)

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

Engineering Science Corporation (ES)

Farenheit (F)

Feet per foot (ft/ft)

Feet per year (ft/yr)

Field Inspection (FI)

Installation Restoration Program (IRP)

Lincoln Air National Guard Base (LANGB)

Maximum Contaminant Limit (MCL)

Microgram per Liter (ug/L)

Micromhos per centimeter (umhos/cm)

Milligram per Liter (mg/L)

Nebraska Department of Environmental Control (NDEC)

Operational Technologies Corporation (OpTech)

Parts per million (ppm)

Photoionization detector (PID)

Preliminary Assessment (PA)

Remedial Action (RA)

Remedial Design (RD)

Remedial Action Class (RAC)

Remedial Investigation/Feasibility Study (RI/FS)

Site Inspection (SI)

Specific conductance (SC)

Total Petroleum Hydrocarbons (TPH)

Total Recoverable Petroleum Hydrocarbons (TRPH)

United States Environmental Protection Agency (USEPA or EPA)

United States Air Force (USAF)

EXECUTIVE SUMMARY

The assessment at the 155th TRG, LANGB, Lincoln, Nebraska, was conducted to determine if contamination of ground water was likely or had occurred at Site 2. Sources of potential contamination, a waste JP-4 tank and an oil/water separator, were removed from Site 2 during 1991 in preparation of construction of a new sanitary sewer line at the site. This assessment was designed to provide information to satisfy the NDEC Procedures for Determining Needed Action for Point Source Ground Water Pollution Occurrences Part 2, Steps 6 and 7 requirements.

Soil contamination at the depths near and below the water table was detected at Site 2. PID readings greater than background were detected in soil test borings BH-1 and BH-2, and monitoring wells MW-1 and MW-2. The soil sample collected from test boring BH-2 at a depth of 15 to 15.5 feet below land surface had total BTEX of 186 mg/kg. 1,2, 1,3, and 1,4 dichlorobenzenes were also detected in BH-2 at a depth of 15.0 to 15.5 feet below land surface at concentrations of 16, 9.5, and 11 mg/kg. respectively. Toluene, ethyl benzene, xylenes, 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene were detected in soil test boring BH-4 in the sample collected at a depth of 10.5 to 11.0 feet below land surface at concentrations marginally above the analytical method detection limit. Benzene was also detected at concentrations marginally above the analytical method detection limit at depths of 10.0 to 10.5 and 15.0 and 15.5 feet below land surface in the soil samples collected from monitoring well MW-5. TRPH was not detected in the soil samples analyzed. The state of Nebraska has not set MCL's for soil.

Toluene, xylene, and 1,3 and 1,4 dichlorobenzenes were detected in ground water samples at concentrations only marginally greater than the analytical method detection levels of 2 ug/L and USEPA MCL's were not exceeded. All analytical parameters detected were significantly below the USEPA MCL's. Toluene was detected in monitoring well MW-5 at a concentration of 2.1 ug/L. Xylenes were detected in samples collected from monitoring wells MW-1, MW-2 and MW-4 at concentrations of 3.6, 3.7 and 2.6 ug/L, respectively. 1,3 and 1,4 dichlorobenzenes were detected in a sample collected from MW-2 at concentrations of 2.5 and 5.9 ug/L, respectively. Free phase hydrocarbons were not detected at the LANGB.

Assessment results indicate that contaminates detected at Site 2 in soil and ground water are confined to the area of the former waste JP-5 tank. The upgradient boundary, northwest of the former location of the waste JP-4 tank, is in the immediate area of the MW-1. The downgradient extent, to the south-southeast, has not been specifically determined, but due to the extremely low contaminant concentrations detected, is located in the area immediately south and southeast of monitoring well MW-4, and north and northeast of MW-7. It is possible contaminants migrated into the Old Oak Creek Channel due to the elevation of the creek being lower than the elevation of ground water at the site.

Remediation as a result of removal of the two potential sources, and installation of the sanitary sewer line has significantly reduced the potential threat to ground water at Site 2. Approximately 350 cubic yards of soil were removed and stockpiled, and ground water (estimated to range from 250,000 to 750,000 gallons) was removed from the shallow aquifer.

According to the NDEC, Site 2 has been identified as RAC-2. Occurrences of point source contamination that involve ground water not now directly used as drinking water, but that have a reasonable potential to be used in the future, are identified as RAC-2. At RAC-2 sites, cleanup of readily removable contaminants (e.g., free product) is required. Due to the limited areal extent of soil contamination detected, the location of contamination in low permeability soil, the presence of a concrete surface cap over the majority of the area contaminated, and minimal contamination of ground water, additional soil and ground water remediation is not recommended at Site 2. If additional cleanup is not required by the NDEC, ground water should be monitored.

A potential threat to ground water exists at Site ~~2~~ 10. Based on this potential threat, it is recommended that: the waste JP-4 and oil/water excavations be backfilled and compacted to limit surface water infiltration to the aquifer; stockpiled soil be characterized for disposal and be removed to prevent potential soil and ground water contaminant migration; and periodic ground water monitoring be conducted to determine if contaminants are deadsorbing from soil to ground water.

SITE ASSESSMENT

1.1 PURPOSE AND SCOPE

The assessment was conducted at the 155th TRG, LANGB, Lincoln, Nebraska, by OpTech. The primary purpose of the assessment was to determine if contamination of ground water was likely or had occurred at Site 2. This assessment was conducted to provide information to satisfy the NDEC Procedures for Determining Needed Action for Point Source Ground Water Pollution Occurrences, Part 2, Steps 6 and 7 requirements at Site 2.

The results of the assessment determined the approximate horizontal and vertical extent of migration of hydrocarbon contaminants. Regional and local soil, hydrologic, contaminant and site characteristics, and water and soil quality and use were evaluated to determine the extent of ground water contamination and remedial actions necessary at Site 2. The assessment was conducted in accordance with NDEC Title 118 Ground Water Remedial Action Protocol and Procedures for Determining Needed Action for Point Source Ground Water Pollution Occurrences (Title 118).

The waste JP-4 tank and oil/water separator were previously investigated as Site 2 of a FI conducted as part of an IRP. Portions of that inspection are included or referenced in this report.

This report is organized into one volume. The text is organized into five sections including the Executive Summary and Introduction as Section 1. Section 2 describes the environmental setting of the LANGB, including regional and local soil, hydrologic, contaminant and site characteristics, and background water and soil quality and use. Section 3 describes the investigative program consisting of the installation of soil test borings and ground water monitoring wells, and the collection of soil and ground water samples for field screening and laboratory analysis. Assessment findings are presented in Section 4. Recommendations and conclusions are presented in Section 5. Appendix A includes well construction data and boring logs. Appendix B includes quality control data and Appendix C includes all analytical results. A reference section follows the text.

1.2 NEBRASKA DEPARTMENT OF ENVIRONMENTAL CONTROL PROCEDURES

The NDEC is the state agency regulating Procedures for Determining Needed Action for Point Source Ground Water Pollution Occurrences. These procedures, as defined in Title 118, are a two-part, eleven-step process used to determine the assessment and remediation requirements of a potential release from a point source.

Part One, Steps 1 through 4, is for immediate action based on the following two factors:

1. Existence or likelihood of an imminent and substantial threat to the public health and welfare or the environment.

2. Significantly increasing difficulty of cleanup if action is delayed.

During removal of the waste JP-4 tank and oil/water separator, the NDEC determined that immediate action was not required at Site 2. Representatives of the NDEC inspected the site during removal operations to determine the status of the site conditions.

Part Two, including Steps 5 through 11, is to evaluate the possible treat of contamination to ground water and to design and conduct final remedial action. The following is a summary of Steps 5 through 11.

Step 5-Preliminary Assessment

A preliminary assessment to evaluate the possible treat of contamination to ground water. This assessment is to involve a review of existing information and require the collection of minimal or no field data. If ground water contamination is possible or likely, proceed to Step 6.

Step 6-Initial Site Assessment

This may involve test holes to determine if contaminants have reached ground water or, if not, how close they are. If this initial assessment reveals that there is no threat of ground water contamination, proceed to Step 11; otherwise proceed to Step 7.

Step 7-Detailed Site Assessment

A detailed site assessment will be performed through examination of all pertinent factors.

Step 8-Define Preliminary Cleanup Levels and Review Proposed Remedial Actions

A RAC is defined for pollution occurrences in three types (RAC-1, RAC-2 and RAC-3) of ground water (or overlying soils) depending on the degree (or potential) of use of the ground water as drinking water. The extent of remedial action will differ depending on the RAC of the contaminated (or likely to be contaminated) ground water.

Step 9-Implementation and Review of Remedial Action

Step 10-Final Review

Step 11-Situation of No Threat to Ground Water Quality

The preliminary assessment determining the potential threat of contamination to ground water (Step 5) was conducted during removal of the waste JP-4 tank and the oil/water separator. Soil contamination at depths near the water table and a hydrocarbon sheen on water were documented. Soil contamination was detected by LANGB BEES personnel. According to a verbal communication with Rosemary J. Fenton, Ground Water Geologist with the NDEC, she visually detected a hydrocarbon sheen on water in the waste JP-4 tank excavation.

OpTech's assessment was designed to provide information to satisfy the NDEC Part 2, Steps 6 and 7 requirements. The results of the assessment will aid in determining the extent of remedial action necessary at Site 2 in accordance with the NDEC.

According to the NDEC, Site 2 has been identified as RAC-2. Occurrences of point source contamination that involve ground water not now directly used as drinking water but that have a reasonable potential to be used in the future are identified as RAC-2. The potential for use exists if the ground water is located in a highly populated area, such as Lincoln, is part of a regional, high-yielding aquifer, or if otherwise justified. The RAC-2 category also includes ground water with prior contamination that may be easily or cost-effectively treated to drinking water quality. In RAC-2, cleanup of readily removable contaminants (e.g., free product) will be required. If additional cleanup is not required, the remaining contaminated ground water will be managed and monitored to prevent any further damage.

1.3 BACKGROUND INFORMATION

The LANGB is located at Lincoln Municipal Airport in Lancaster County in southeastern Nebraska, approximately 3 miles northwest of the City of Lincoln as shown on Figure 1.1. The LANGB encompasses 171 acres of generally level terrain with poorly developed drainage. The base has been actively operated since 1942. Various types of military aircraft have been based and serviced there, with current flying operations involving RF-4C aircraft. Base operations have involved the use and disposal of materials and wastes which are classified as either regulated or hazardous. In 1986, the USAF initiated a series of investigations to determine the environmental compliance status of the LANGB.

1.3.1 Engineering Science Site Investigation

To ensure USAF compliance with environmental regulations, the Department of Defense developed the IRP. The IRP is the basis for response action at Air Force installations under the provisions of the CERCLA. The IRP now consists of six stages which, listed in order of occurrence are; PA, SI, RI/FS, RD, and RA. The PA at the LANGB was initiated during 1986 and 1987. The work plans for the SI, RI/FS and RD/RA were finalized in May, 1989. The SI was completed by ES during November, 1989.

Six sites at the LANGB were investigated by ES as part of the SI as shown on Figure 1.2. A waste JP-4 tank and oil/water separator, located west of Building 608 (Fuel Cell Repair) were identified at Site 2 as potential sources of regulated or hazardous materials. The area comprising Site 2 is shown in Figure 1.3. The assessment findings presentec in this OpTech report are specifically for Site 2. In this report the area of assessment comprising the waste JP-4 tank and oil/water separator will be referred to as Site 2. Figure 1.4 is an aerial photograph of Site 2 illustrating significant surface features.

Possible contaminants reported by ES from the waste JP-4 tank and the oil/water separator are motor oils, JP-4 fuel, heavy metals, hydraulic oils, and various solvents. As part of the ES investigation, samples of surface water and sediment were collected from several sites along the Old Oak Creek Channel, and ground water monitoring wells and soil test borings were installed to determine if contaminants were present in soil and ground water samples.

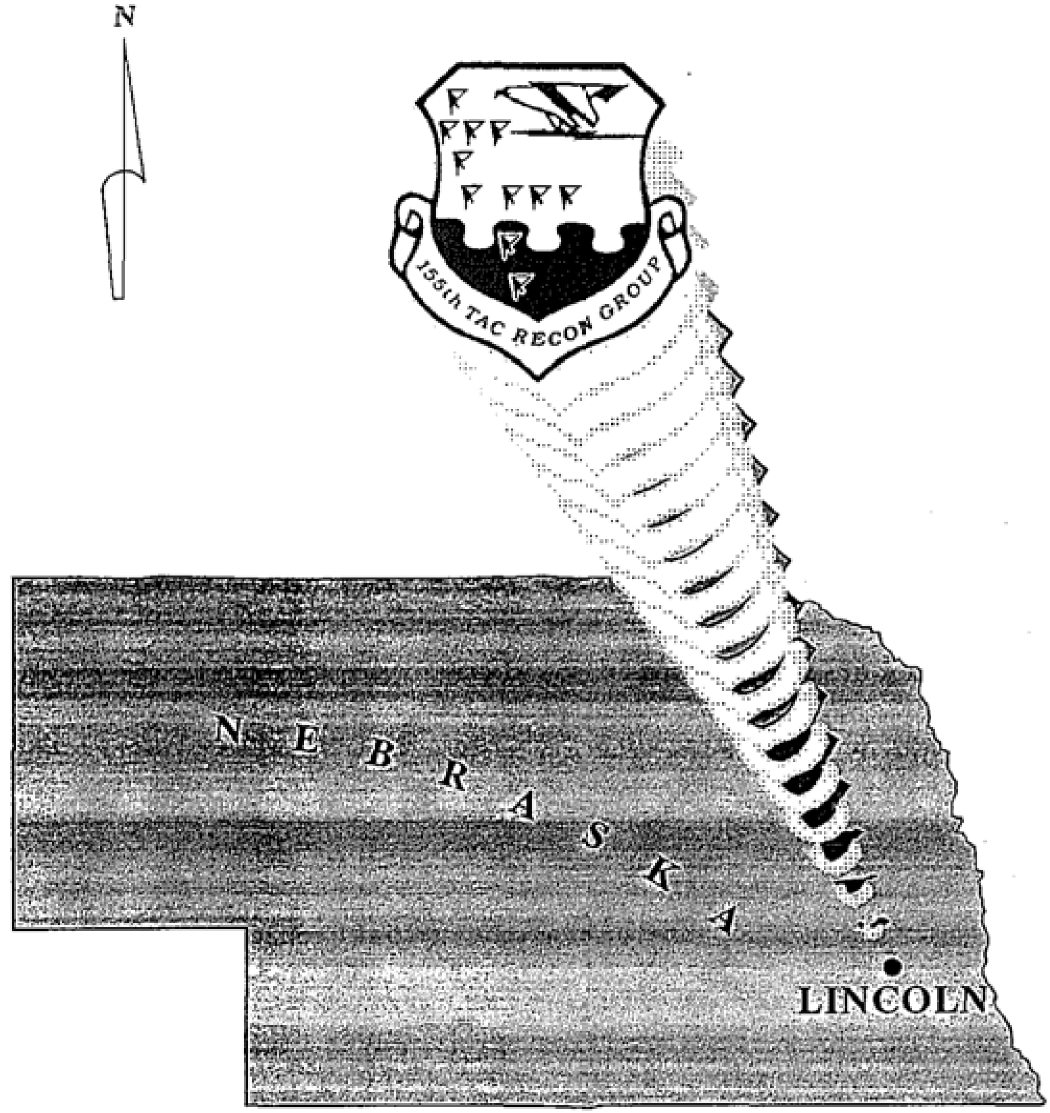


Figure 1.1	Location of Lincoln, Nebraska Headquarters of the 155th Tactical Reconnaissance Group Lincoln Air National Guard Base	OPTECH Operational Technologies Corporation

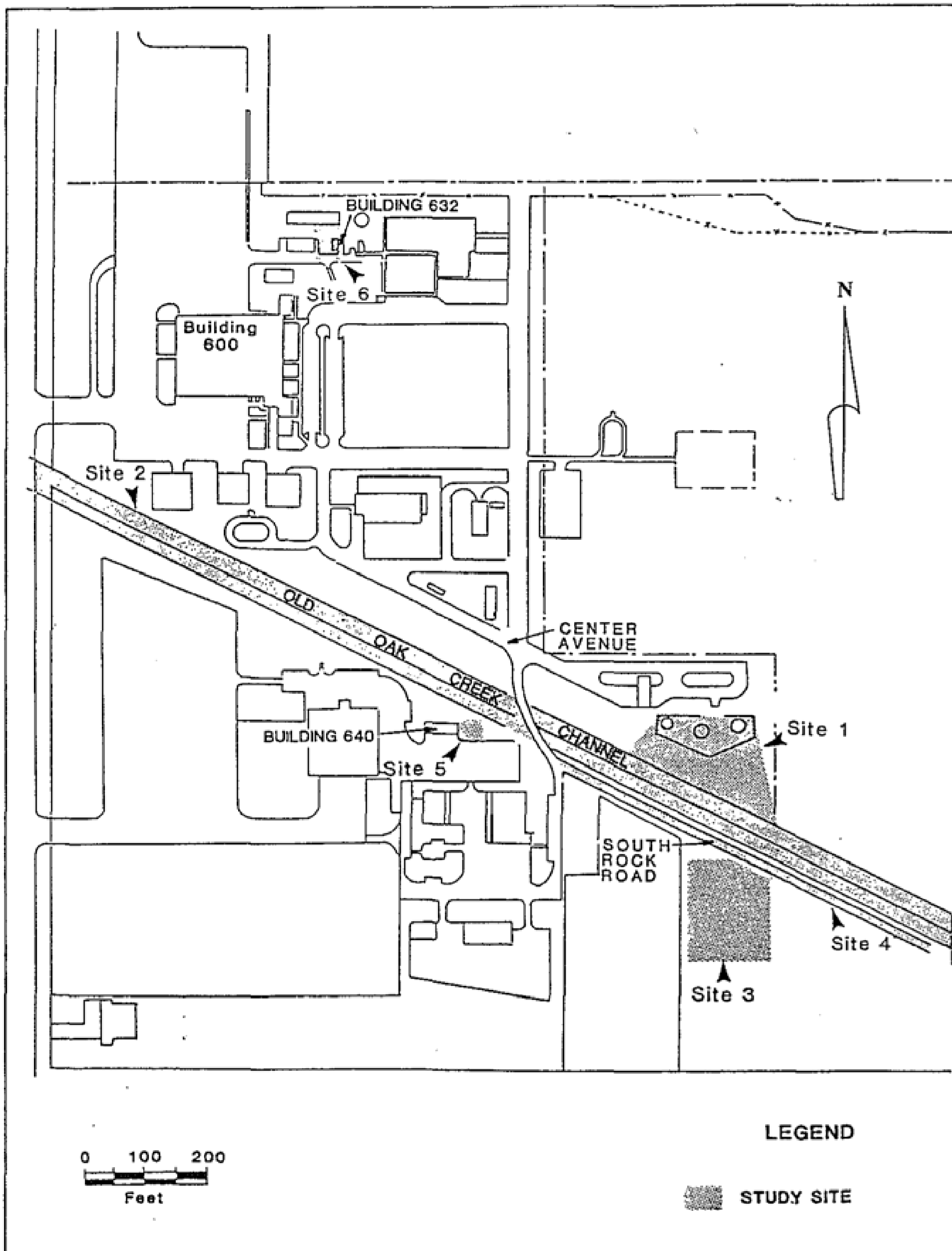
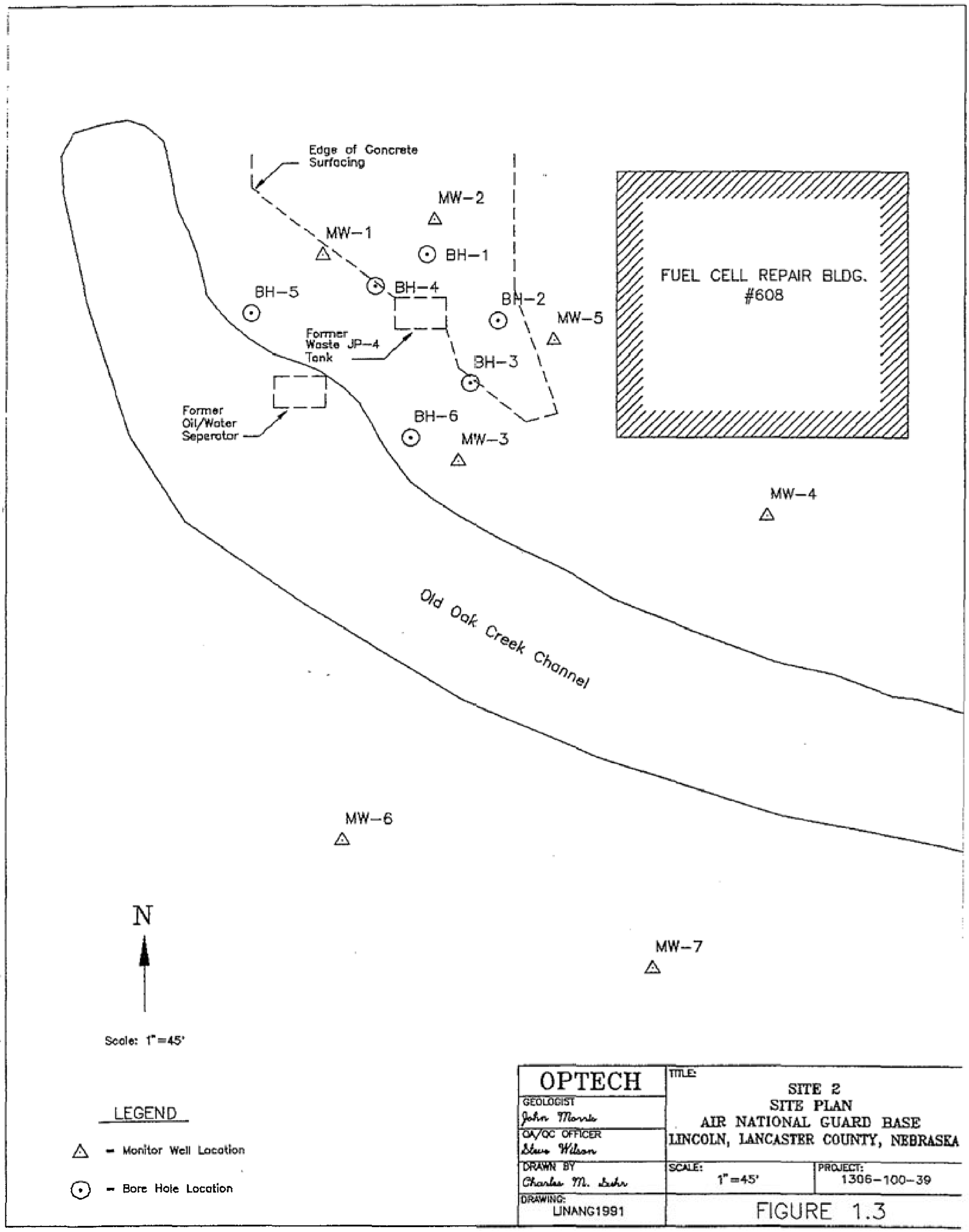


Figure 1.2	**Six Sites Investigated By Engineering Science Site Investigation** Source: Engineering Science (Modified) **155th Tactical Reconnaissance Group** **Lincoln Air National Guard Base** **Lincoln, Nebraska**	OPTECH Operational Technologies Corporation



Edge of Concrete Surfacing
MW-2
MW-1
BH-1
FUEL CELL REPAIR BLDG. #608
BH-5
BH-4
BH-2
MW-5
Former Waste JP-4 Tank
BH-3
Former Oil/Water Seperator
BH-6
MW-3
MW-4
Old Oak Creek Channel
MW-6
N
MW-7
Scale: 1"=45'
LEGEND
- Monitor Well Location
- Bore Hole Location
OPTECH
GEOLOGIST
John Morris
QA/QC OFFICER
Steve Wilson
DRAWN BY
Charles M. Lehr
DRAWING:
LINANG1991
TITLE:
SITE 2
SITE PLAN
AIR NATIONAL GUARD BASE
LINCOLN, LANCASTER COUNTY, NEBRASKA
SCALE:
1"=45'
PROJECT:
1306-100-39
FIGURE 1.3

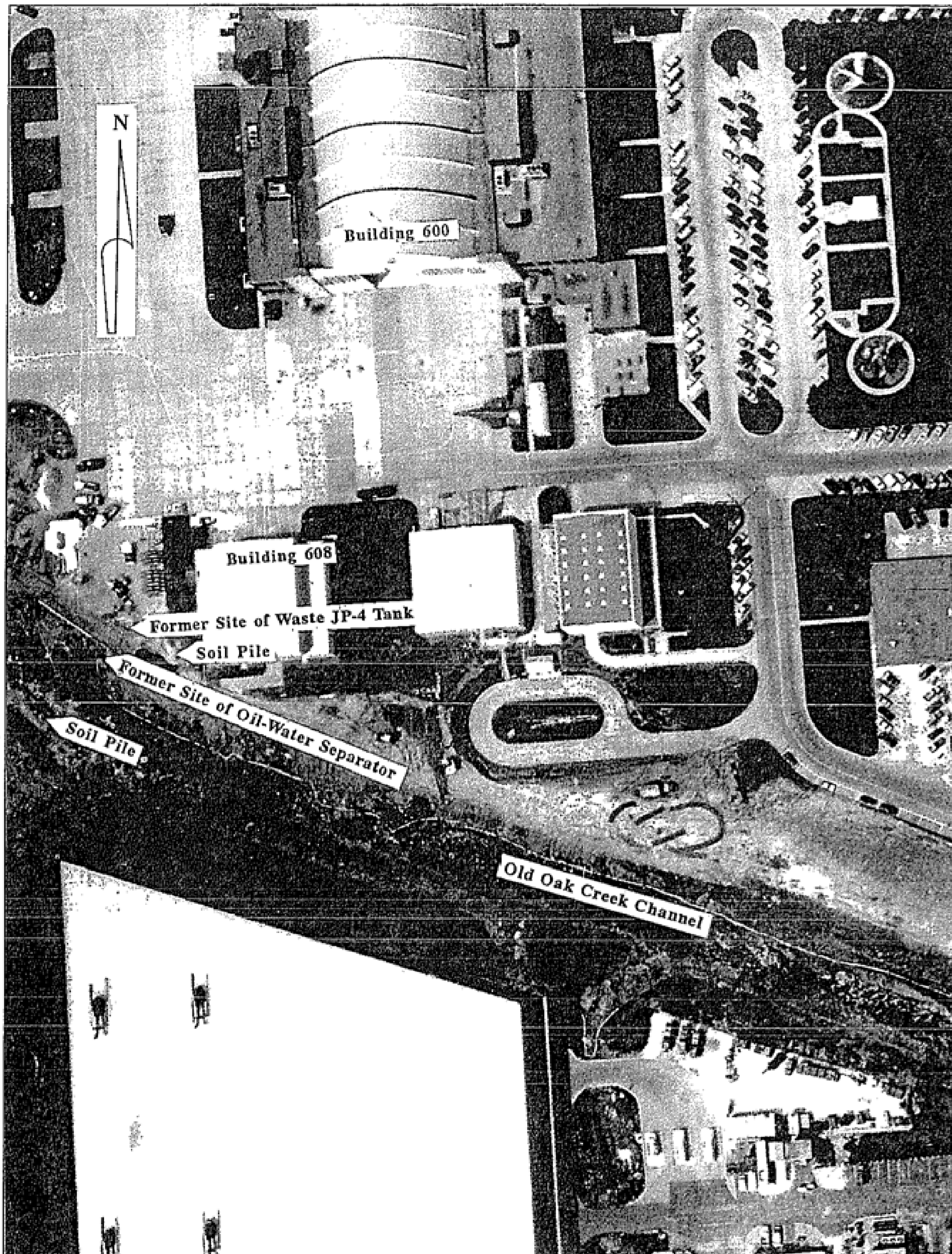


Figure 1.4	**Lincoln Air National Guard Base Aerial Photograph Indicating Significant Site Features** Source: 155th Tactical Reconnaissance Group, LANGB, Lincoln, NE	OPTECH Operational Technologies Corporation

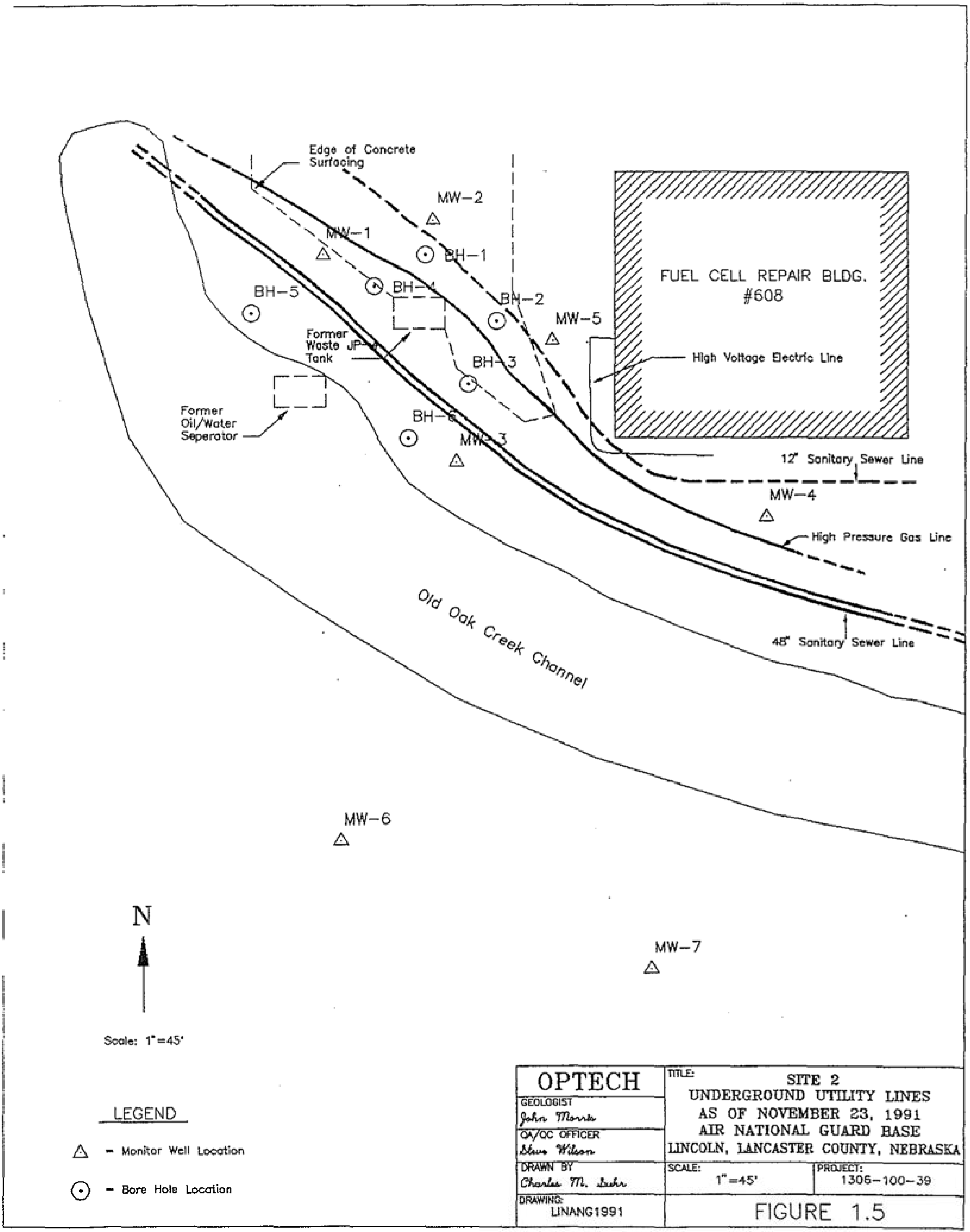
The results of the ES sampling program indicated that volatile and semivolatile organic compounds were not detected in water samples collected from Old Oak Creek Channel. TPH were not detected in the immediate area of Site 2 but were detected at levels slightly above the detection limit of 1.0 mg/L in two samples collected downstream from Site 2. TPH was detected in sediment samples collected from the Old Oak Creek Channel slightly downstream from the oil/water separator at Site 2. One ground water monitoring well was installed by ES at Site 2 immediately upgradient (northwest) of the oil\water separator. This well was destroyed during installation of the sanitary sewer line discussed in Section 1.3.2. ES reported that volatile and semivolatile organic compounds were not detected, although TPH was detected at a concentration of 1.8 mg/L from ground water collected from the monitoring well.

1.3.2 Construction Activities at Site 2

On 29-30 March 1991, the underground waste JP-4 tank and underground oil/water separator were removed from Site 2. During removal operations, technicians from the BEES conducted on-site monitoring, and soil and ground water sampling. Monitoring with a PID of soil and backfill material removed from the waste JP-4 tank and oil/water separator excavations indicated a release of photoionizable compounds. Photoionizable compounds include most volatile organic compounds commonly present in petroleum hydrocarbons. Soil and ground water samples were submitted for laboratory analysis to the USAF Occupational and Environmental Health Laboratory. Approximately 100 cubic yards of potentially contaminated soil and backfill material were removed and stockpiled on site. This material will be discussed in detail in Sections 3.2.3 and 4.1.4.

Between 9-19 April 1991, an underground 48-inch diameter sanitary sewer was installed in the area of Site 2 at the location identified on Figure 1.5. The sanitary sewer was installed immediately between the former locations of the waste JP-4 tank and oil/water separator and included portions of the excavations of the former waste JP-4 tank and oil/water separator. Technicians from the BEES again conducted on-site monitoring, and soil and ground water sampling during installation of the sanitary sewer. Monitoring with a PID of soil from the excavation trench again indicated a release of photoionizable compounds at Site 2.

During installation of the sanitary sewer at Site 2, a large volume of soil and a significant volume of water was removed. Approximately 250 yards of potentially contaminated soil were excavated during construction and stockpiled west of Old Oak Creek Channel. The estimate of the volume of water removed during construction ranges from 250,000 to 750,000 gallons. Removal of soil and ground water from Site 2 potentially reduced the concentration of contaminants.



Edge of Concrete Surfacing
MW-2
MW-1
BH-1
BH-4
BH-5
BH-2
MW-5
FUEL CELL REPAIR BLDG. #608
Former Waste JP-4 Tank
BH-3
High Voltage Electric Line
Former Oil/Water Seperator
BH-6
MW-3
12" Sanitary Sewer Line
MW-4
High Pressure Gas Line
Old Oak Creek Channel
48" Sanitary Sewer Line
MW-6
N
MW-7
Scale: 1"=45'
LEGEND
- Monitor Well Location
- Bore Hole Location
OPTECH
GEOLOGIST
John Morris
QA/QC OFFICER
Steve Wilson
DRAWN BY
Charles M. Luhr
DRAWING:
LINANG1991
TITLE:
SITE 2
UNDERGROUND UTILITY LINES
AS OF NOVEMBER 23, 1991
AIR NATIONAL GUARD BASE
LINCOLN, LANCASTER COUNTY, NEBRASKA
SCALE:
1"=45'
PROJECT:
1306-100-39
FIGURE 1.5

2.1 ENVIRONMENTAL SETTING

The regional and site specific environmental setting of the LANGB will be presented under the following subheadings: Physiography, Cultural Geography, Climate, Ecology, Surface Water, Geology and Hydrogeology. Since the primary scope of the assessment is to determine if contamination of ground water is likely or has occurred at Site 2, a through understanding of regional and local soil hydrologic, contaminant and site characteristics, and background water and soil quality and use is necessary and will be discussed in this section.

2.1.1 Physiography

The LANGB is located in Lancaster County, Nebraska, near the eastern edge of the Great Plains physiographic province. The terrain throughout the county varies moderately from gently sloping to strongly sloping. Regional slope is to the east. The highest elevations (approximately 1,520 feet above sea level) are located in the northwest and southwest corners of the county. The lowest elevation is located in the northeastern section where Salt Creek exits the county (Soil Conservation Service, 1980).

The three main physiographic areas found in Lancaster County are uplands, stream terraces and bottom lands (Soil Conservation Service, 1980). The LANGB is located in the broad bottom lands adjacent to Oak Creek at an elevation of 1,160 feet. The area in the immediate area of the LANGB is relatively flat. Figure 2.1 is a topographic map of the LANGB. Elevations of approximately 1300 feet are located in upland area west, southwest and northeast of the LANGB.

2.1.2 Cultural Geography

The primary population center near the base is the City of Lincoln, estimated population of 189,620. A residential area northeast of the LANGB known as the Highlands, houses another 15,000 to 18,000 people as shown on Figure 2.2. Two small towns, Malcolm and Emerald, located northwest and southwest of the LANGB respectively, have populations of less than 500 people (Griffin, 1980). Land uses in the vicinity of the base include industrial, commercial, transportation, residential, agricultural, and recreational activities.

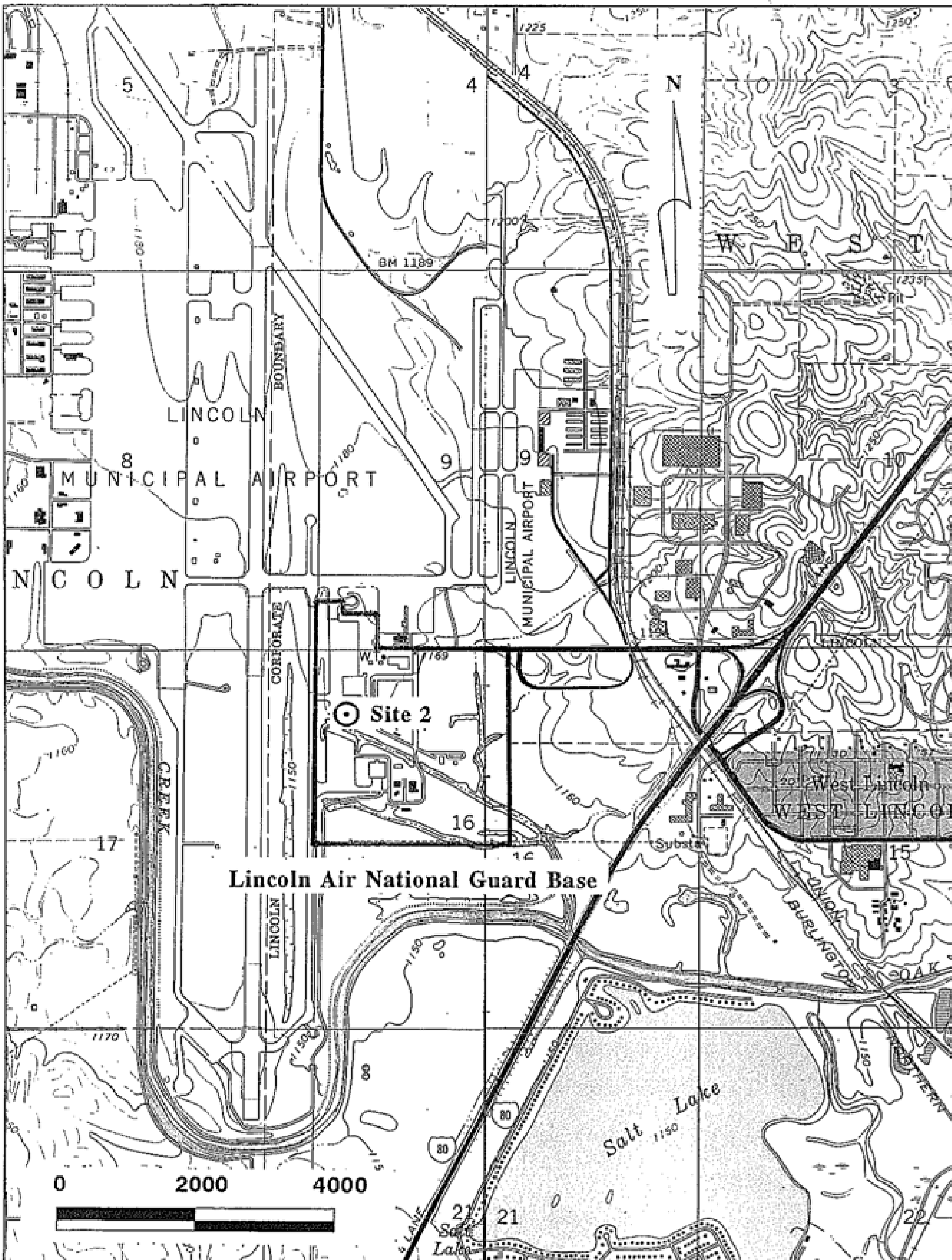


Figure 2.1 — **Location of Air National Guard Base At Lincoln Municipal Airport, Lincoln, Nebraska**

OPTECH Operational Technologies Corporation

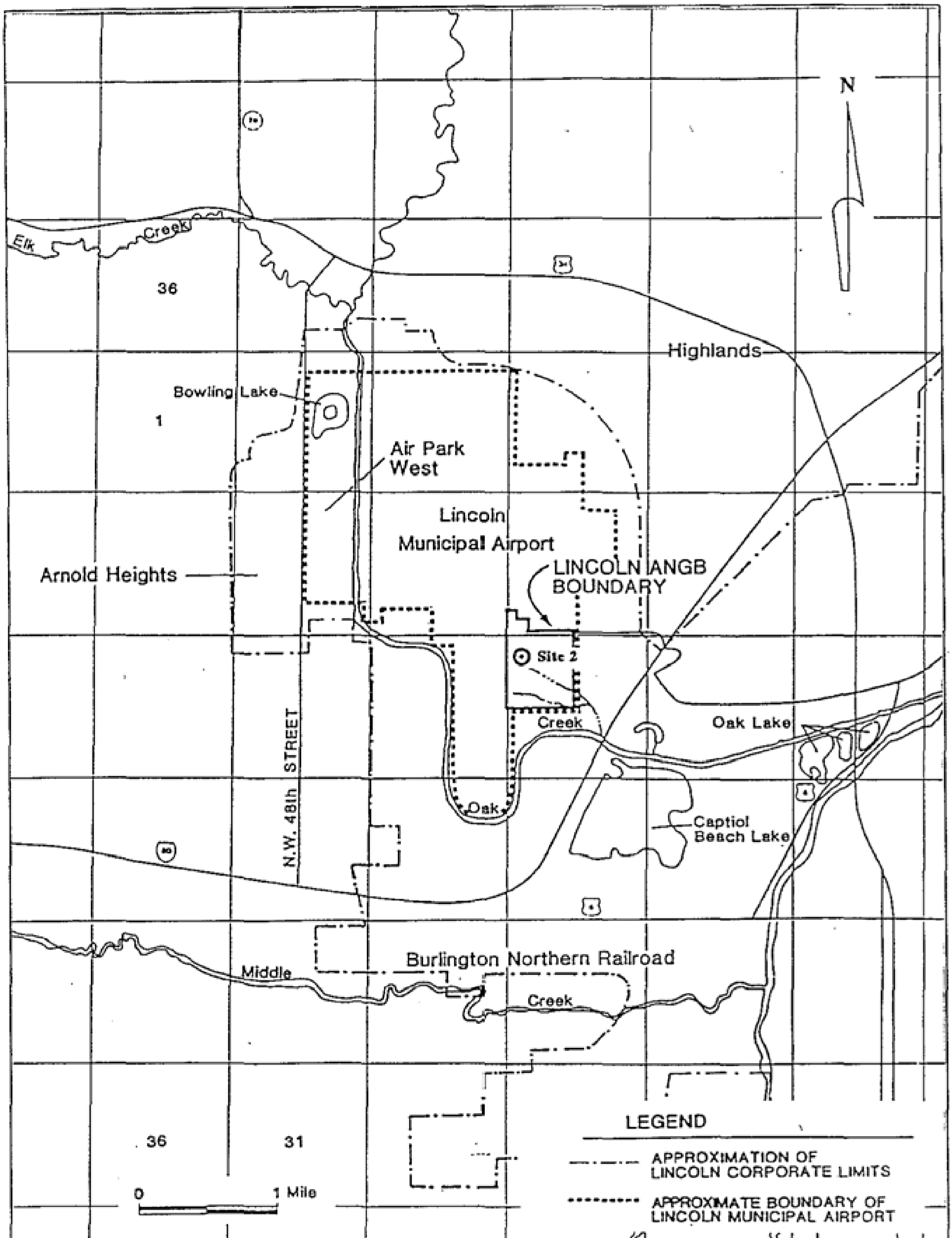


Figure 2.2

Major Developments in Vicinity of Lincoln Air National Guard Base Lincoln, Nebraska

Source: Engineering Science (Modified)

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OPERATIONAL TECHNOLOGIES CORPORATION

Cultivated lands, used for crops, are located north and northwest of the LANGB. Commercial/industrial activities such as the Air Park West development and the Burlington Northern railroad yards are located west and south, respectfully. Recreational developments offering picnicking and fishing activities are located at several lakes, all located more than one mile from the LANGB. These lakes include Bowling Lake, Capital Beach and Oak Lakes as shown on Figure 2.2.

2.2 CLIMATE

The climate in the area is continental with periods of moderate heat in the summer and cold in the winter. The average summer temperature is 76 degrees F. The highest recorded temperature of 107 degrees F occurred 2 August 1964. The average winter temperature is 27 degrees F. The lowest temperature on record at Lincoln is -18 degrees F occurring on 29 January 1966.

The average annual precipitation is 27.77 inches, with 70 percent of the yearly total occurring from April to September. The average annual snowfall is 28 inches, and the greatest snow depth recorded is 21 inches.

2.3 ECOLOGY

2.3.1 Regional Ecology

Habitat types in the vicinity of the LANGB include cropland, tall grass prairie, riparian woodland, wetlands and aquatic habitat. The majority of the area surrounding the LANGB is a former tallgrass prairie habitat type. Crop production and urbanization have replaced most of the native vegetation in the area. There are remnant areas of native tall grass prairie habitat up to 100 acres in area, interspersed with cropland and pasture.

Wildlife common to tall grass prairies includes mice, wolves, rabbits, badgers, foxes, coyotes, deer, pheasant, quail and hawks (Soil Conservation Service, 1980). Riparian woodland habitat occurs in scattered strips along perennial and intermittent streams in the vicinity of the LANGB. Riparian woodlands provide high-quality food, shelter, nesting habitat for a variety of wildlife. Vegetation in this habitat includes eastern cottonwood, willows, elm, green ash, burr oak, redosier dogwood, American plum bromegrass, Kentucky bluegrass, and reed canary grass.

Both freshwater and saltwater wetlands are found in the vicinity of the LANGB as shown on Figure 2.3. The saltwater wetland receives heavier use by migrating shore birds, wading birds, and waterfowl than the freshwater wetland. The areas to the east and west of Capital Beach Lake, south of the LANGB, support a salt marsh of approximately 275 acres that is on the Heritage List of rare and unique habitats. Recently, the Corps of Engineers designated the Old Oak Creek Channel as a protected wetlands.

Permanent aquatic life populations are found in five perennial streams and three permanent lakes in the vicinity of the LANGB. Fish are the primary aquatic life species of concern due to recreational fishing activities. Fish species found in the water bodies include crappie, walleye, channel catfish, common carp, gold eye, bullhead, green sunfish, flathead minnow, red shinner and sand shiner (Tunink, 1989; Bliss and Schainost, 1973).

2.3.2 Site Ecology

The LANGB is located on a former tall grass prairie, but is now approximately 60 percent mowed grass. Two intermittent streams flow southeasterly across the base. Approximately one acre of wetland habitat occurs as narrow bands along these two water courses as shown on Figure 2.3. No threatened, endangered, or special-interest wildlife species are known to occur or rely on the base for critical habitat (Lock, 1989).

2.4 SURFACE WATER

2.4.1 Drainage Basins

The LANGB is located in the Salt Creek drainage area, a tributary to the South Platte River. Five perennial tributary streams of the South Platte River drainage occur within a three mile radius. Oak Creek is a highly channelized stream flowing southward along the west side of the Lincoln Municipal Airport for approximately 1.5 miles, and then flows east to its confluence with Salt Creek, approximately 3 miles east of the base. Salt Creek flows in a northeasterly direction through the LANGB vicinity from Sawyer Snell Park to its confluence with Oak Creek. Antelope Creek flows north to Salt Creek approximately 0.25 miles south of its confluence with Oak Creek, Middle Creek flows east along the Burlington Northern right-of-way to Salt Creek, approximately 2.5 miles southeast of the LANGB, and Elm Creek flows southeast to join Oak Creek near Woodlawn, approximately 2.5 miles northwest of the LANGB.

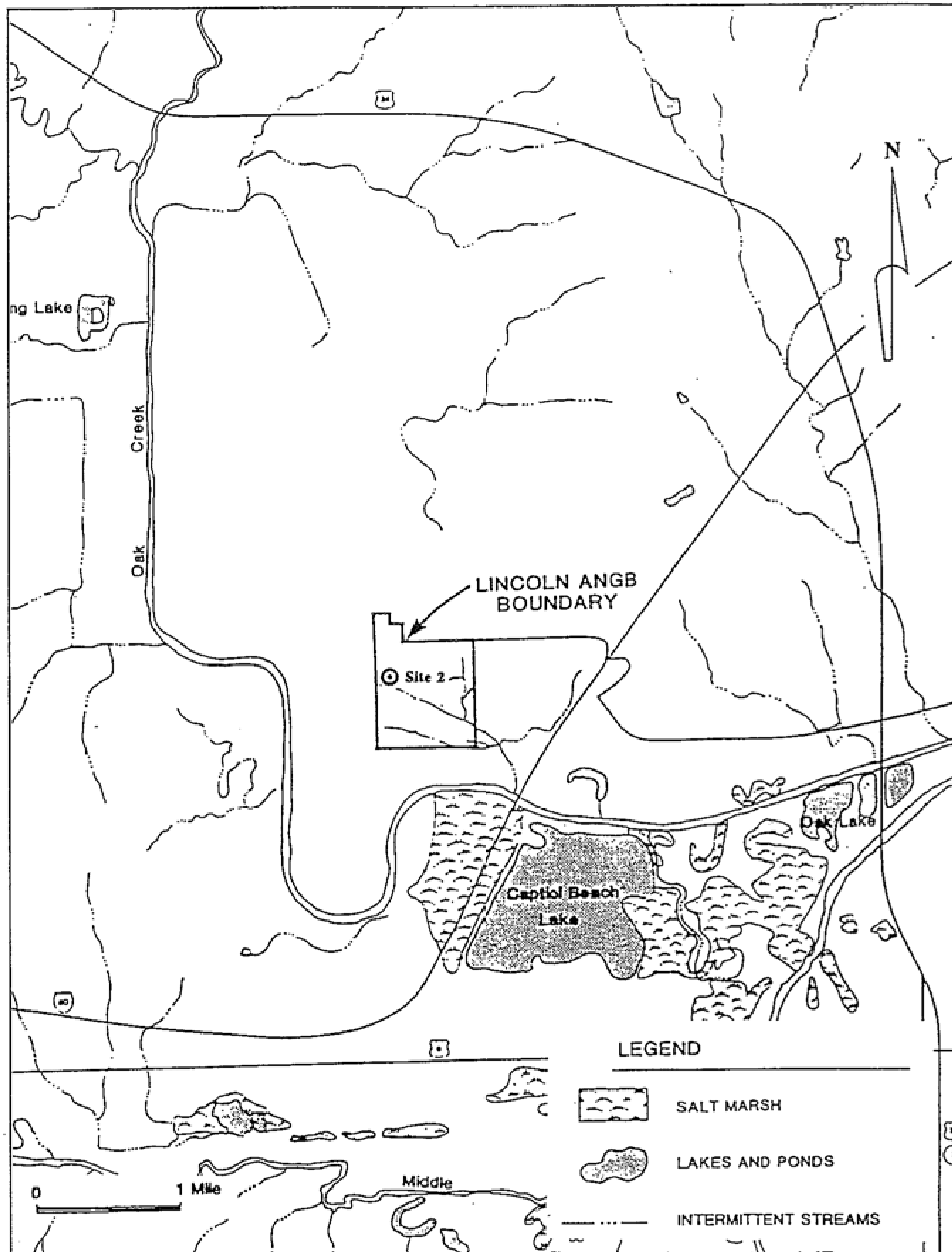

Figure 2.3	Ecological Features of Lincoln Air National Guard Base Lincoln, Nebraska Source: Engineering Sciences (Modified)	OPTECH Operational Technologies Corporation

The major surface water body occurring on the base is Old Oak Creek Channel. During runway construction at the Lincoln Municipal Airport, Oak Creek was rerouted off base, south of the runway as shown on Figure 2.4. The abandoned portion of the channel, now known as Old Oak Creek Channel, is located on the base and contains a semi-stagnant body of water. There are four outfalls to Old Oak Creek Channel from the LANGB. The eastern most is an open concrete channel receiving drainage from the Lincoln Municipal Airport. The western-most outfall is a culvert which drains areas of the Lincoln Municipal Airport. Two other outfalls are connected to the storm sewer system of the base.

2.4.2 Water Quality

Historic water quality is not available for Old Oak Creek Channel. During the SI, ES collected surface water from four sampling stations on Old Oak Creek Channel. The samples were analyzed for volatile and semivolatile organic, TPH, common anions and heavy metals. Volatile and semivolatile organic were not detected in any of the samples. TPH were detected at two sample stations at levels slightly above the detection limit of 1.0 mg/L. TPH were not detected in water samples from the three stations immediately downstream from Building 608.

Concentrations of four common anions were detected at the sampling station adjacent to Building 608. Arsenic and barium were detected at all four sampling stations. Cadmium, chromium, lead and mercury were not detected at any of the stations. Selenium was detected in water samples at three stations. Historical practice at the base was to direct any spills occurring in Building 600 to the outfall adjacent to Building 608 as illustrated on Figure 2.5.

2.4.3 Surface Water Rights

The nearest Surface water appropriations in the vicinity of the base are plotted on Figure 2.6 and listed in Table 2.1. Storage, irrigation, and maintenance of fish and wildlife are included in surface water rights. The only appropriations of surface water downstream of the base are Oak Lake and Capitol Beach Lake.

2.5 GEOLOGY

2.5.1 Regional Geology

Geologic deposits exposed in this region of Nebraska are alluvial, eolian, and glacial deposits of Quaternary age, and sandstone and shale of Cretaceous age. West of Lincoln, alluvial and Pleistocene sands and gravels overlie sandstones and shales of the Lower Cretaceous Dakota Group

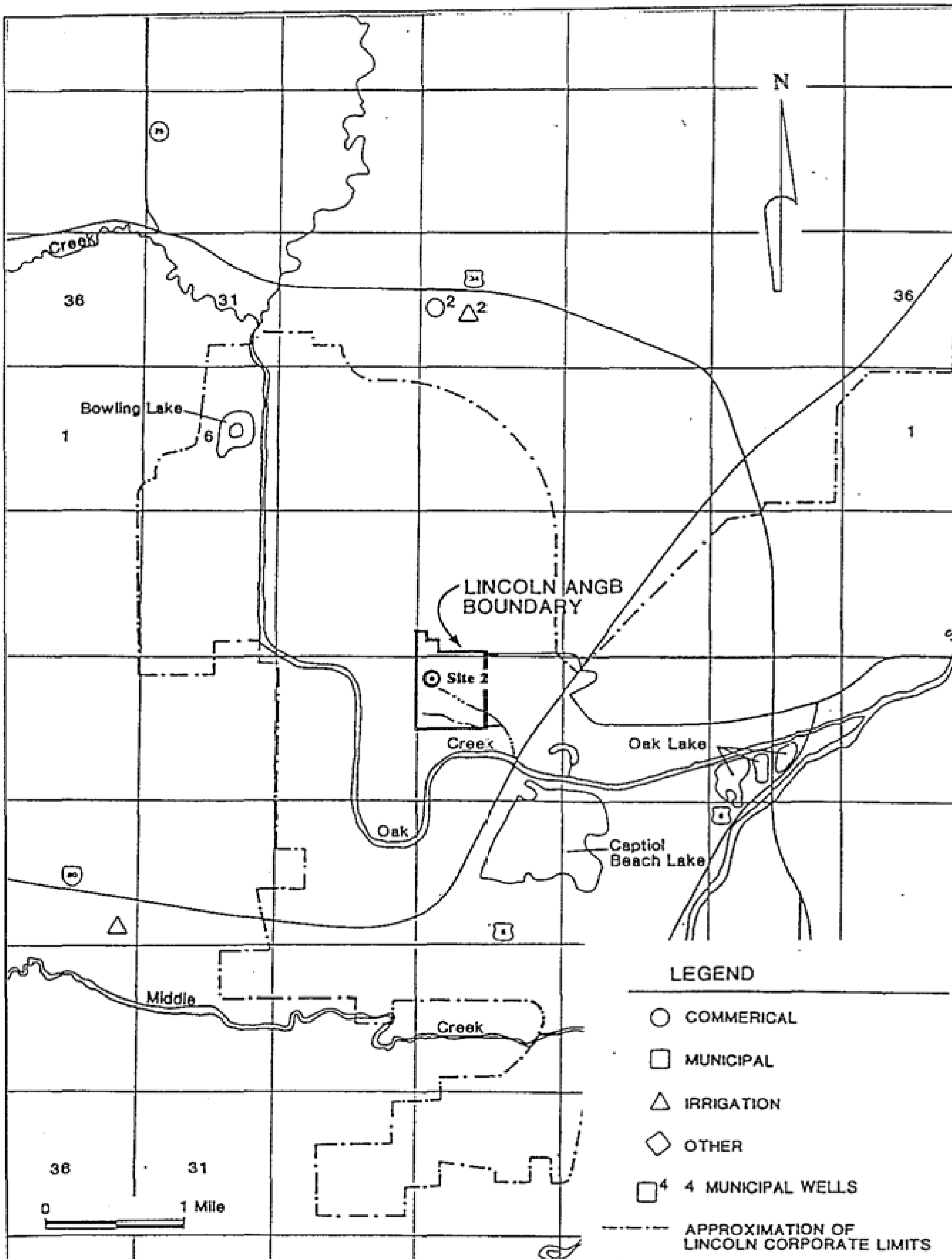

Figure 2.4	**Well Locations in Vicinity of Lincoln Air National Guard Base Lincoln, Nebraska** **Source: Engineering Sciences (Modified)**

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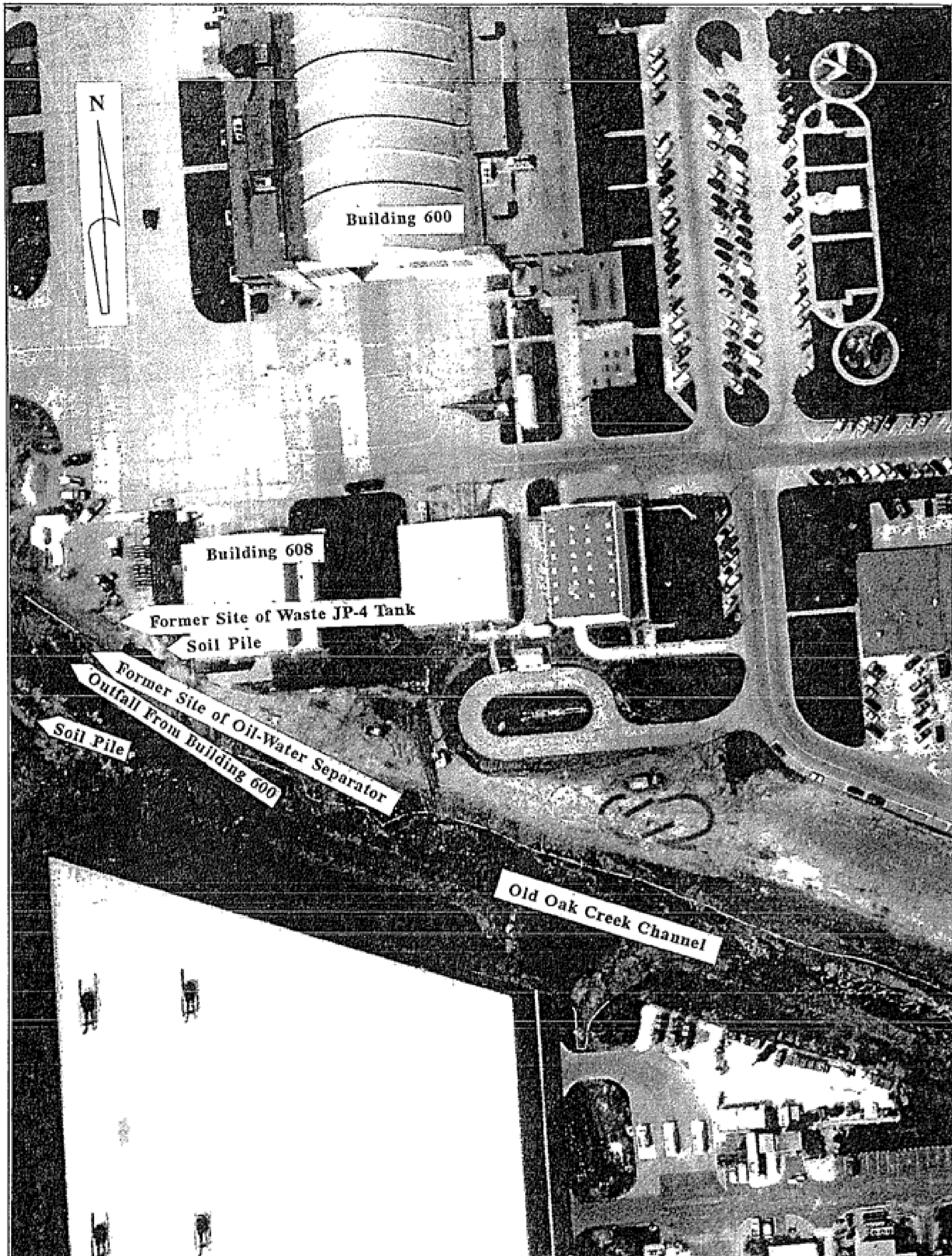


Figure 2.5	Lincoln Air National Guard Base Aerial Photograph Showing Facility Investigation Sites 155th Tactical Reconnaissance Group, LANGB, Lincoln, NE	OPTECH Operational Technologies Corporation

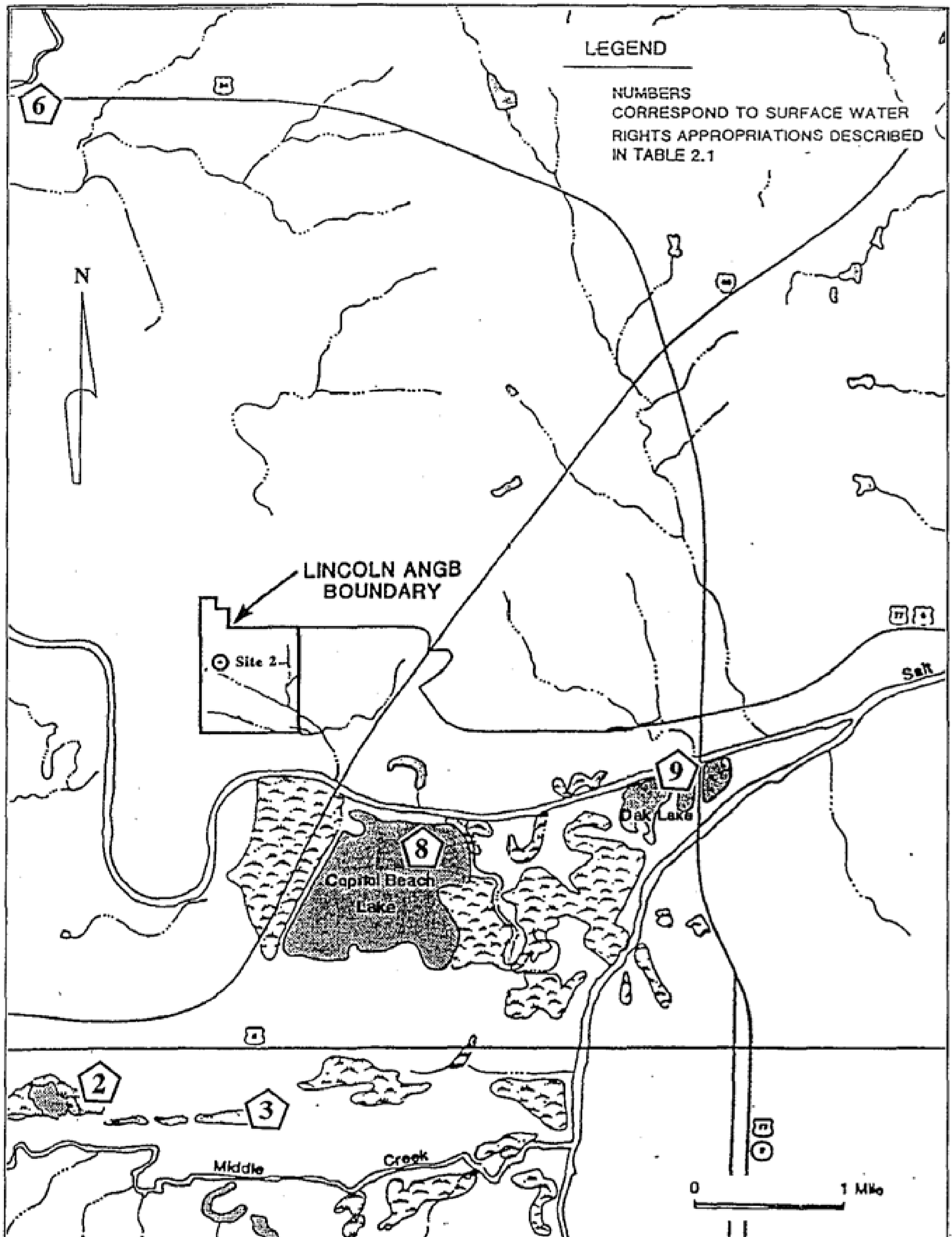


Figure 2.6	Surface Water Rights in Vicinity of Lincoln Air National Guard Base Lincoln, Nebraska Source: Engineering Science (Modified)	OPTECH OPERATIONAL TECHNOLOGIES CORPORATION

TABLE 2.1
SURFACE WATER RIGHTS IN PROJECT VICINITY
LISTED IN DOWNSTREAM ORDER
LINCOLN ANGB

Source Location, and Appropriator	Carrier	Use[a]	Grant[b]	Date of Priority	Docket/ App. Number
1. Middle Creek Sect. 22, T10N, R5E Lancaster County Harrey Deinea	pump	IR	1.56 cfs	4/21/1977	A14915
2. Middle Creek Sect. 29, T10N, R6E Lancaster County Board of Education Lands & funds	pump	IR	0.03 cfs	1/18/1967	A11021
Board of Education Lands & funds	pump	IR	0.4 cfs	1/8/1976	A14541
3. Middle Creek Sect. 28, T10N, R5E Lancaster County Jose Sanchez et al	pump	IR	0.13 cfs	1/17/1938	A2823
4. Antelope Creek Sect. 31, T10N, R7E Lancaster County Michael D. Coon	pump	IR	0.01 cfs	3/29/1976	A14126
5. Oak Creek Sect. 29, T11N, R6E Lancaster County Lillian Carlisle	pump	IR	0.76 cfs	4/3/1969	A11682
6. Oak Creek Sect. 32, T11N, R6E Lancaster County John R. Bennett Trust	pump	IR	5.36 cfs	9/16/1971	A12381
7. Oak Creek Sect. 6, T10N, R6E Lancaster County City of Lincoln	Bowling Lake	ST	176.01 af	4/11/1957	A9442

TABLE 2.1 (Continued)
SURFACE WATER RIGHTS IN PROJECT VICINITY
LISTED IN DOWNSTREAM ORDER
LINCOLN ANGB

Source Location, and Appropriator	Carrier	Use[a]	Grant[b]	Date of Priority	Docket/ App. Number
8. Oak Creek Sect. 15, T10N, R6E Lancaster County Capitol Beach Community Association	Capitol Beach Lake	ST	1430.0 af	6/7/1961	A9944
9. Oak Creek Sect. 14, T10N, R6E Lancaster County City of Lincoln	Oak Lake	ST	222.89 af	9/13/1982	A16147

[a] IR - Irrigation from natural stream.
ST - Storage.
SI - Supplemental irrigation - irrigation from reservoir on lands also covered by Natural Flow Appropriation.
FW - Fish and wildlife.

[b] cfs - cubic feet per second
af - acre-feet.

Source: State of Nebraska, Department of Water Resources, 1987-1988.

(Condra and Reed, 1939). Unconsolidated and poorly-consolidated soil and subsoil, Peoria Loess, alluvial sands, gravels and clays unconformably overlie the Lakota Formation of the Dakota Group. The predominantly sandstone Lakota Formation is the lower most unit within the Dakota Group. The entire section is about 170 feet thick, although erosion has removed the upper portion in many areas. In some areas, the middle member of the Dakota Group, the Fusion Shale, remains between the Quaternary sediments and the Lakota Formation. This shale is a sandy shale, ranging from varicolored in the upper part to gray in the lower.

The Dakota Group overlies rocks of Permian and Pennsylvanian age. These rocks are principally limestone and shales. Basement rocks are Precambrian igneous and metamorphic complexes, presumably granite and gneiss, although little specific information is known about these units because very few wells have been have been drilled to depths sufficent to penetrate these units. Depth to Precambrian rocks has been reported at 1,805 below the surface east of Lincoln and at about 2,193 feet west of Lincoln.

There are no major structural features in Lancaster County, although there are several small anticlines and synclines to the east and southeast. What structure does exist appears to be reflected principally in Pennsylvanian and older rocks. Structural features nearest to Lincoln are the north/south-trending Nehawka-Richfield Arch in Sarph and Cass Counties, and the northeast-trending Redfield Arch in Cass and Otoe Counties.

2.5.2 Facility Geology

The LANGB is underlain by unconsolidated Quaternary deposits overlying the Lakota Formation and Fusion Shale of the Dakota Group. The unconsolidated deposits are characterized by two lithostratigraphic units which consists of approximately 10 to 22 feet of fine-grained eolian silt and clay deposits (Peoria Loess) overlying a unit of well-sorted fluvial sand and gravel over 15 feet thick. The thickest unconsolidated deposits are located in the paleostream channels eroded into the underlying Lakota Formation and Fusion Shale.

2.6 HYDROGEOLOGY

Characteristics of aquifers and aquitards are controlled by the lithology, stratigraphy, and structure of the geologic deposits and formations. Hydrogeologic characteristics of the LANGB are described from both a regional and site-specific perspective.

2.6.1 Regional Hydrogeology

Three Dakota Group formations of hydrogeologic importance in the region are the upper sandstone, a middle fusion shale and a lower sandstone. The upper sandstone generally contains water of good quality, while that of the lower sandstone is generally of poor quality. Keech (1962) reported similar characteristics of groundwater between the Quaternary deposits and the lower sandstone (Lakota Formation), and hydraulic communication between the Lakota Formation and the Quaternary deposits in the area of the Hallam Nuclear Power Facility, located southeast of Lincoln. The water in the area of the Hallam Nuclear Power Facility was found to be highly mineralized. Where present, the Fuson Shale may provide a low-permeability barrier to vertical infiltration between the Quaternary sediments and the Lakota Formation. The Permian and Pennsylvanian limestone and shales are not sufficiently permeable to serve as ground water aquifers (Keech, 1962).

The principal zones of saturation for the area are the unconsolidated sands and gravel below the regional water table. They may be considered a single aquifer because the units are generally interconnected and all may contribute water to a well. Ground water depth generally ranges from 10 to 40 feet below the ground surface, but the saturated thickness may be influenced by the depth of buried valleys eroded into the underlying bedrock surface. Perched zones of saturation may exist in sands and gravels within or between glacial tills or alluvial clays having relatively lower permeabilities.

Major water production for the area has come from alluvium underlying stream terraces and within the larger stream valley bottom lands and some buried alluvial valleys. The sand and gravel alluvium of the lower Salt Creek Valley has produced sufficient water for irrigation. Sand and gravelly-sand within the glacial deposits have produced small quantities of water for domestic and stockwatering purposes. Water quality is generally hard, with sulfate and iron concentration exceeding recommended limits for some uses. Since 1933, the City of Lincoln has been supplied primarily with water from a well field in the Platte River Basin near Ashland, Nebraska (Marivosky, 1991).

Records available from the State of Nebraska Department of Water Resources indicated that there are four irrigation wells and two commercial wells in the area of the LANGB. All of the wells are located upgradient from the base at distances of more than two miles from the base. Seven municipal wells for the City of Lincoln are located between 4.25 and 6.5 miles southeast of the LANGB. The municipal wells range in depth between 158 and 169 feet (Cotton, 1989). Well locations, owners, and distance from the LANGB are listed in Table 2.2 for each of the wells plotted on Figure 2.4.

TABLE 2.2
GROUND WATER WELLS IN THE VICINITY OF
LINCOLN ANGB

Location	Use	Owner	Approximate Distance from Base (Miles)
T9N, R6E, Sec. 3, SE¼SW¼ (5 wells)	Other	Lincoln Regional Center	4.5
T9N, R6E, Sec. 4, SE¼SW¼	Irrigation	Adolph Priess	4.5
T9N, R6E, Sec. 8, SE¼NE¼	Irrigation	Adolph Priess	5.0
T9N, R6E, Sec. 4, SW¼SE¼	Irrigation	Robert S. Little	4.5
T9N, R6E, Sec. 12, SE¼NW¼	Commercial	Pegler Sysco Food	5.75
T9N, R7E, Sec. 4, NW¼NW¼	Irrigation	Lloyd Duckett	6.75
T10N, R5E, Sec. 21, SW¼SW¼	Irrigation	Burdette Piening	6.0
T10N, R5E, Sec. 23, NE¼NE¼	Irrigation	Gary Hellerich	3.25
T10N, R5E, Sec. 24, SE¼SE¼	Irrigation	George D. Hellerich	2.5
T10N, R5E, Sec. 28, SW¼NW¼	Irrigation	Adolph Piening	6.0
T10N, R7E, Sec. 9, NE¼NE¼	Municipal	City of Lincoln	6.5
T10N, R7E, Sec. 17, NW¼SE¼ (4 wells)	Municipal	City of Lincoln	5.5
T10N, R7E, Sec. 21, SW¼SW¼ (2 wells)	Irrigation	Bankers Life of Lincoln	5.75
T10N, R7E, Sec. 21, SE¼SW¼	Irrigation	Bankers Life of Lincoln	6.0
T10N, R7E, Sec. 30, NW¼SW¼	Commercial	Paramount Laundry & Cleaners, Inc.	4.5
T10N, R7E, Sec. 30, SW¼SW¼ (2 wells)	Municipal	City of Lincoln	4.5
T11N, R5E, Sec. 21, SE¼NW¼ (2 wells)	Municipal	Village of Malcolm	7.0
T11N, R6E, Sec. 33, NE¼SW¼ (2 wells)	Irrigation	George Cook	2.5
T11N, R6E, Sec. 33, NW¼SW¼ (2 wells)	Commercial	Kawasaki Motors Corporation	2.5

Source: Cotton, 1989. (modified)

2.6.2 Local Hydrogeology

Ground water depth under Site 2 varies from 5.46 to 14.90 feet below ground surface, flows in an southerly direction and exists under semiconfined conditions. The aquifer, which consists of sand, silty sand, and sandy silt of glacial origin, is overlain by relatively low permeability clay and silty clay of eolian origin.

Water levels in the seven existing monitoring wells at Site 2 varied from 1145.98 to 1147.90 feet above mean sea level. The distribution of potentiometric surface contours indicates that the ground water gradient is generally to the south. The presence of buried structures (a high pressure gas line and a sanitary sewer line) near the center of Site 2 may locally modify ground water depths and flow in this area.

The hydraulic conductivity of the silty clay and sand units encountered is estimated to be on the order of 10^{-8} to 10^{-4} cm/s and 10^{-4} to 10^{-2} cm/s, respectively (Freeze and Cherry, 1979). Average values for effective porosity are estimated to be 0.05 for the silty clay and up to .25 for the sand (Johnson, 1967). Based on these values, the average linear velocity of ground water movement beneath the facility in the silty clay may range up to 8 ft/yr. The average linear velocity of ground water movement beneath the facility in the sand may range up to 150 ft/yr.

Water surface elevations in the Old Oak Creek Channel are approximately equal to the estimated potentiometric surface elevations in the vicinity of the creek. Jeager-Porter and Associates Surveying, surveyed the elevation of the creek on 27 January 1992. The elevation of the bottom of the creek was 1144.80. The elevation of ground water in monitoring well MW-3 was 1147.52 on 21 November 1991. The interaction between the creek and groundwater may be seasonably variable.

3.1 FIELD ASSESSMENT PROGRAM

The OpTech assessment was conducted to determine the horizontal and vertical extent of migration of contaminants from a waste JP-4 storage tank and an oil/water separator located near Building 608. The field assessment program to meet this objective included:

- soil test boring and monitoring well installation;
- ground water sampling and analysis; and
- soil sampling and analysis.

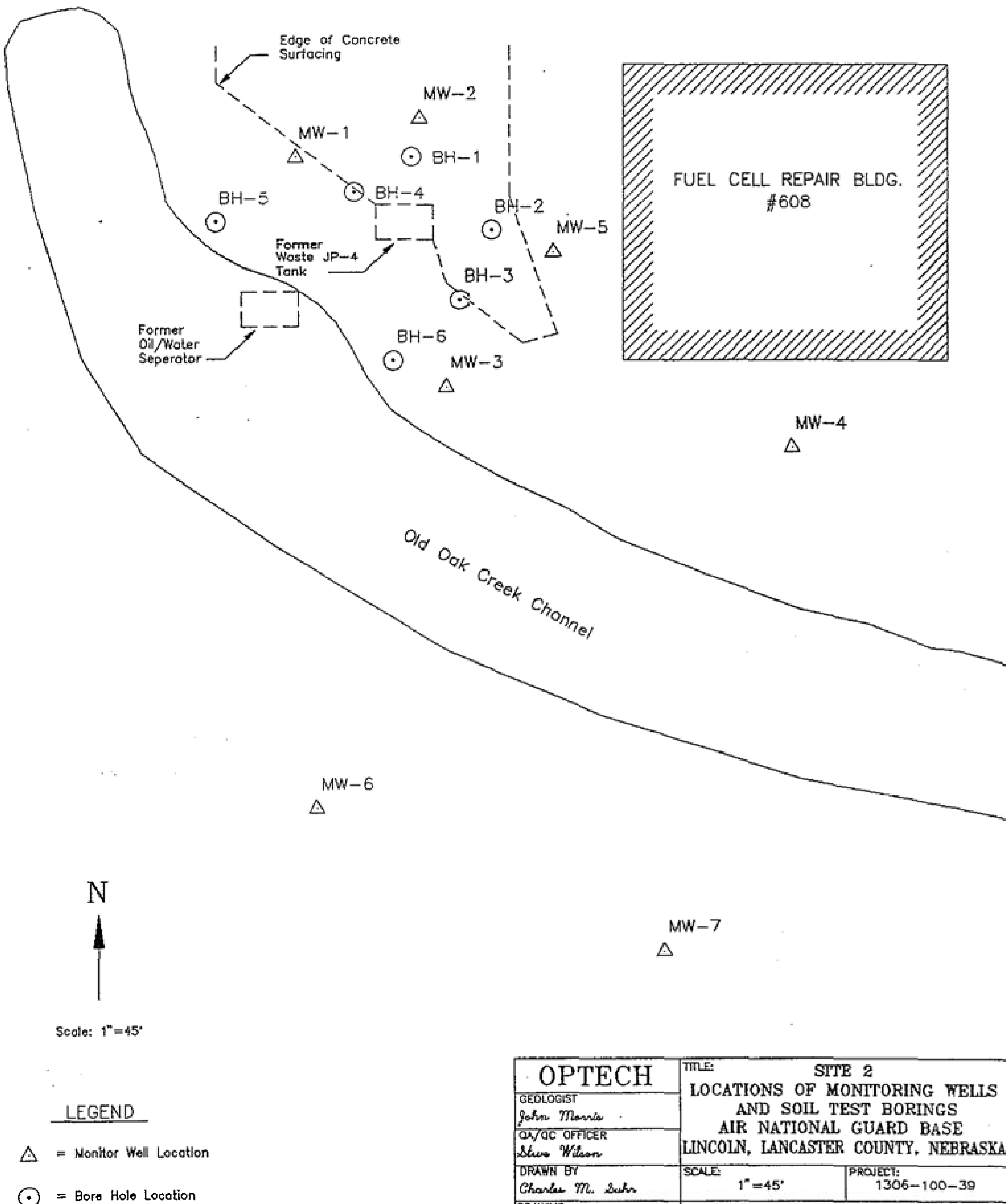
Site-specific field investigation procedures were designed to follow the OpTech Site Assessment Work Plan for all phases of the field and analytical programs. Details of the field assessment methods used and description of the analytical and field quality control programs are discussed in Section 3.2. The Quality Assurance/Quality Control Plan is included in Appendix B.

From 14 to 23 November 1991, the field assessment was conducted. OpTech personnel supervised the assessment, logged soil test borings and ground water monitoring wells, collected subsurface soil and ground water samples, and collected soil samples from soil stockpiles. Layne-Western Corporation, Omaha, Nebraska, a licensed well installation firm in Nebraska, installed the soil test borings and ground water monitoring wells. The location and elevation of the soil test borings and ground water monitoring wells were surveyed by Jeager-Porter and Associates Surveying, Lincoln, Nebraska, a licensed surveying company in Nebraska. Soil and ground water samples were analyzed for BTEX, TRPH and 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene by HWS Technologies, Inc., Lincoln, Nebraska.

3.2 FIELD INVESTIGATION METHODS

3.2.1 Drilling Soil Sampling, and Well Construction Activities

Six soil test borings and seven ground water monitoring wells were installed at Site 2. The soil test borings were backfilled with bentonite chips immediately upon completion of sampling. Locations of the soil test borings and ground water monitoring wells are shown on Figure 3.1.



OPTECH	TITLE: SITE 2 LOCATIONS OF MONITORING WELLS AND SOIL TEST BORINGS AIR NATIONAL GUARD BASE LINCOLN, LANCASTER COUNTY, NEBRASKA	
GEOLOGIST John Morris		
QA/QC OFFICER Steve Wilson		
DRAWN BY Charles M. Suhr	SCALE: 1"=45'	PROJECT: 1306-100-39
DRAWING: LINANG1991	FIGURE 3.1	

3.2.1.2 ANGRC Policy For The Selection of Soil Samples and Monitoring Well Locations

The ANGRC has a policy that soil samples are to be collected only from soil test borings and ground water monitoring wells are only to be installed in areas where soil contamination is not detected. This ANGRC policy is designed to prevent ground water monitoring wells from being conduits for contaminants. Based on this policy, ground water monitoring wells were not installed where contaminants were detected in soil samples by field screening methods or in areas with a high probability of soil contamination.

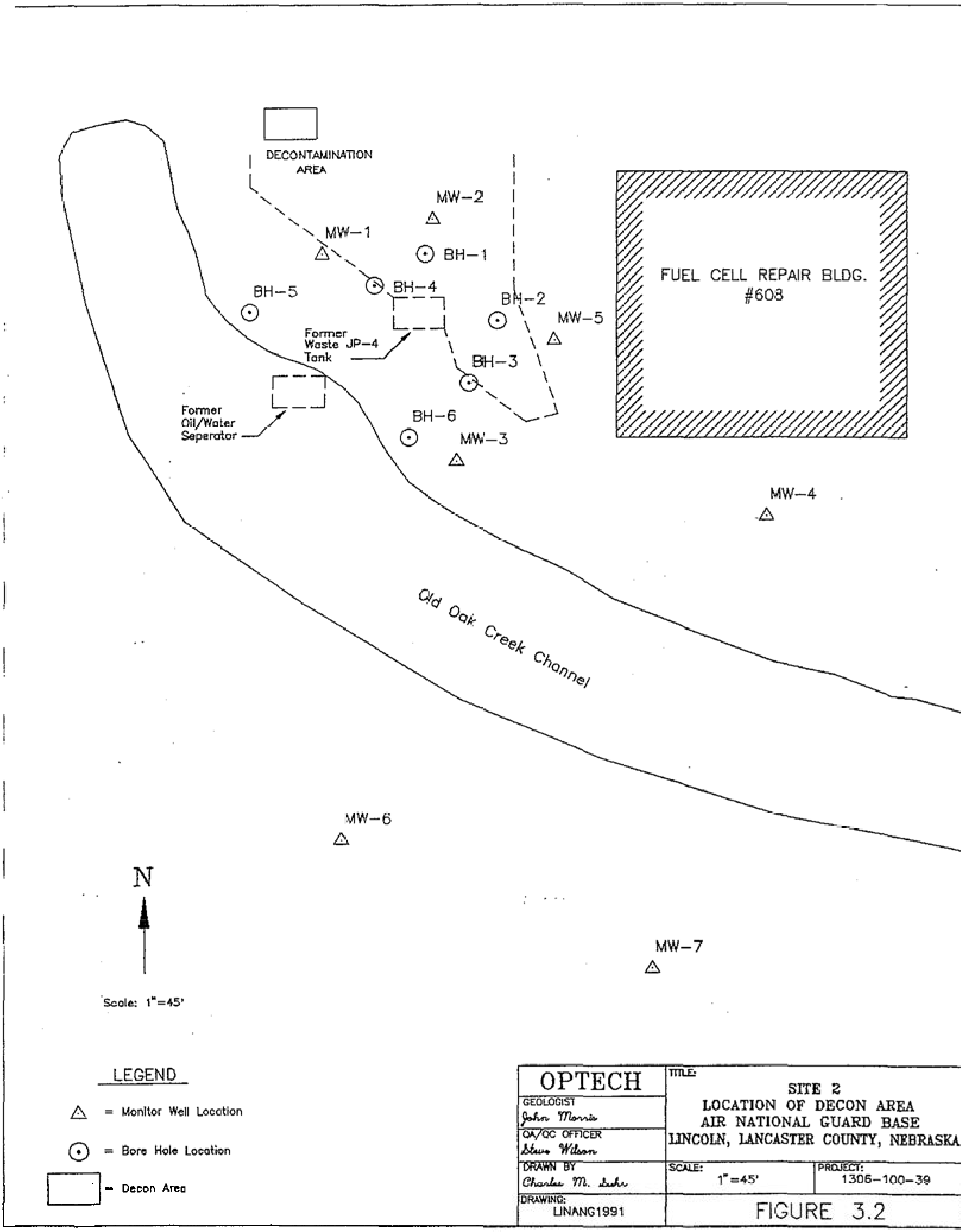
Soil samples were only collected from soil test borings with the exception of two samples collected from monitoring well MW-5. Soil samples were collected from MW-5 to delineate the boundary of contaminants detected in soil test boring BH-2. Monitoring well MW-5 was installed after contaminants were not detected by field screening and the distal location of the monitoring well from potential sources.

3.2.1.3 Drilling Procedures

The six borings, BH-1, BH-2, BH-3, BH-4, BH-5 and BH-6, were drilled with a hollow-stem auger drilling rig on 14, 15, and 16 November 1991. The borings were advanced using a Mobil B-57 drill rig equipped with nominal 6.125-inch external diameter, continuous flight hollow-stem augers to depths between 16.0 and 18.0 feet below land surface.

Two soil samples were collected from borings BH-1 and BH-2 and one soil sample was collected from borings BH-3, BH-4, BH-5 and BH-6. Each boring penetrated approximately five feet into the saturated zone.

All drilling equipment was decontaminated prior to arrival at the site and again prior to initial use at the site, between each borehole, and prior to leaving the site. Decontamination procedures involved thoroughly steam-cleaning the drilling equipment. Decontamination activities were performed at the site decontamination pad located west of Building 608 as shown on Figure 3.2.


DECONTAMINATION AREA
MW-2
MW-1
BH-1
FUEL CELL REPAIR BLDG. #608
BH-5
BH-4
BH-2
MW-5
Former Waste JP-4 Tank
BH-3
Former Oil/Water Seperator
BH-6
MW-3
MW-4
Old Oak Creek Channel
MW-6
N
MW-7
Scale: 1"=45'
LEGEND
= Monitor Well Location
= Bore Hole Location
= Decon Area
OPTECH
GEOLOGIST
John Morris
QA/QC OFFICER
Steve Wilson
DRAWN BY
Charles M. Suhr
DRAWING:
LINANG1991
TITLE:
SITE 2
LOCATION OF DECON AREA
AIR NATIONAL GUARD BASE
LINCOLN, LANCASTER COUNTY, NEBRASKA
SCALE:
1"=45'
PROJECT:
1306-100-39
FIGURE 3.2

3.2.1.4 Soil Sampling Procedures

A log of each boring, noting lithologies encountered and other pertinent information, was prepared by an onsite geologist. A boring log for each soil test boring is included in Appendix A. Soil samples for physical descriptive purposes were collected at each five-foot interval with a split-spoon sampler. The geologic boring log included the following information:

- depth;
- profile;
- Unified Soil Classification System;
- geologic description;
- sample number (if applicable);
- blow counts; and
- photoionization detector measurements and any pertinent comments regarding drilling.

Soil samples from the borings were collected to determine the presence of soil contamination and, if present, to quantify the concentration of specific contaminants. Sampling intervals were dependent on the depth and location of the borehole. A total of thirteen soil samples were collected and analyzed. All soil samples were analyzed for BTEX, TRPH, and 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene.

All soil samples were collected directly in brass liners to avoid loss of volatile constituents. The exposed ends of the liners were covered with aluminum foil and capped with plastic caps taped in place. The soil in the liners was extruded at the laboratory prior to analysis. Each sample was assigned a sample number and pertinent information was recorded in the field book. All soil samples, accompanied by a chain-of-custody form were hand carried in a chilled container to the analytical laboratory on the day of collection.

All equipment used for soil sampling, including the split-spoon sampler were thoroughly decontaminated between each sample collection. The decontamination procedure included a detergent wash, tap water rinse, a second rinse with deionized water, and a final methanol rinse. Sufficient time was allowed following the final rinse to permit complete drying of the equipment.

3.2.1.5 Monitoring Well Construction and Completion

Monitoring wells were constructed of 2-inch-diameter, schedule 40, flush-coupled and threaded PVC casing and screen. The screen slot size was 0.010 inch. All monitoring well materials were decontaminated by steam cleaning before installation in the borehole.

The annular space between the well casing and the borehole was backfilled during removal of the augers and after the well casing was set in the borehole. The well annulus in each well was sandpacked from the bottom of the borehole to two feet above the screen using graded, washed, and bagged Colorado 20-40 silica sand. A minimum 1 to 2 foot-thick bentonite pellet seal was placed over the sand pack. A neat concrete grout was placed above the bentonite seal to the land surface. A construction log is included in Appendix A for each monitoring well.

All monitoring wells were completed approximately 2-1/2 feet above the top of the borehole with the exception of MW-2. A protective steel 4-inch diameter steel riser pipe with a locking cap was set in the neat concrete grout. A three-foot square concrete pad was installed around each riser pipe. All risers were locked with keyed-alike brass locks. The keys were given to the LANGB representative.

Three four-inch diameter steel guard posts filed with cement were placed around the concrete pad and protective steel riser. All guard posts were painted to increase visibility. The bases for the guard posts were set into concrete to a depth sufficient to prevent frost heave.

Monitoring well MW-2 was flush mounted with the concrete surface. The well casing was cut 4 inches below ground surface and capped with a locking cap to prevent tampering and infiltration of surface water. A protective lid was cemented in place around the casing top. The protective lid is comprised of a cast-iron valve-box assembly centered in a 1-foot square concrete pad.

The monitoring wells were developed by removing approximately twenty to forty well volumes using a Grunfos Rediflow 2 pump and PVC bailers. The temperature, pH, and specific conductance of the development water were monitored and recorded during development. These parameters stabilized within 10 percent before completion of development. The water removed during development was retained in labeled and sealed 55-gallon drums. Prior to development, water levels in each well were measured using an electric water-level indicator accurate to 0.01 feet. All equipment used for well development was decontaminated prior to and after each well in accordance with standard site procedures.

3.2.1.6 Surveying

All monitoring wells and soil test borings were surveyed to defined their locations and elevation for future reference. They were located within ±1.0 foot horizontally and ± 0.01 foot vertically. The surveying was performed by Jaeger-Porter and Associates of Lincoln, Nebraska, a registered land surveyor.

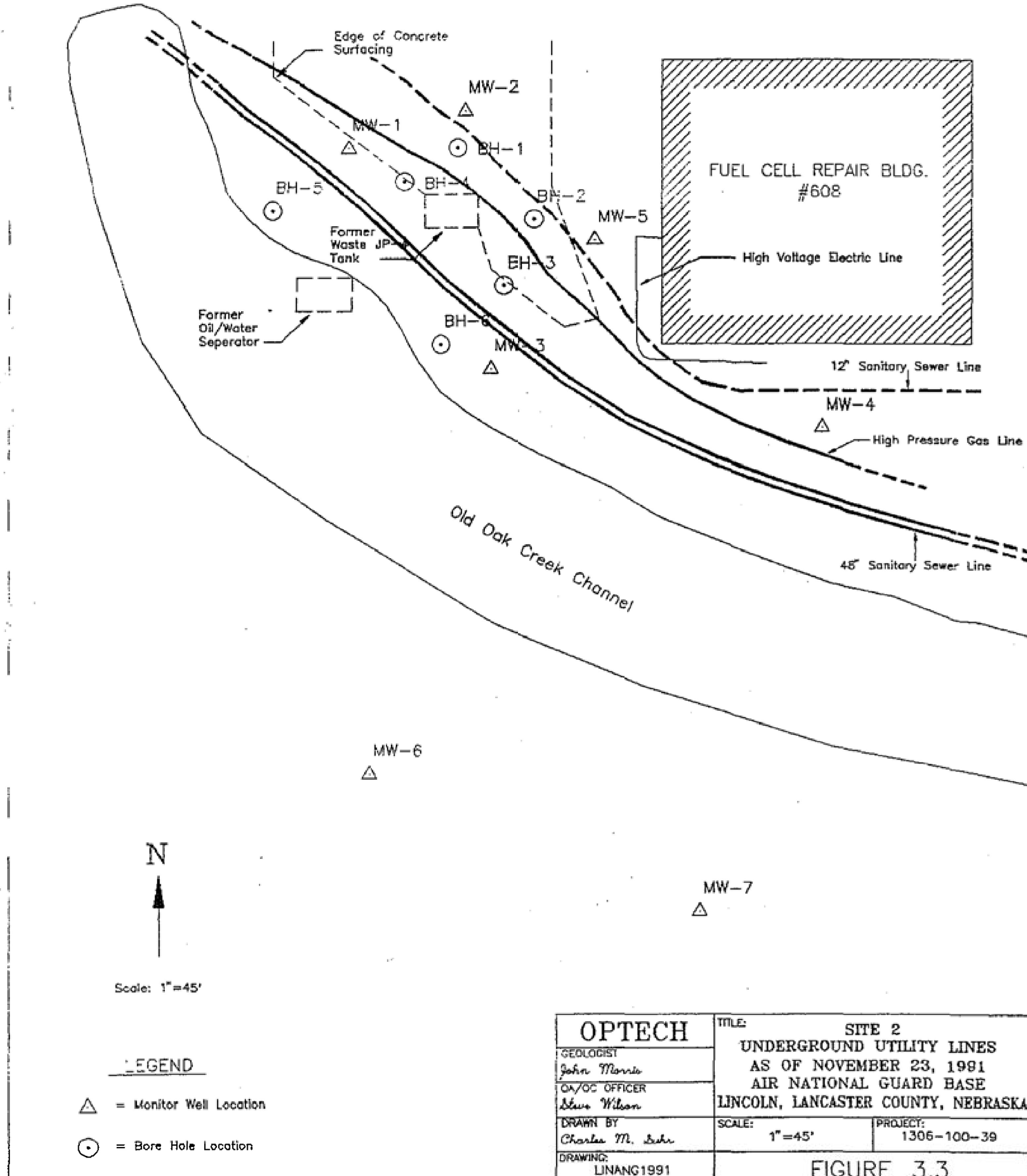
3.2.2 Ground Water Field Measurements and Sampling

Ground water samples were collected from each well following development and stabilizing for two days. Prior to sampling each well a minimum of three well volumes was purged. A total of seven samples of ground water were collected, along with one duplicate, one field blank, and one rinseate blank. Additionally, a laboratory-prepared trip blank was included for analysis. Each sample was analyzed for BTEX, TRPH and 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene. A detailed description of the analyses performed is included in Section 3.3.

Field measurements taken at the time of sample collection included temperature, pH, and SC. An electronic thermometer calibrated in degrees Celsius to the nearest 0.1° was used to record temperature. The water temperature measurements were used to calibrate the pH meter before testing and to determine the correction factor applied to the conductivity meter readings. The pH of the water was measured with a portable pH meter during sampling. The meter was calibrated during sampling using two buffer solutions, pH 4 and pH 7. The SC of the water was measured with a portable SC meter. Each reading was corrected for temperature. A standard potassium chloride solution having a SC of 1,000 umhos/cm was measured during sampling to detect variabilities in instrument readings. A record of each ground water sample was made in a bound, sequentially paginated field book. Samples delivered to the analytical laboratory were recorded on a chain-of-custody form.

3.2.3 Soil Stockpile Sampling

Soil samples were collected from three soil stockpiles. This material was excavated during removal of the waste JP-4 tank and oil/water separator, and installation of the sanitary sewer line indicated on Figure 3.3. The purpose of obtaining these samples was to aid in determining if the material was contaminated. A total of five composite samples, SP-1, SP-2, SP-3, SP-4 and SP-5, were analyzed for BTEX, TRPH and 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene.



OPTECH	TITLE: SITE 2 UNDERGROUND UTILITY LINES AS OF NOVEMBER 23, 1991 AIR NATIONAL GUARD BASE LINCOLN, LANCASTER COUNTY, NEBRASKA	
GEOLOGIST John Morris		
QA/QC OFFICER Steve Wilson		
DRAWN BY Charles M. Suhr	SCALE: 1"=45'	PROJECT: 1306-100-39
DRAWING: LINANG1991	FIGURE 3.3	

The samples were collected using a decontaminated stainless steel scoop. Samples were collected from a total of fourteen locations as shown on Figure 3.4. Soil samples for volatile organics analysis were transferred directly from the sampling scoop to the sample container to minimize the loss of volatile compounds. A record of the sampling of the stockpiled soil piles was made in a bound, sequentially paginated field book. Each sample was recorded on the chain-of-custody form prior to relinquishing it to the analytical laboratory.

3.3 ANALYTICAL PROGRAM

3.3.1 Detection Limits

Detection limits for each parameter and corresponding analytical method are shown in Table 3.1. The detection limit for TRPH varies due to dilution of the samples. Specific chemical parameters for the sampling programs discussed above were selected based on contaminants suspected to have been possibly released from the former waste JP-4 tank and oil/water separator. The analytical program involved analyzing samples by the methods specified in Table 3.1.

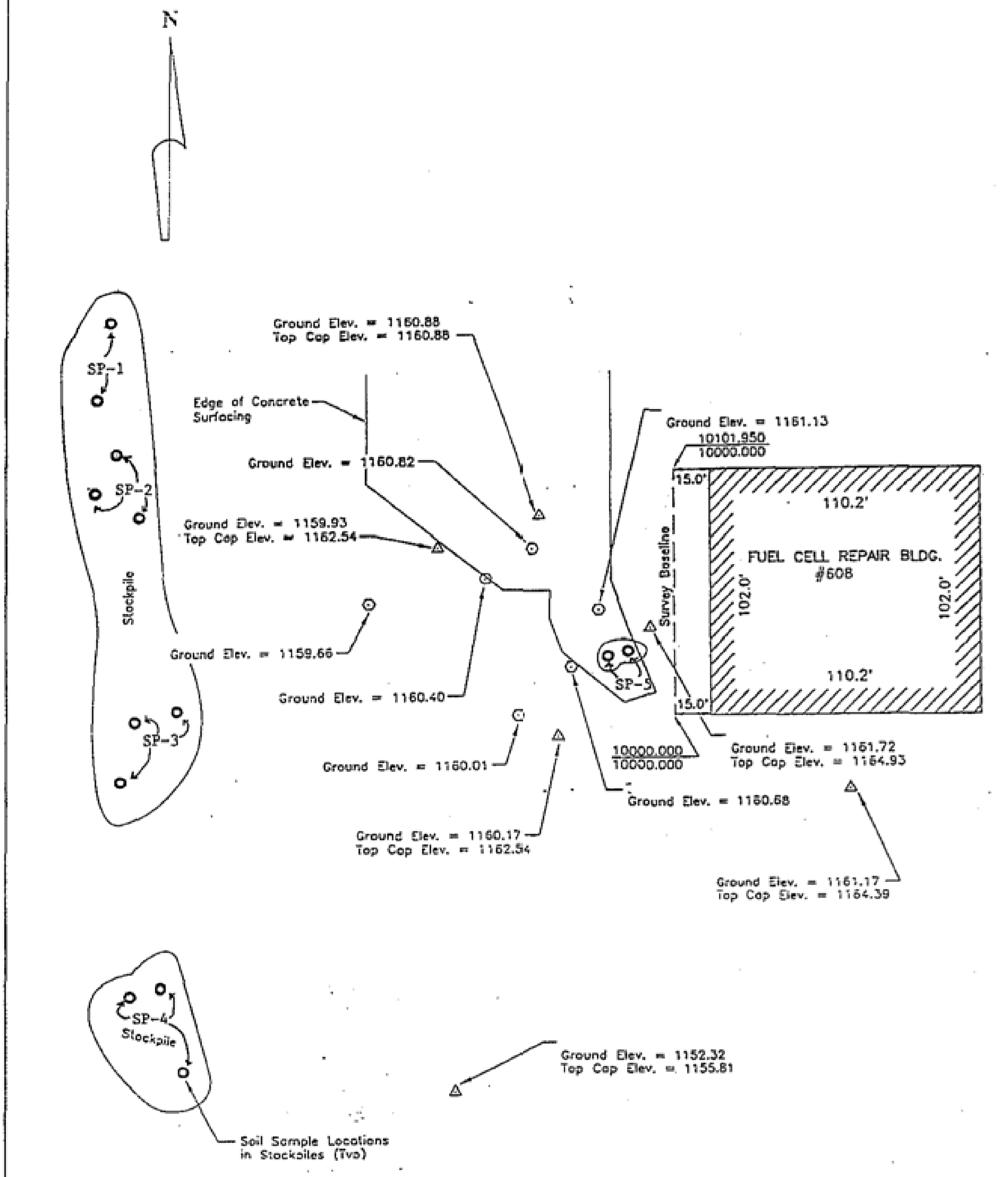


Figure 3.4	Location of Soil Stockpile Samples Lincoln Air National Guard Base Lincoln, Nebraska Source: Jaeger Porter & Associates, Inc.	OPTECH Operational Technologies Corporation

		ANALYSIS METHOD			
SITE	ANALYTES	SOIL	DETECTION LIMITS (mg/kg)[a]	WATER	DETECTION LIMITS (µg/L)[b]
Site 2	Volatile Organics (BTEX)	SW602[c]	.25	SW602	2
	Total Recoverable Petroleum Hydrocarbons	EPA 418.1	Variable[d]	EPA418.1	Variable[d]
	1,2 Dichlorobenzene	SW8010A	.25	SW8010A	2
	1,3 Dichlorobenzene	SW8010A	.25	SW8010A	2
	1,4 Dichlorobenzene	SW8010A	.25	SW8010A	2

[a] mg/kg = milligrams per kilogram

[b] µg/L = micrograms per liter

[c] Analytical protocols are defined in Environmental Protection Agency Manual SW-846, Test Methods for Evaluating Solid Waste, 3rd edition.

[d] Detection limit variable depending upon dilution of sample by analytical laboratory.

Table 3.1 Summary of Analytical Methods and Detection Limits

4.1 ASSESSMENT RESULTS

Summarized in this section are facility geology and hydrogeology, ground water quality and soil quality. The findings presented in this section are the result of the assessment activities presented in Section 3.

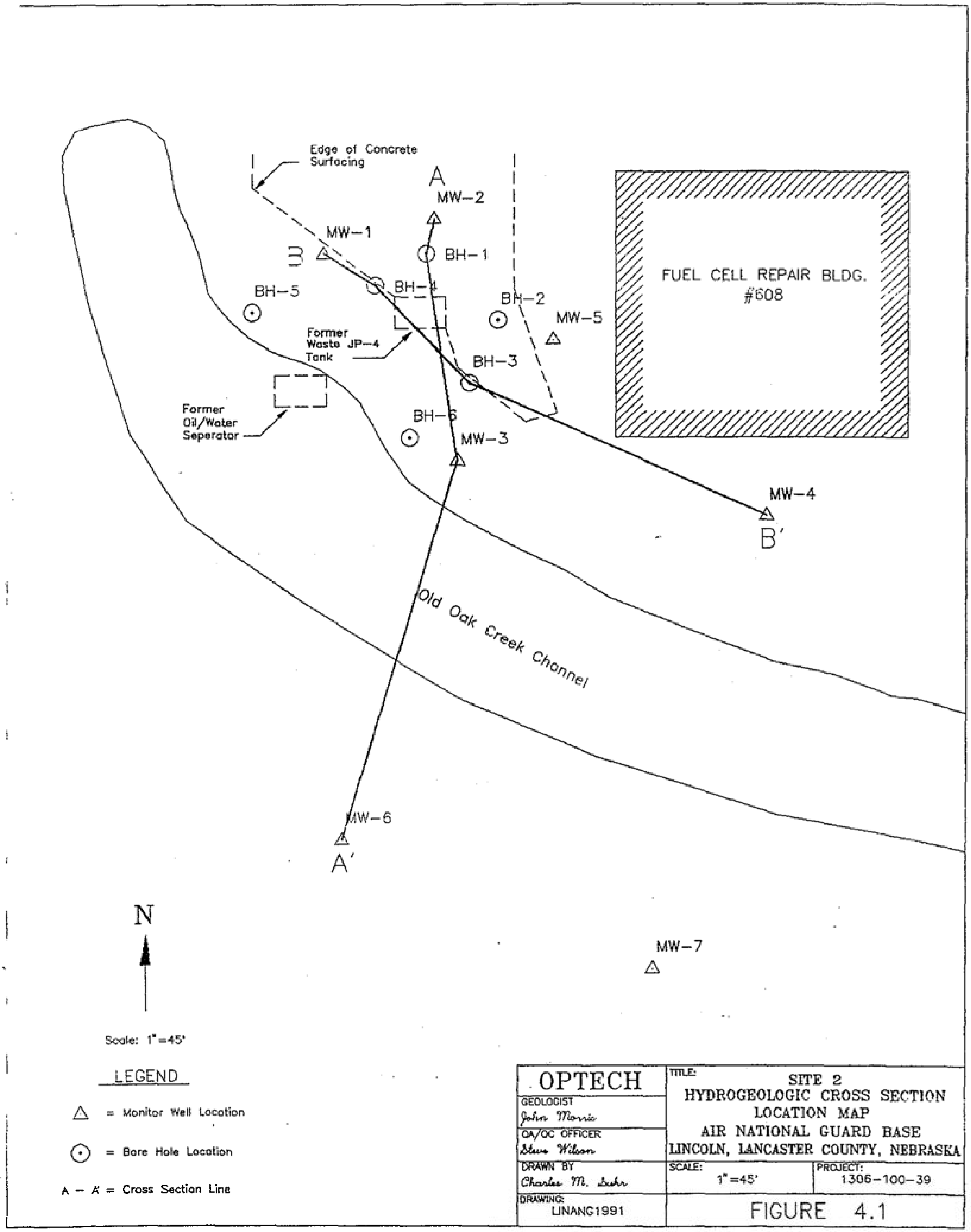
4.1.1 Facility Geology and Hydrogeology

Generalized hydrogeologic cross-sections A-A' and B-B' were constructed across Site 2 to illustrate subsurface conditions. The locations of the cross sections are shown on Figure 4.1. Cross-section A-A' is oriented north to south as presented in Figure 4.2 and cross-section B-B' is oriented northwest to southeast as presented in Figure 4.3. The potentiometric surface illustrated in these cross-sections were constructed from field data collected during the November 1991 field investigation.

A total of approximately 10 to 20 feet of fine-grained eolian silty clay overlays a moderately to poorly sorted fluvial sand and gravel. Thickness of the fluvial sand and gravel was not determined because it was not completely penetrated during the assessment. Both the silt and clay unit and fluvial sand and gravel unit are continuous across the site. The upper unit appears to increase in thickness toward the east.

Depths to the top of the saturated zone ranged from 5.46 to 14.90 feet below ground surface. The range of depths to the saturated zone are dependent on surface elevation. The average surface elevations on the south and north sides of Old Oak Creek Channel were 1,160 and 1,151 feet above sea level, respectively. The elevation of Old Oak Creek Channel bottom is 1144.80 feet above sea level. Water levels in the monitoring wells at the site approximately corresponded to the depth of the saturated zones. The saturated zone at Site 2 exceeds 15 feet. A potentiometric map was constructed using 21 and 23 November 1991 water level data as shown on Figures 4.4 and 4.5, respectively. The ground water level data is summarized in Tables 4.1 and 4.2. The distribution of potentiometric contours indicates the direction of the ground water gradient is generally to the south. The hydraulic gradient ranges from 0.04 ft/ft to 0.001 ft/ft.

The hydraulic conductivity of the silty clay and sandy units is estimated to be on the order of 10^{-8} to 10^{-4} cm/s and 10^{-4} to 10^{-2} cm/s, respectively (Freeze and Cherry, 1979). Average values for effective porosity are estimated to be 0.05 for the silty clay unit and 0.25 for the sandy unit (Johnson, 1967). Based on these values, the linear velocity of ground water movement beneath the facility in the silty clay unit may range up to 8 ft/yr. Ground water flow velocities in the sandy unit may range from 2 ft/yr to in excess of 150 ft/yr.



Edge of Concrete Surfacing
A
MW-2
MW-1
B
BH-1
BH-5
BH-4
BH-2
MW-5
FUEL CELL REPAIR BLDG. #608
Former Waste JP-4 Tank
BH-3
Former Oil/Water Seperator
BH-6
MW-3
MW-4
B'
Old Oak Creek Channel
MW-6
A'
N
MW-7
Scale: 1"=45'
LEGEND
= Monitor Well Location
= Bore Hole Location
A - A' = Cross Section Line
OPTECH
GEOLOGIST
John Morris
QA/QC OFFICER
Steve Wilson
DRAWN BY
Charles M. Suhr
DRAWING:
LINANG1991
TITLE:
SITE 2
HYDROGEOLOGIC CROSS SECTION
LOCATION MAP
AIR NATIONAL GUARD BASE
LINCOLN, LANCASTER COUNTY, NEBRASKA
SCALE:
1"=45'
PROJECT:
1306-100-39
FIGURE 4.1

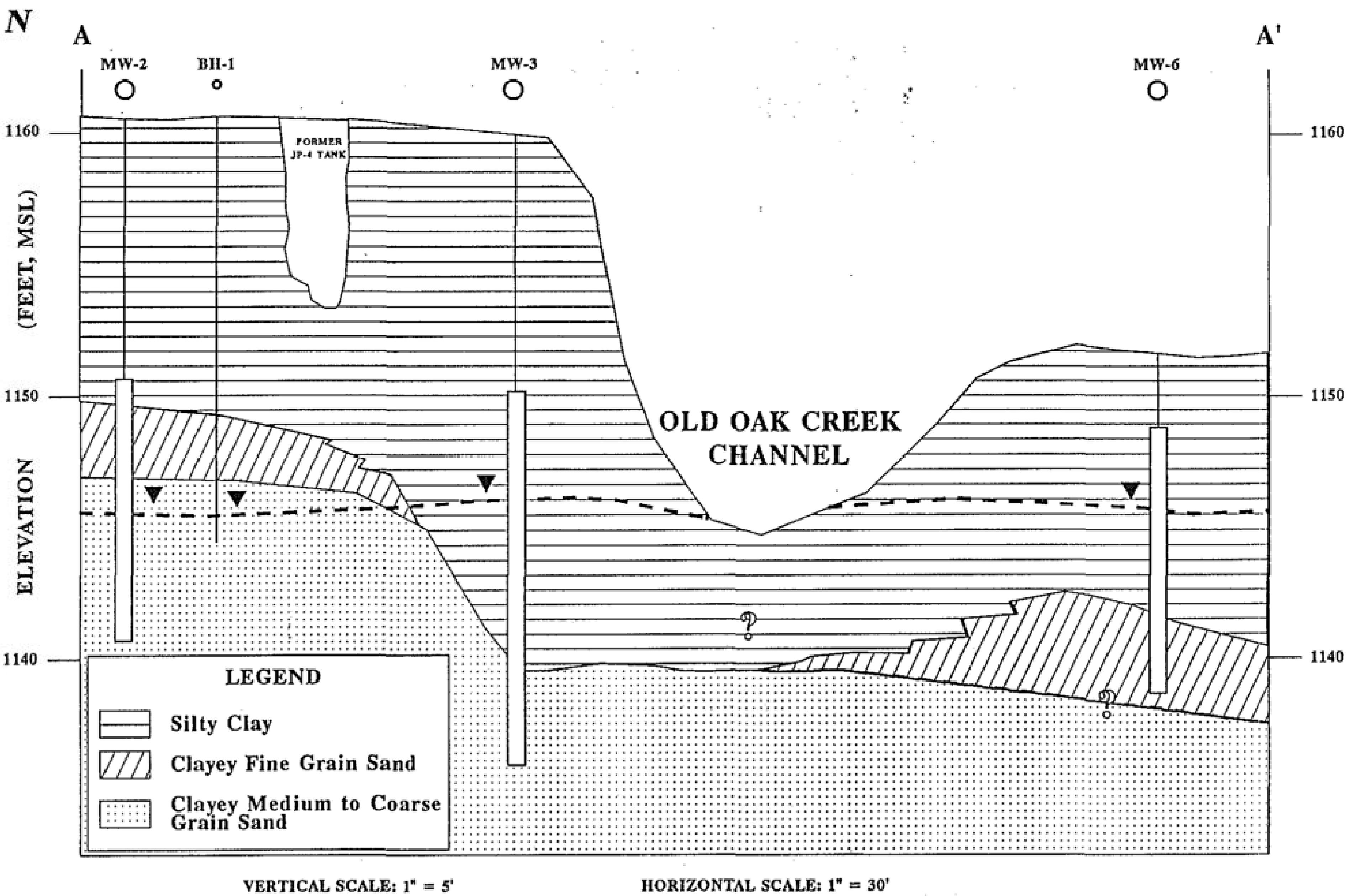


Figure 4.2

Hydrogeologic Cross-Section A to A'

155th Tactical Reconnaissance Group
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION

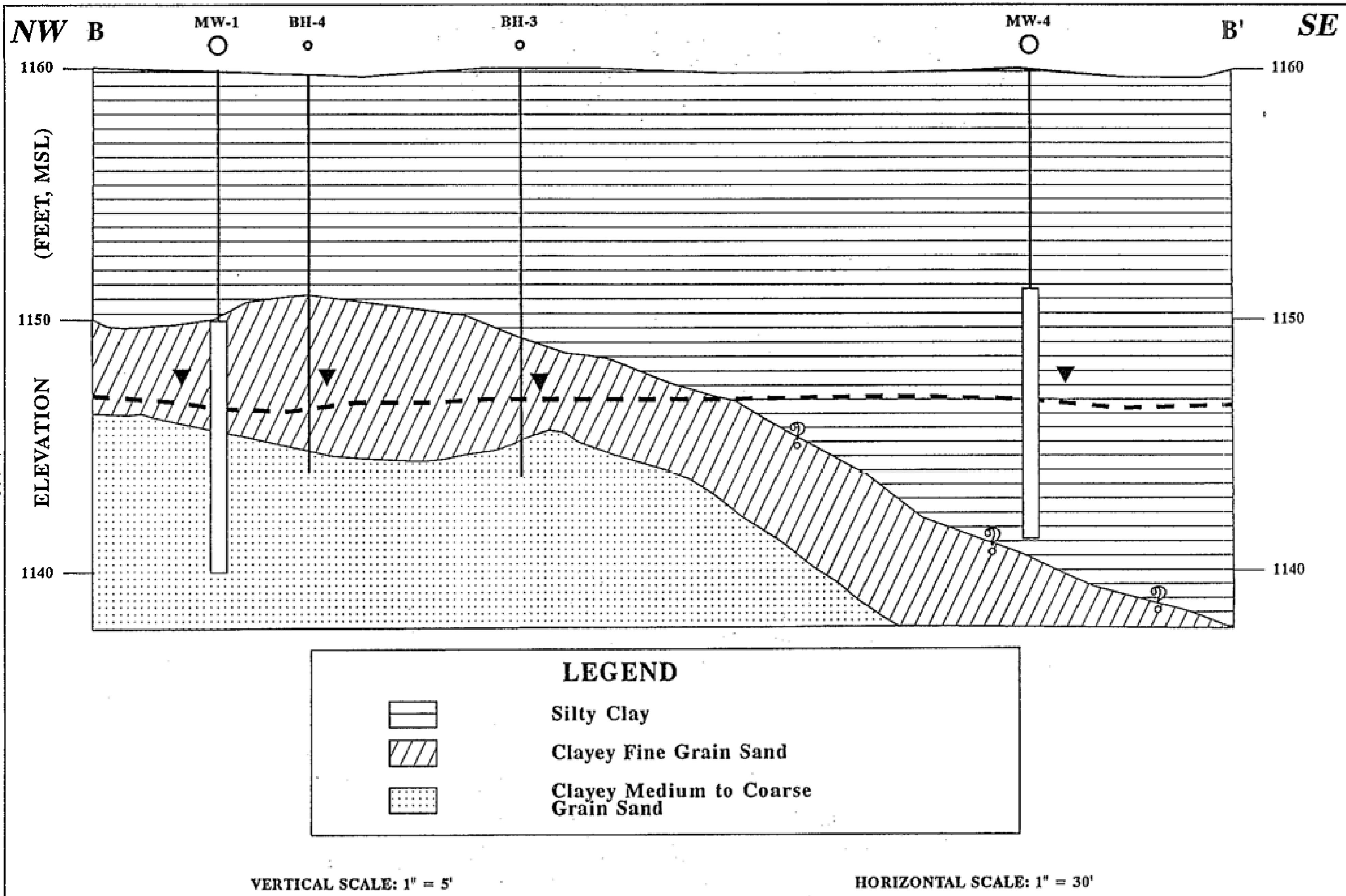
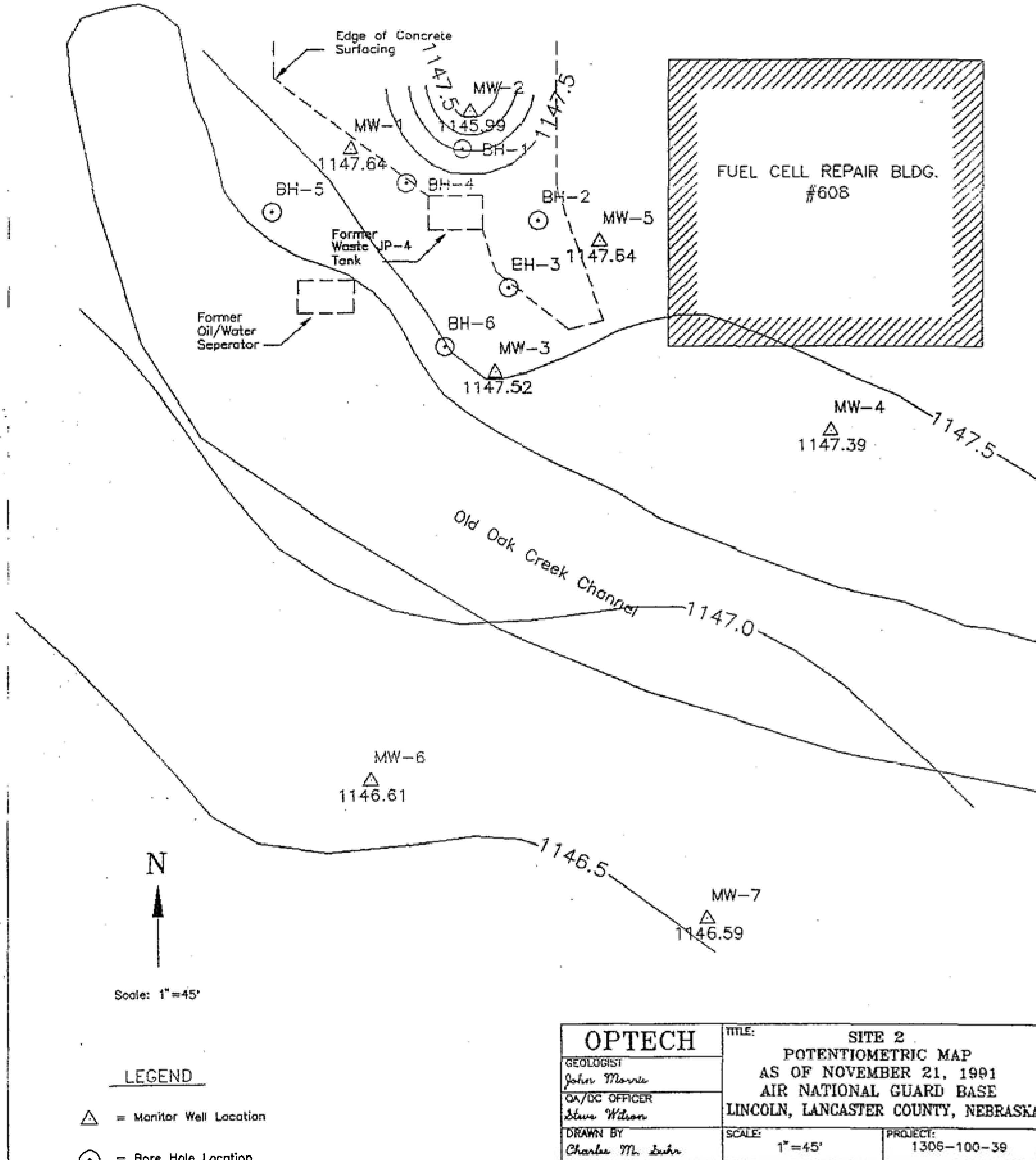


Figure 4.3

Hydrogeologic Cross-Section B to B'
155th Tactical Reconnaissance Group
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION



OPTECH	TITLE: SITE 2 POTENTIOMETRIC MAP AS OF NOVEMBER 21, 1991 AIR NATIONAL GUARD BASE LINCOLN, LANCASTER COUNTY, NEBRASKA	
GEOLOGIST John Morris		
QA/QC OFFICER Steve Wilson		
DRAWN BY Charles M. Suhr	SCALE: 1"=45'	PROJECT: 1306-100-39
DRAWING: LINANG1991	FIGURE 4.4	

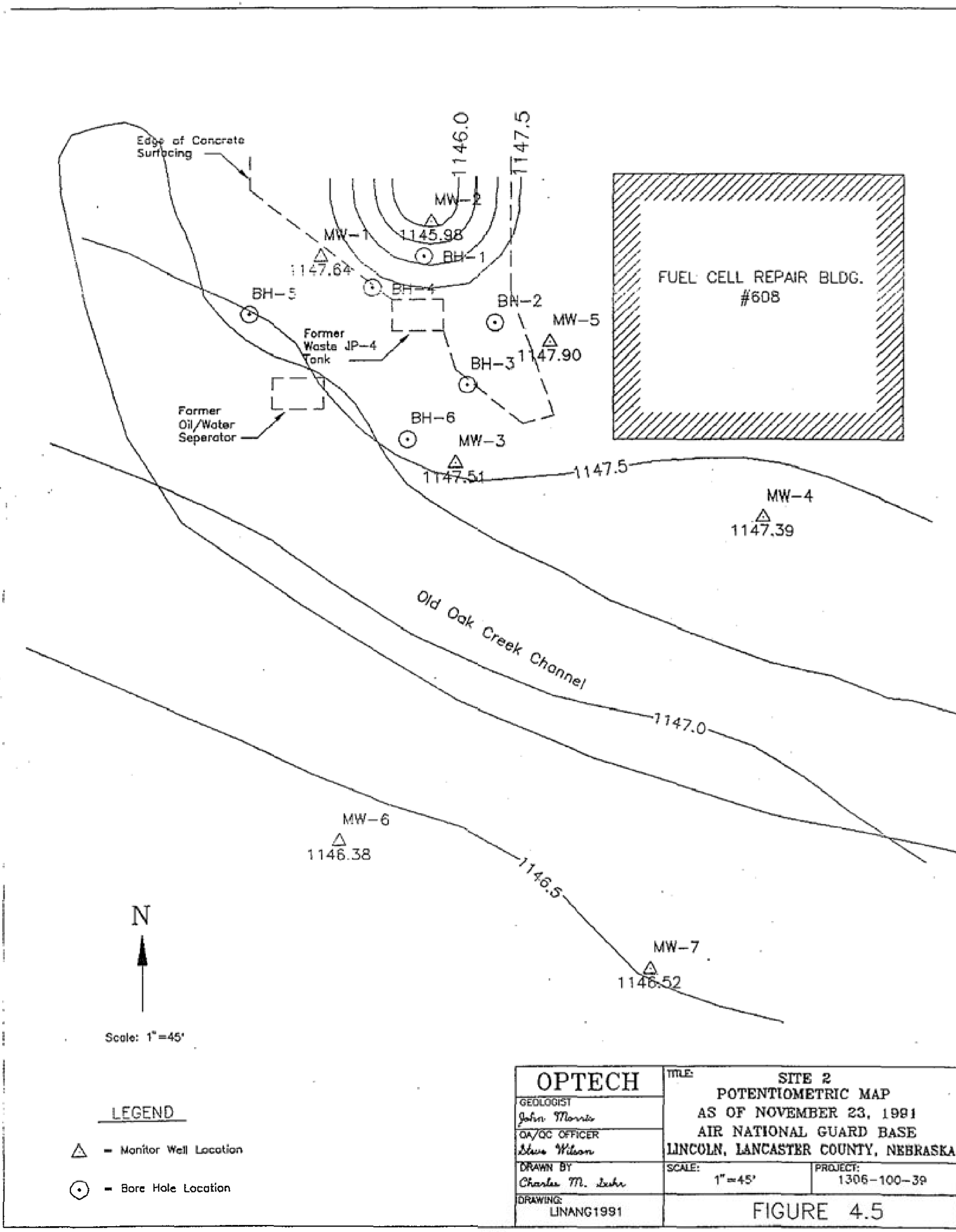

Edge of Concrete Surfacing
1146.0
1147.5
MW-2
1145.98
MW-1
1147.64
BH-1
BH-4
BH-5
BH-2
MW-5
1147.90
Former Waste JP-4 Tank
BH-3
Former Oil/Water Seperator
BH-6
MW-3
1147.51
1147.5
FUEL CELL REPAIR BLDG. #608
MW-4
1147.39
Old Oak Creek Channel
1147.0
MW-6
1146.38
1146.5
MW-7
1146.52
N
Scale: 1"=45'
LEGEND
- Monitor Well Location
- Bore Hole Location
OPTECH
GEOLOGIST
John Morris
QA/QC OFFICER
Steve Wilson
DRAWN BY
Charles M. Lehr
DRAWING:
LINANG1991
TITLE:
SITE 2
POTENTIOMETRIC MAP
AS OF NOVEMBER 23, 1991
AIR NATIONAL GUARD BASE
LINCOLN, LANCASTER COUNTY, NEBRASKA
SCALE:
1"=45'
PROJECT:
1306-100-39
FIGURE 4.5

Table 4.1 Water Measurements, 155 Tactical Reconnaissance Group, Lincoln Municipal Airport, Lincoln, Nebraska

Well #	Date	Time	Measuring Point Elevation & Depth to Water			Surface Elevation & Depth to Water			Measured By
			Measuring Point	Measuring Point Elevation	Depth to Water (Feet)	Land Surface Elevation (asl)	Depth to Water (Feet)	Elevation	
MW-1	21 Nov 91	08:10	TOSC	1162.51	14.90	1159.93	12.29	1147.64	JM
MW-2	21-Nov-91	08:12	TOWV	1160.88	14.89	1160.88	14.89	1145.99	JM
MW-3	21-Nov-91	08:16	TOSC	1162.54	15.02	1160.17	12.65	1147.52	JM
MW-4	21-Nov-91	08:20	TOSC	1164.39	17.00	1161.17	13.78	1147.39	JM
MW-5	21-Nov-91	08:24	TOSC	1164.93	17.29	1161.72	14.08	1147.64	JM
MW-6	21-Nov-91	08:45	TOSC	1155.81	9.20	1152.32	5.71	1146.61	JM
MW-7	21-Nov-91	08:49	TOSC	1154.92	8.33	1151.98	5.39	1146.59	JM

TOSC = Top of Steel Casing
TOWV = Top of Well Vault
SW = Steve Wilson
JM = John Morris

Table 4.2 Water Measurements, 155 Tactical Reconnaissance Group, Lincoln Municipal Airport, Lincoln, Nebraska

Well #	Date	Time	Measuring Point Elevation & Depth to Water			Surface Elevation & Depth to Water			Measured By
			Measuring Point	Measuring Point Elevation	Depth to Water (Feet)	Land Surface Elevation (asl)	Depth to Water (Feet)	Elevation	
MW-1	23 Nov 91	08:20	TOSC	1162.54	14.90	1159.93	12.29	1147.64	SW
MW-2	23-Nov-91	08:23	TOWV	1160.88	14.90	1160.88	14.90	1145.98	SW
MW-3	23-Nov-91	08:27	TOSC	1162.54	15.03	1160.17	12.66	1147.51	SW
MW-4	23-Nov-91	08:45	TOSC	1164.39	17.00	1161.17	13.78	1147.39	SW
MW-5	23-Nov-91	08:55	TOSC	1164.93	17.03	1161.72	13.82	1147.90	SW
MW-6	23-Nov-91	08:36	TOSC	1155.81	9.43	1152.32	5.94	1146.38	SW
MW-7	23-Nov-91	09:39	TOSC	1154.92	8.40	1151.98	5.46	1146.52	SW

TOSC = Top of Steel Casing
TOWV = Top of Well Vault
SW = Steve Wilson
JM = John Morris

Based on the location of the two potential sources of contaminants, adjacent to Old Oak Creek Channel and the elevation of the creek relative to ground water, it is possible contaminants seeped into the creek as opposed to migrating a significant distance underground. The former waste JP-4 tank was located only approximately 40 feet north of the creek and the oil/water separator was located immediately north of the creek. Since the ground water gradient is to the south, contaminant migration from the waste JP-4 tank or the oil/water separator could seep into Old Oak Creek Channel.

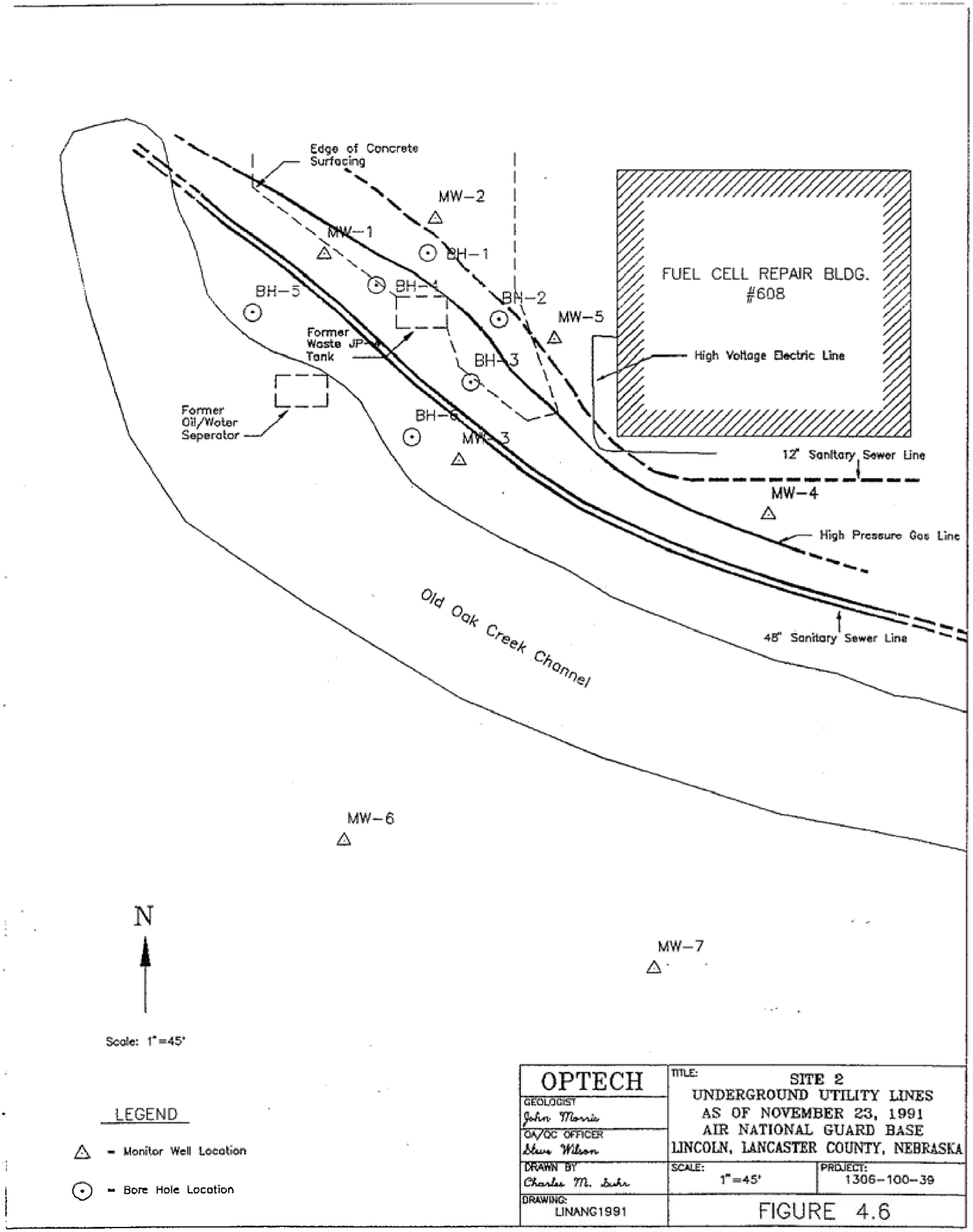
4.1.2 Soil Test Borings

The locations of the soil test borings were selected to determine the aerial extent of soil contamination from the former waste JP-4 tank and oil/water separator. The specific locations were selected to be as near as possible to the potential sources. Subsurface structures, a high pressure gas pipeline, a high-voltage electrical line and two sanitary sewer lines, and Old Oak Creek Channel as indicated on Figure 4.6, required locating the borings distances of up to 25 feet from the potential sources.

The collection depth of samples from the soil test borings were primarily selected based on the ground water depth. These soil samples were selected to determine if contaminants were transported by ground water. The soil sample from BH-2 at a depth of 15.0 to 15.5 feet below land surface was selected based on PID readings, and visual and olfactory examination indicating contaminants. The soil sample collected from monitoring well MW-5 at a depth of 15.0 to 15.5 feet below land surface was selected to determine the down gradient extent of contamination detected in BH-2.

4.1.2.1 Soil Field Measurements

Soil field measurement of photoionizable compounds were obtained at the time of sampling. Measured values are listed in Table 4.3. Photoionizable compound values ranged from 0.0 to 750 parts per million (ppm). PID readings greater than background were detected in soil test borings BH-1 and BH-2, and monitoring wells MW-1 and MW-2. PID readings recorded from BH-1 at depths from 9.0 to 11.0 feet below land surface marginally exceeded background readings. The highest reading, 750 ppm, was obtained from soil test boring BH-2 at a depth of 15 to 16 feet below land surface. PID readings recorded from MW-1 at depths from 9.0 to 20.0 feet below land surface also marginally exceeded background readings.



Edge of Concrete Surfacing
MW-2
MW-1
BH-1
BH-4
BH-5
BH-2
MW-5
FUEL CELL REPAIR BLDG. #608
Former Waste JP-4 Tank
High Voltage Electric Line
BH-3
Former Oil/Water Seperator
BH-6
MW-3
12" Sanitary Sewer Line
MW-4
High Pressure Gas Line
Old Oak Creek Channel
48" Sanitary Sewer Line
MW-6
N
MW-7
Scale: 1"=45'
LEGEND
△ - Monitor Well Location
⊙ - Bore Hole Location
OPTECH
GEOLOGIST John Morris
QA/QC OFFICER Steve Wilson
DRAWN BY Charles M. Suhr
DRAWING: LINANG1991
TITLE: SITE 2 UNDERGROUND UTILITY LINES AS OF NOVEMBER 23, 1991 AIR NATIONAL GUARD BASE LINCOLN, LANCASTER COUNTY, NEBRASKA
SCALE: 1"=45'
PROJECT: 1306-100-39
FIGURE 4.6

Table 4.3 Summary of PID Ambient Temperature Headspace Analysis, 155 Tactical Reconnaissance Group, Lincoln Municipal Airport, Lincoln, Nebraska

Sample Boring ID	Location Depth (Feet)	Photoionization Reading (ppm)	Corrected Reading*	Notes
BH1	4-5	11.2	1.6	Ambient Air 9.6
	5-6	11.2	1.6	Ambient Air 9.6
	9-10	23.0	13.4	Ambient Air 9.6
	10-11	19.3	9.7	Ambient Air 9.6
	15-16	10.5	.9	Ambient Air 9.6
	16-17	13.3	3.7	Lab Samples 16-16.5' & 16.5-17.0'
BH2	4-5	NR		
	5-6	3.2		
	9-10	3.3		Lab Sample 9.5-10.0'
	10-11	4.5		
	14-15	400		
	15-16	750		Lab Sample 15-15.5
BH3	4-5	3.2		
	5-6	3.2		
	9-10	NR		
	10-11	NR		Lab Sample 10-10.5'
	14-15	2.6		
	15-16	2.6		
BH4	4-5	4.6		
	5-6	4.6		
	9-10	3.2		
	10-11	3.2		Lab Sample 10.5-11'
	14-15	2.2		
	15-16	2.4		
BH5	4-5	3.1		
	5-6	3.1		
	9-10	3.2		
	10-11	3.2		Lab Sample 10.0-10.5'
	14-15	2.1		
	15-16	2.2		
BH6	4-5	3.2		
	5-6	4.1		
	9-10	0.1		
	10-11	0.1		Lab Sample 10.5-11'
	14-15	2.1		
	15-16	2.4		
MW1	4-5	13.8	3.9	Ambient Air 9.9
	5-6	14.5	4.6	Ambient Air 9.9
	9-10	21.3	11.4	Ambient Air 9.9
	10-11	23.3	13.4	Ambient Air 9.9
	14-15	21.3	11.4	Ambient Air 9.9
	15-16	21.8	11.9	Ambient Air 9.9
	19-20	17.4	7.5	Ambient Air 9.9
	24-25	13.3	3.4	Ambient Air 9.9
	25-26	12.9	3.0	Ambient Air 9.9

Table 4.3 Summary of Ambient Temperature Headspace Analysis (Continued)

Sample Boring ID	Location Depth (Feet)	Photoionization Reading (ppm)	Corrected Reading*	Notes
MW2	4-5	10.1	.2	Ambient Air 9.9
	5-6	10.1	.2	Ambient Air 9.9
	9-10	20.2	10.3	Ambient Air 9.9
	10-11	20.2	10.3	Ambient Air 9.9
	14-15	16.6	6.7	Ambient Air 9.9
	15-16	20.2	10.3	
MW3	4-5	1.7		
	5-6	1.7		
	9-10	1.9		
	10-11	1.9		
	14-15	2.1		
	15-16	2.3		
MW4	4-5	6.0		
	5-6	6.1		
	9-10	2.7		
	10-11	2.7		
	14-15	3.6		
	15-16	3.7		
	19-20	3.7		
	20-21	3.9		
MW5	4-5	2.0		
	5-6	2.0		
	9-10	2.0		
	10-11	2.1		
	14-15	3.3		
	15-16	3.2		
	19-20	1.9		
	20-21	1.8		
MW6	5-6	0.0		
	6-7	0.0		
	10-11	0.0		
	11-12	0.0		
	15-16	0.0		
	16-17	0.0		
MW7	5-6	6.5		
	6-7	6.5		
	10-11	6.4		
	11-12	6.4		
	15-16	3.7		
	16-17	3.7		

NR = No Recovery for Headspace Analysis
ppm = Parts per million
* = Corrected PID Reading for Malfunction of Instrument

PID readings for soil test boring BH-1, and monitoring wells MW-1 and MW-2 were affected by a malfunctioning PID battery resulting in abnormally high calibrated ambient air readings. Ambient air photoionization reading were 9.9 ppm after the morning calibration, and 9.6 ppm after the afternoon calibration of the PID. All PID readings for BH-1, MW-1 and MW-2 required correction for the calibrated ambient air readings. The malfunction was immediately corrected by obtaining a replacement battery from the BEES representative.

4.1.2.2 Analytic Results For Soil

BTEX, TRPH and 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene analytic results for soil samples from soil test borings BH-1, BH-2, BH-3, BH-4, BH-5, BH-6 and monitoring well MW-5 are presented in Table 4.4. HWS Technologies, Inc. analytical laboratory reports are included in Appendix C. Total BTEX concentrations in soil samples at depths of 9.5 to 11.0 and 15.0 to 17.0 feet below land surface are illustrated in Figures 4.7 and 4.8, respectively. BTEX compounds were detected only in soil samples collected from test borings BH-2 and BH-4, and monitoring well MW-5. BTEX compounds were detected in BH-2 at a depth of 15.0 to 15.5 feet below land surface at concentrations of 76, 21, 13 and 76 mg/kg, respectively. 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene were also detected at a depth of 15.0 to 15.6 feet below land surface in BH-2 at concentrations of 16, 9.5 and 11 mg/kg. 1,4 dichlorobenzene was detected in BH-2 at a depth of 9.5 to 10.0 feet below land surface at a concentration of 1.3 mg/kg.

Toluene, ethyl benzene and xylenes were detected in soil test boring BH-4 at a depth of 10.5 to 11.0 feet below land surface at concentrations of .80 ,1.6, and 2.7 mg/kg, respectively. 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene were also detected at this depth in BH-4 at concentrations of .82, 1.1 and .47 mg/kg, respectively. Of the parameters analyzed, only benzene was detected in MW-5. In MW-5 at depths of 10.0 to 10.5 and 15.0 to 15.5 feet below land surface, benzene was detected at concentrations of .37 and .31 mg/kg, respectively. TRPH was not detected in the soil samples analyzed. The state of Nebraska has not set regulatory MCL's for BTEX, TRPH, 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene in soil.

Table 4.4--- Analytic Results For Soil -155th Tactical Reconnaissance Group, Lincoln Municipal Airport, Lincoln Nebraska.

Sample ID	Depth (Feet)	Sample Date	Analytic Lab	Anayltic Method	B	T	E	X	TRPH	1,2 Dichlorobenzenes	1,3 Dichlorobenzenes	1,4 Dichlorobenzenes
					<----				(mg/kg)			---->
LANGB BH1	16.0-16.5	14-Nov-91	HWS	418.1/602/8010A	<.25	<.25	<.25	<.25	<25	<.25	<.25	<.25
LANGB BH1	16.5-17.0	14-Nov-91	HWS	418.1/602/8010A	<.25	<.25	<.25	<.25	<22	<.25	<.25	<.25
LANGB BH2	9.5-10.0	15-Nov-91	HWS	418.1/602/8010A	<.25	<.25	<.25	<.25	<22	1.3	<.25	<.25
LANGB BH2	15.0-15.5	15-Nov-91	HWS	418.1/602/8010A	76	21	13	76	<23	11	16	9.5
LANGB BH3	10.0-10.5	17-Nov-91	HWS	418.1/602/8010A	<.25	<.25	<.25	<.25	<22	<.25	<.25	<.25
LANGB BH4	10.5-11.0	17-Nov-91	HWS	418.1/602/8010A	<.25	.80	1.6	2.7	<22	.82	1.1	.47
LANGB BH5	10.0-10.5	17-Nov-91	HWS	418.1/602/8010A	<.25	<.25	<.25	<.25	<20	<.25	<.25	<.25
LANGB BH6	10.5-11.0	17-Nov-91	HWS	418.1/602/8010A	<.25	<.25	<.25	<.25	<25	<.25	<.25	<.25
LANGB MW5	10.0-10.5	18-Nov-91	HWS	418.1/602/8010A	.37	<.25	<.25	<.25	<25	<.25	<.25	<.25
LANGB MW5	15.0-15.5	18-Nov-91	HWS	418.1/602/8010A	.31	<.25	<.25	<.25	<25	<.25	<.25	<.25
MCL					NA	NA	NA	NA	NA	NA	NA	NA

EXPLANATION:

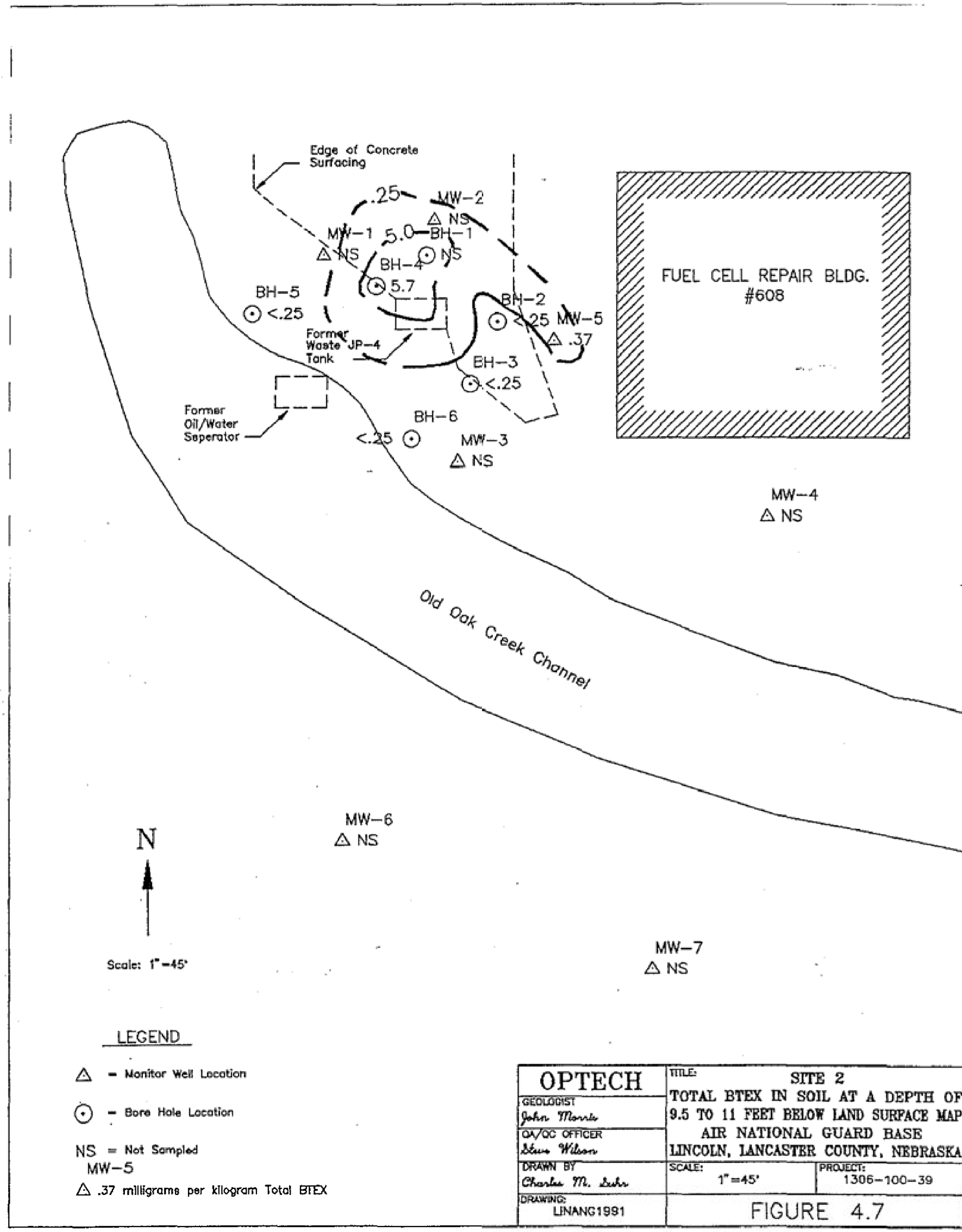
TRPH = Total Recoverable Petroleum Hydrocarbons
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
--- = Not analyzed\Not applicable
LANGB = Lincoln Air National Guard Base
mg/kg = milligrams per kilogram
MCL = Maximum Contaminant Level
NA = Not Applicable

ANALYTIC METHODS:

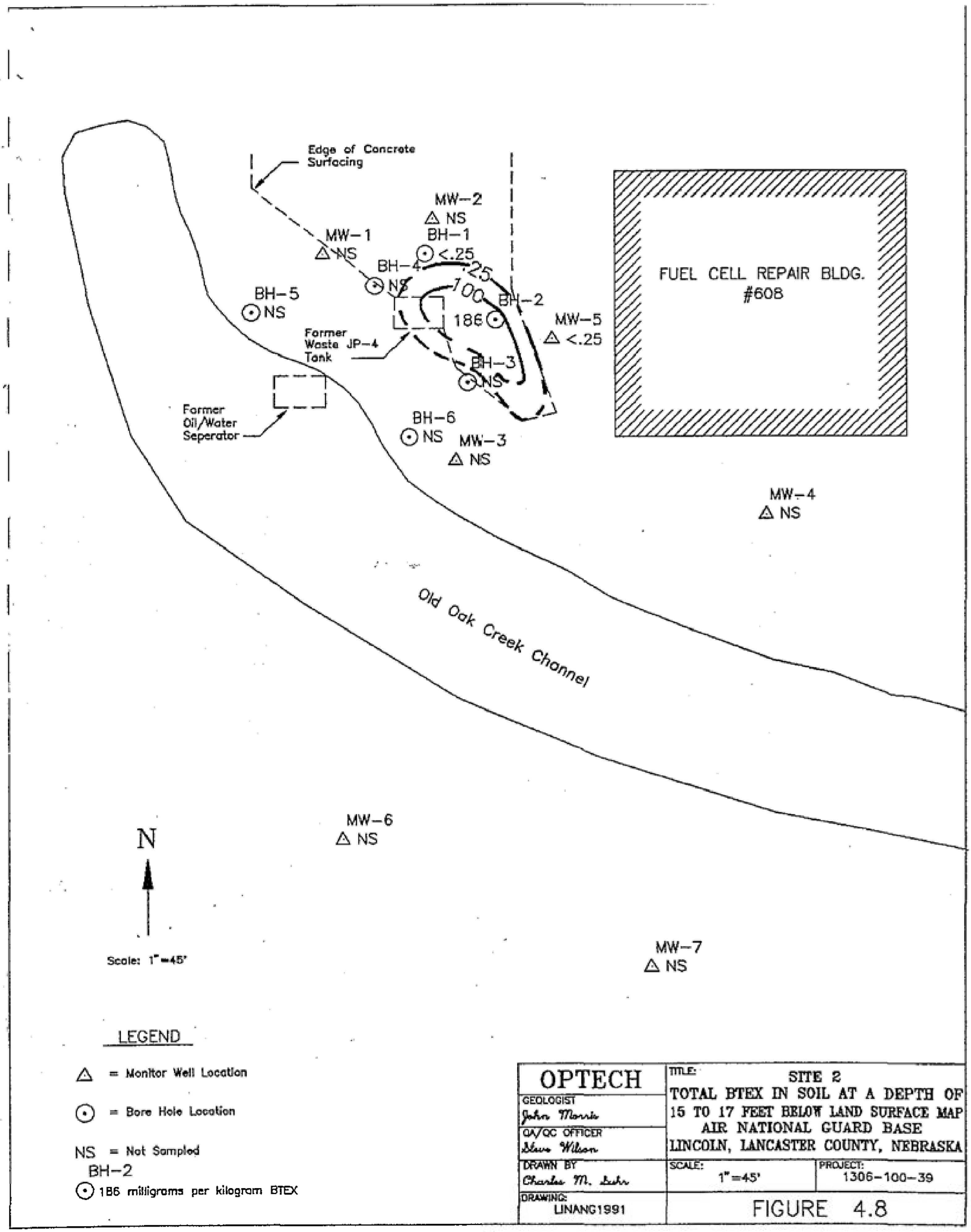
418.1 = EPA Method 418.1 for TRPH
602 = EPA Method 602 for BTEX
8010A = EPA Method 8010A for 1,2, 1,3, 1,4 Dichlorobenzenes

ANALYTIC LAB:

HWS = HWS Technologies, Inc.
Lincoln, Nebraska



Edge of Concrete Surfacing
.25
5.0
MW-2
NS
MW-1
NS
BH-1
NS
BH-4
5.7
BH-5
<.25
BH-2
<.25
MW-5
.37
Former Waste JP-4 Tank
BH-3
<.25
Former Oil/Water Seperator
BH-6
<.25
MW-3
NS
FUEL CELL REPAIR BLDG. #608
MW-4
NS
Old Oak Creek Channel
MW-6
NS
N
MW-7
NS
Scale: 1"=45'
LEGEND
- Monitor Well Location
- Bore Hole Location
NS = Not Sampled
MW-5
.37 milligrams per kilogram Total BTEX
OPTECH
GEOLOGIST
John Morris
QA/QC OFFICER
Steve Wilson
DRAWN BY
Charles M. Suhr
DRAWING:
LINANG1991
TITLE:
SITE 2
TOTAL BTEX IN SOIL AT A DEPTH OF 9.5 TO 11 FEET BELOW LAND SURFACE MAP
AIR NATIONAL GUARD BASE
LINCOLN, LANCASTER COUNTY, NEBRASKA
SCALE:
1"=45'
PROJECT:
1306-100-39
FIGURE 4.7



Edge of Concrete Surfacing
MW-2
NS
MW-1
NS
BH-1
<.25
BH-4
NS
.25
100
BH-2
186
BH-5
NS
MW-5
<.25
Former Waste JP-4 Tank
BH-3
NS
FUEL CELL REPAIR BLDG. #608
Former Oil/Water Seperator
BH-6
NS
MW-3
NS
MW-4
NS
Old Oak Creek Channel
MW-6
NS
N
Scale: 1"=45'
MW-7
NS
LEGEND
= Monitor Well Location
= Bore Hole Location
NS = Not Sampled
BH-2
186 milligrams per kilogram BTEX
OPTECH
GEOLOGIST
John Morris
QA/QC OFFICER
Steve Wilson
DRAWN BY
Charles M. Lehr
DRAWING:
LINANG1991
TITLE:
SITE 2
TOTAL BTEX IN SOIL AT A DEPTH OF 15 TO 17 FEET BELOW LAND SURFACE MAP
AIR NATIONAL GUARD BASE
LINCOLN, LANCASTER COUNTY, NEBRASKA
SCALE:
1"=45'
PROJECT:
1306-100-39
FIGURE 4.8

4.1.3 Ground Water Results

4.1.3.1 Ground Water Monitoring Wells

The locations of the ground water monitoring wells were selected to determine the areal extent of ground water contamination from the former waste JP-4 tank and oil/water separator. The specific locations were selected as near as possible to the potential sources but beyond the area of potential soil contamination. As with the soil test borings, the location of the monitoring wells was partially determined by subsurface structures and Old Oak Creek Channel as indicated on Figure 4.6. As a result the monitoring wells were located up to 300 feet from the potential sources.

4.1.3.2 Ground Water Field Measurements

Ground water field measurements of electrical conductivity, pH and temperature were obtained at the time of sampling. Measured values are listed in Table 4.5. Additionally, the presence of free phase hydrocarbons was tested. Electrical conductivity values ranged from 650 to 3,980 micromhos per centimeter umhos/cm. The lowest conductivity value was obtained from monitoring well MW-2. Ground water pH values ranged from 7.10 to 9.02. The highest pH value of 9.02 was obtained from MW-2. Temperatures of ground water varied from 60.8 to 65.6° F. Free phase hydrocarbons were not detected at Site 2.

4.1.3.3 Analytic Results For Ground Water

BTEX, TRPH and 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene analytic results for ground water samples collected from monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6 and MW-7 are presented in Table 4.6. Total BTEX concentrations in ground water are illustrated in Figure 4.9. The only BTEX compounds detected were toluene and xylenes. Toluene was detected at a concentration of 2.1 ug/L in monitoring well MW-5. Xylenes were detected in monitoring wells MW-1, MW-2 and MW-4 at concentrations of 3.6, 3.7 and 2.6 ug/L respectively. TRPH was not detected in the ground water samples collected. In MW-2, 1,3 and 1,4 dichlorobenzene were detected at concentrations of 2.5 and 5.9 ug\L, respectively. USEPA MCL's were not exceeded in the ground water samples analyzed.

Analytic results indicate that BTEX, and 1,3 dichlorobenzene, and 1,4 dichlorobenzene in ground water is confined to a plume oriented northwest to southeast in the area of the former waste JP-4 tank. The concentrations of the compounds were only marginally above the detection limit of 2 ug/L. The highest concentration of these compounds was from the ground water sample collected from MW-2, located north and crossgradient from the former waste JP-4 tank.

Table 4.5 Ground Water Field Measurements, 155 Tactical Reconnaissance Group, Lincoln Municipal Airport, Lincoln, Nebraska

Well ID	Sample Date	Electrical Conductivity (umhos/cm)	pH	Temperature (°F)
MW-1	23-Nov-91	1.07	7.64	64.7
MW-2	23-Nov-91	0.65	7.12	65.6
MW-3	23-Nov-91	1.18	7.56	62.5
MW-4	23-Nov-91	3.98	7.10	64.3
MW-5	23-Nov-91	2.28	7.17	63.9
MW-6	23-Nov-91	3.25	7.12	60.8
MW-7	23-Nov-91	2.66	7.62	61.4

uhmos/cm = micromhos per centimeter
°F = degrees Fahrenheit

Table 4.6- Analytic Results For Ground Water -155th Tactical Reconnaissance Group, Lincoln Municipal Airport, Lincoln Nebraska.

Well ID	Sample Date	Analytic Lab	Anayltic Method	B	T	E	X	TRPH	1,2	1,3	1,4
									Dichlorobenzenes		
				<----------------(ug/L)----------------			>	(mg/L)	<----------(ug/L)-----------		>
LANGB MW1	18-Nov-91	HWS	418.1/602/8010A	<2	<2	<2	3.6	<1.6	<2	<2	<2
LANGB MW2	18-Nov-91	HWS	418.1/602/8010A	<2	<2	<2	3.7	<1.3	<2	2.5	5.9
LANGB MW3	18-Nov-91	HWS	418.1/602/8010A	<2	<2	<2	<2	<1.2	<2	<2	<2
LANGB MW4	18-Nov-91	HWS	418.1/602/8010A	<2	<2	<2	2.6	<1.0	<2	<2	<2
LANGB MW5	18-Nov-91	HWS	418.1/602/8010A	<2	2.1	<2	<2	<1.6	<2	<2	<2
LANGB MW6	18-Nov-91	HWS	418.1/602/8010A	<2	<2	<2	<2	<1.0	<2	<2	<2
LANGB MW7	18-Nov-91	HWS	418.1/602/8010A	<2	<2	<2	<2	<1.4	<2	<2	<2
LANGB MW8*	18-Nov-91	HWS	418.1/602/8010A	<2	2.0	<2	<2	<.9	<2	<2	<2
Trip	18-Nov-91	HWS	418.1/602/8010A	<2	<2	<2	<2	NA	<2	<2	<2
Rinsate	18-Nov-91	HWS	418.1/602/8010A	<2	<2	<2	<2	NA	<2	<2	<2
MCL	--	--	--	5	1,000*	700*	10,000*	NA	600*	NA	75

EXPLANATION:

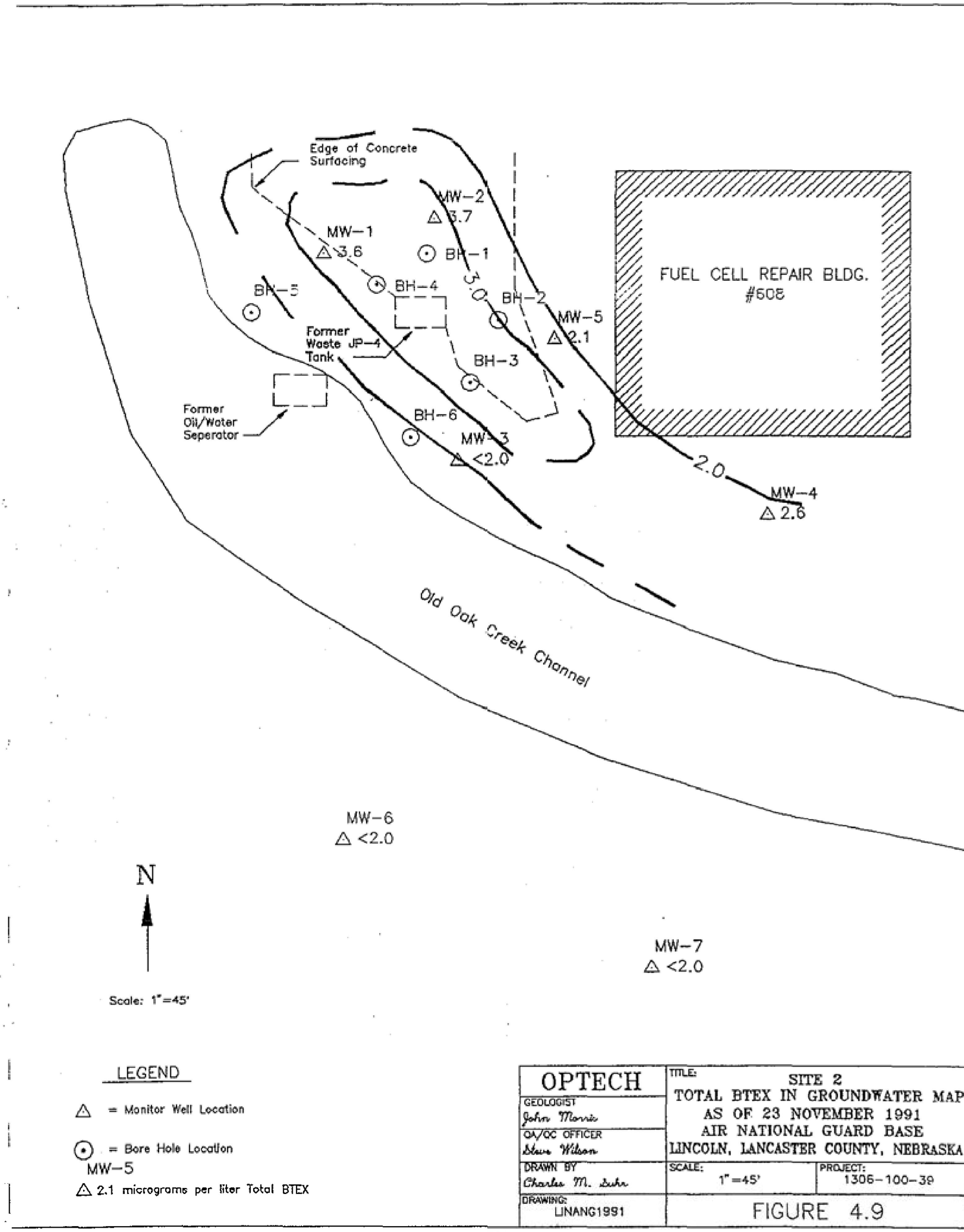
TRPH = Total Recoverable Petroleum Hydrocarbons
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
--- = Not analyzed\Not applicable
LANGB = Lincoln Air National Guard Base
mg/kg = Milligrams per kilogram
MCL = Current or Final Standard Maximum Contaminant Level
* = Final Standard as of July 30, 1992
NA = Not Applicable or Not Available

ANALYTIC METHODS:

418.1 = EPA Method 418.1 for TRPH
602 = EPA Method 602 for BTEX
8010A = EPA Method 8010A for 1,2, 1,3, 1,4 Dichlorobenzenes

ANALYTIC LABS:

HWS = HWS Technologics, Inc.
Lincoln, Nebraska


Edge of Concrete Surfacing
MW-2
3.7
MW-1
3.6
BH-1
3.0
BH-4
BH-5
BH-2
MW-5
2.1
FUEL CELL REPAIR BLDG. #608
Former Waste JP-4 Tank
BH-3
Former Oil/Water Seperator
BH-6
MW-3
<2.0
2.0
MW-4
2.6
Old Oak Creek Channel
MW-6
<2.0
N
MW-7
<2.0
Scale: 1"=45'
LEGEND
= Monitor Well Location
= Bore Hole Location
MW-5
2.1 micrograms per liter Total BTEX
OPTECH
GEOLOGIST
John Morris
QA/QC OFFICER
Steve Wilson
DRAWN BY
Charles M. Suhr
DRAWING:
LINANG1991
TITLE:
SITE 2
TOTAL BTEX IN GROUNDWATER MAP
AS OF 23 NOVEMBER 1991
AIR NATIONAL GUARD BASE
LINCOLN, LANCASTER COUNTY, NEBRASKA
SCALE:
1"=45'
PROJECT:
1306-100-39
FIGURE 4.9

4.1.4. Soil Stockpiled Analytic Results

Soil samples were collected from three soil stockpiles as indicated on Figure 3.4. This material was excavated during the March 1991 removal of the waste JP-4 tank and oil/water separator, and the April 1991 installation the sanitary sewer line indicated on Figure 4.6. The purpose of obtaining these samples was to aid in determining if the material was contaminated. A total of five composite samples, SP-1, SP-2, SP-3, SP-4 and SP-5, were analyzed for BTEX, TRPH and 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene. All samples were collected from a depth of 1.5 feet below the surface.

BTEX, TRPH, 1,2 dichlorobenzene, 1,3 dichlorobenzene and 1,4 dichlorobenzene analytic results for soil samples from soil samples SP-1, SP-2, SP-3, SP-4 and SP-5 in Table 4.7. Benzene was detected in SP-1, SP-2, SP-3 and SP-4 at concentrations of .33, .30, .34 and .28 mg/kg, respectively. Xylene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene were also detected at SP-1. TRPH, toluene, ethylbenzene and 1,2 dichlorobenzene were not detected in the soil samples collected. All parameters detected were only marginally greater than the detection limit. The state of Nebraska has not set regulatory MCL's for BTEX, TRPH, 1,2 dichlorobenzene, 1,3 dichlorobenzene, or 1,4 dichlorobenzene in soil.

Table 4.7 --- Analytic Results For Soil Stockpiles -155th Tactical Reconnaissance Group, Lincoln Municipal Airport, Lincoln Nebraska.

Sample ID	Depth (Feet)	Sample Date	Analytic Lab	Anayltic Method	B	T	E	X	TRPH	1,2 Dichlorobenzenes	1,3 Dichlorobenzenes	1,4 Dichlorobenzenes
					<----------				(mg/kg)			---------->
LANGB SP1	1.50	15-Nov-91	HWS	418.1/602/8010A	.33	<.25	<.25	.87	<25	<.25	.41	.99
LANGB SP2	1.50	15-Nov-91	HWS	418.1/602/8010A	.30	<.25	<.25	<.25	<25	<.25	<.25	<.25
LANGB SP3	1.50	15-Nov-91	HWS	418.1/602/8010A	.34	<.25	<.25	<.25	<25	<.25	<.25	<.25
LANGB SP4	1.50	15-Nov-91	HWS	418.1/602/8010A	.28	<.25	<.25	<.85	<25	<.25	<.25	<.78
LANGB SP5	1.50	15-Nov-91	HWS	418.1/602/8010A	<.25	<.25	<.25	<.25	<25	<.25	<.25	<.25
MCL					NA	NA	NA	NA	NA	NA	NA	NA

EXPLANATION:

TRPH = Total Recoverable Petroleum Hydrocarbons
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
--- = Not analyzed\Not applicable
LANGB = Lincoln Air National Guard Base
mg/kg = Milligrams per kilogram
MCL = Maximum Contaminant Level
NA = Not Applicable

ANALYTIC METHODS:

418.1 = EPA Method 418.1 for TRPH
602 = EPA Method 602 for BTEX
8010A = EPA Method 8010A for 1,2, 1,3, 1,4 Dichlorobenzenes

ANALYTIC LABS:

HWS = HWS Technologies, Inc.
Lincoln, Nebraska

5.1 CONCLUSIONS

PID readings greater than background were detected in soil test borings BH-1 and BH-2, and monitoring wells MW-1 and MW-2. Elevated concentrations of BTEX, and 1,2, 1,3 and 1,4 dichlorobenzene compounds were detected in one soil sample collected from test boring BH-2. Toluene, xylene, and 1,3 and 1,4 dichlorobenzenes were detected in ground water at concentrations only marginally greater than the analytical method detection levels of 2 ug/L and below USEPA MCLs. Free phase hydrocarbons were not detected at the LANGB. Based on field screening of soil samples and laboratory analysis results the total areal extent of contamination in soil has been determined. The highest concentration of these compounds is located in the immediate area and extending approximately 40 feet east of the former waste JP-4 tank.

The soil sample collected from test boring BH-2 at a depth of 15 to 15.5 feet below land surface had total BTEX of 186 mg/kg. The BTEX compounds were detected at concentrations of 76, 21, 13 and 76 mg/kg, respectively. 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene were also detected in BH-2 at a depth of 15.0 to 15.5 feet below land surface at concentrations of 16, 9.5 and 11 mg/kg. Toluene, ethyl benzene, xylenes, 1,2 dichlorobenzene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene were detected in soil test boring BH-4, 10.5 to 11.0 feet below land surface, at concentrations marginally above the analytical method detection limit. In MW-5, benzene was also detected at concentrations marginally above the analytical method detection limit, at depths of 10.0 to 10.5 and 15.0 to 15.5 feet below land surface. TRPH was not detected in the soil samples collected. MCL's have not been set for soil by the state of Nebraska.

All analytes detected in ground water were only marginally greater than the analytical method detection limit and USEPA MCL's were not exceeded. Of the compounds analyzed for, only toluene, xylenes, 1,3 and 1,4 dichlorobenzene were detected. Benzene, ethylbenzene and TRPH were not detected in the ground water samples analyzed. Results indicate that compounds detected at Site 2 in ground water are confined to an area oriented northwest to southeast of the former waste JP-4 tank. The northwest boundary of the area is upgradient from the former locations of the waste JP-4 tank and oil/water separator. The downgradient extent, to the southeast, has not been specifically determined, but due to the extremely low concentrations, is assumed to be immediately south and southeast of monitoring well MW-4, and north and northeast of MW-7.

The northwest boundary of the area of ground water contamination is upgradient from the former locations of the waste JP-4 tank and oil/water separator. The downgradient extent, to the southeast, has not been specifically determined. However, due to the extremely low concentrations it is assumed to be immediately south and southeast of monitoring well MW-4 and north and northeast of MW-7. It is possible contaminants migrated into the Old Oak Creek Channel due to the elevation of the creek being lower than the elevation of the ground water. Based on hydraulic conductivity and average values for effective porosity, the linear velocity of ground water movement beneath the facility in the clayey unit may range up to 8 ft/yr and to in excess of 150 ft/yr in the sandy unit.

Significant remediation as a result of removal of the waste JP-4 tank and oil/water separator, and installation of the sanitary sewer line had occurred at Site 2 prior to this assessment. During removal of the waste JP-4 tank and oil/water separator, and installation of the sanitary sewer line approximately 350 cubic yards of potentially contaminated soil were removed and stockpiled. Soil removed from the area directly adjacent to the two potential sources typically has the highest concentration of contaminants. To dewater the sanitary sewer line trench, a significant volume of potentially contaminated ground water (estimated to range from 250,000 to 750,000 gallons) was removed. Removal of the primary contaminant sources, the waste JP-4 tank and oil\water separator, and then the removal of major portions of potentially contaminated soil and ground water from the site had reduced the potential threat to ground water at Site 2.

Very low concentrations of benzene, xylene, 1,3 dichlorobenzene, and 1,4 dichlorobenzene were detected in samples collected from the stockpiled soil. Benzene TRPH, toluene, ethylbenzene and 1,2 dichlorobenzene were not detected in the soil samples collected. Analytical results for the soil stockpiles may not be representative of all stockpiled material. Additional sampling of the stockpiles could be required to characterize the material completely for disposal.

5.2 RECOMMENDATIONS

The following recommendations are based on the results of the site assessment of Site 2 on the LANGB.

1. Backfill and compact the waste JP-4 and oil/water excavations to limit surface water infiltration to the aquifer.

2. Conduct additional sampling of stockpiled soil and submit for laboratory analysis to complete characterization for disposal.

3. Remove stockpiled soil to prevent potential soil and ground water contaminant migration.

4. Conduct periodic ground water monitoring to determine if contaminants are deadsorbing from soil.

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APPENDIX A

LOGS OF SOIL TEST BORINGS AND MONITORING WELL CONSTRUCTION LOGS

Depth (Feet)	Blows	PID	S	Graphic	Description
0					Portland Cement Concrete
		11.2			
5					Silty Clay, brown very dense, moist
		11.2			
		23.0			
10					
		19.3			Clayey Sand, light brown, subrounded, fine-medium grained; 60% sand, moist
		10.5			
15					Sand, light brown medium-coarse grained; 70% sand, subrounded to subangular, moist
		13.3			
20					

Logged By: JHM

Date Drilled: 14 Nov 91

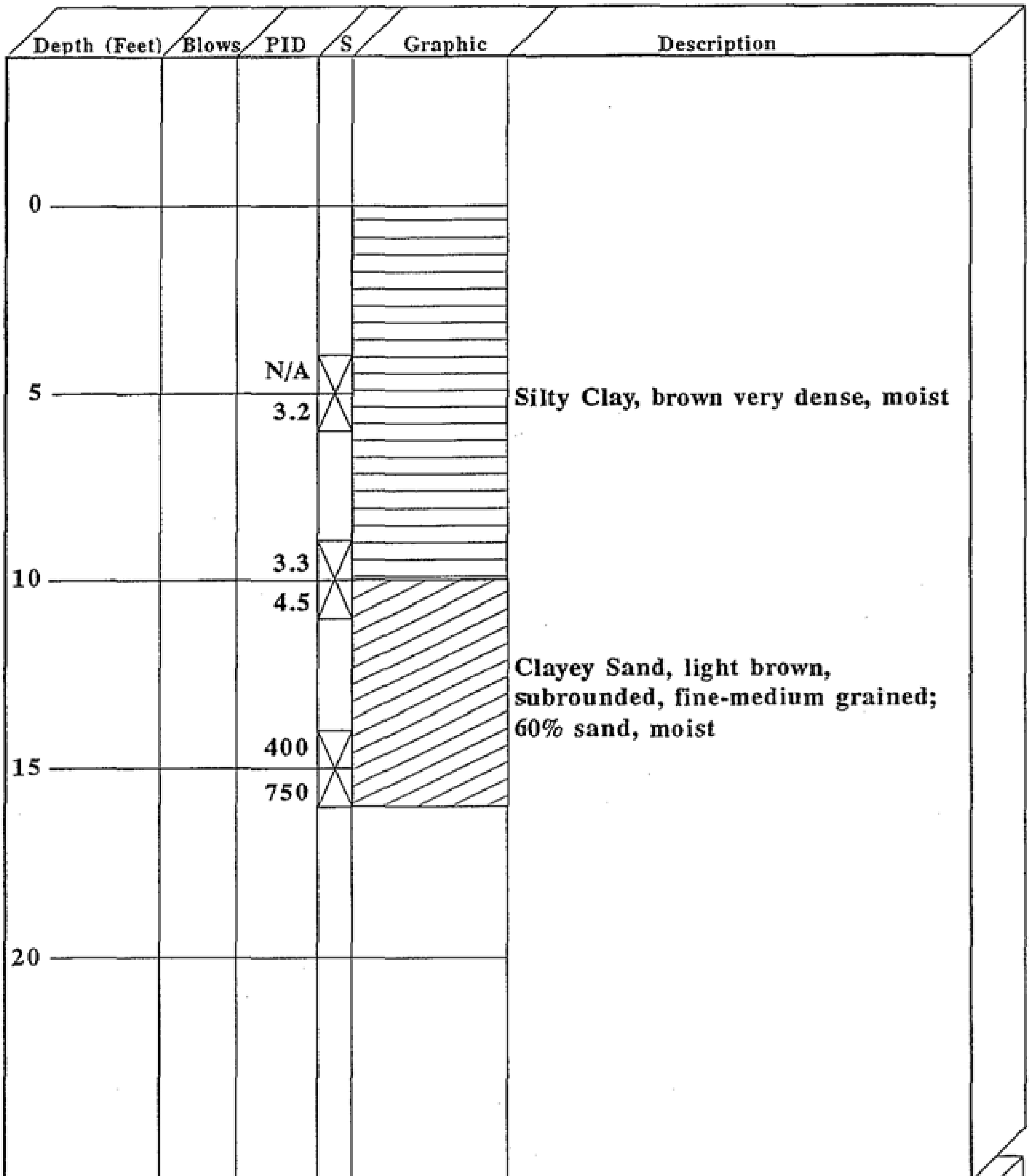
Drilling Co.: Layne-Western

Drilling Method: Hollow-Stem Auger

Sampling Method: 2" Split Spoon

Log of Boring BH-1
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION



Logged By: JHM

Date Drilled: 15 Nov 91

Drilling Co.: Layne-Western

Drilling Method: Hollow-Stem Auger

Sampling Method: 2" Split Spoon

Log of Boring BH-2
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
Operational Technologies Corporation

Depth (Feet)	Blows	PID	S	Graphic	Description
0					
		3.2			
5					Silty Clay, brown very dense, moist
		3.2			
		NR			
10					
		NR			Clayey Sand, light brown, subrounded, fine-medium grained; 60% sand, moist
		2.6			Sand, light brown medium-coarse grained; 70% sand, subrounded to subangular, moist
15					
		2.6			
20					

Logged By: JHM

Drilling Co.: Layne-Western

Date Drilled: 16 Nov 91

Drilling Method: Hollow-Stem Auger

Sampling Method: 2" Split Spoon

Log of Boring BH-3
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION

Depth (Feet)	Blows	PID	S	Graphic	Description
0					
		4.6			Silty Clay, brown very dense, moist
5		4.6			
		3.2			
10		3.2			Clayey Sand, light brown, subrounded, fine-medium grained; 60% sand, moist
		2.2			Sand, light brown medium-coarse grained; 70% sand, subrounded to subangular, moist
15		2.4			
20					

Logged By: JHM

Drilling Co.: Layne-Western

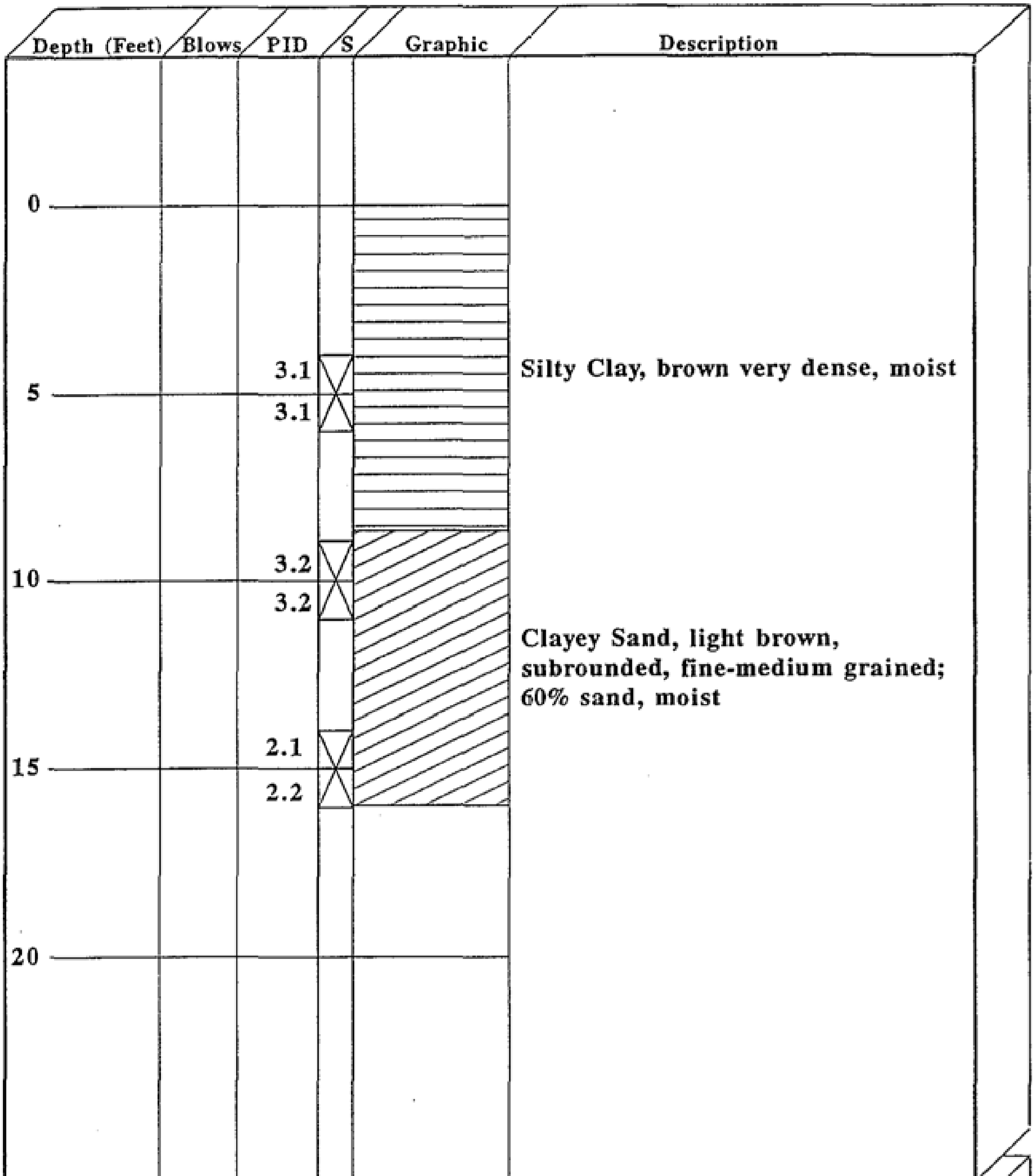
Date Drilled: 16 Nov 91

Drilling Method: Hollow-Stem Auger

Sampling Method: 2" Split Spoon

Log of Boring BH-4
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
Operational Technologies Corporation



Logged By: JHM

Drilling Co.: Layne-Western

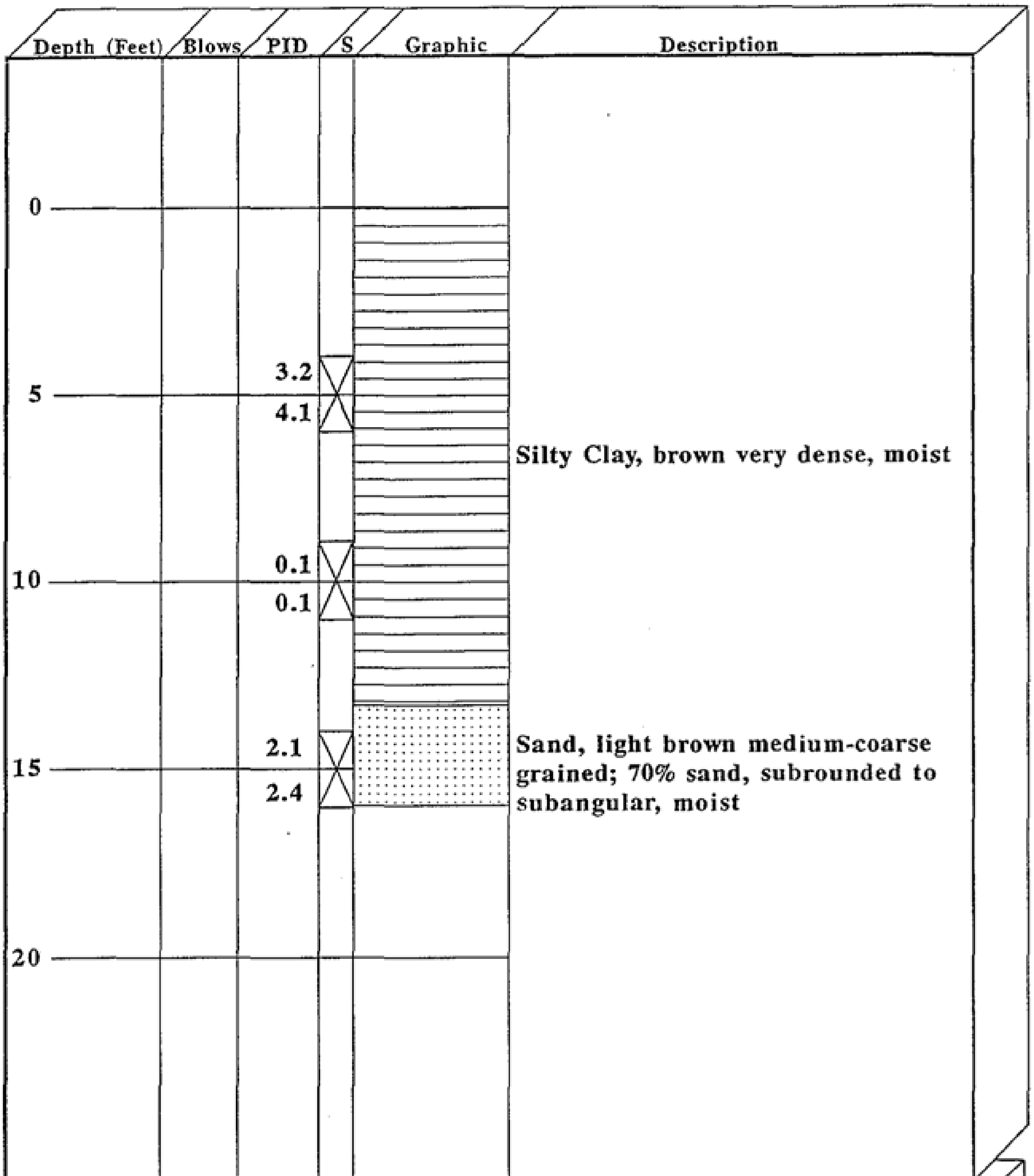
Date Drilled: 16 Nov 91

Drilling Method: Hollow-Stem Auger

Sampling Method: 2" Split Spoon

Log of Boring BH-5
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION



Logged By: JHM

Date Drilled: 16 Nov 91

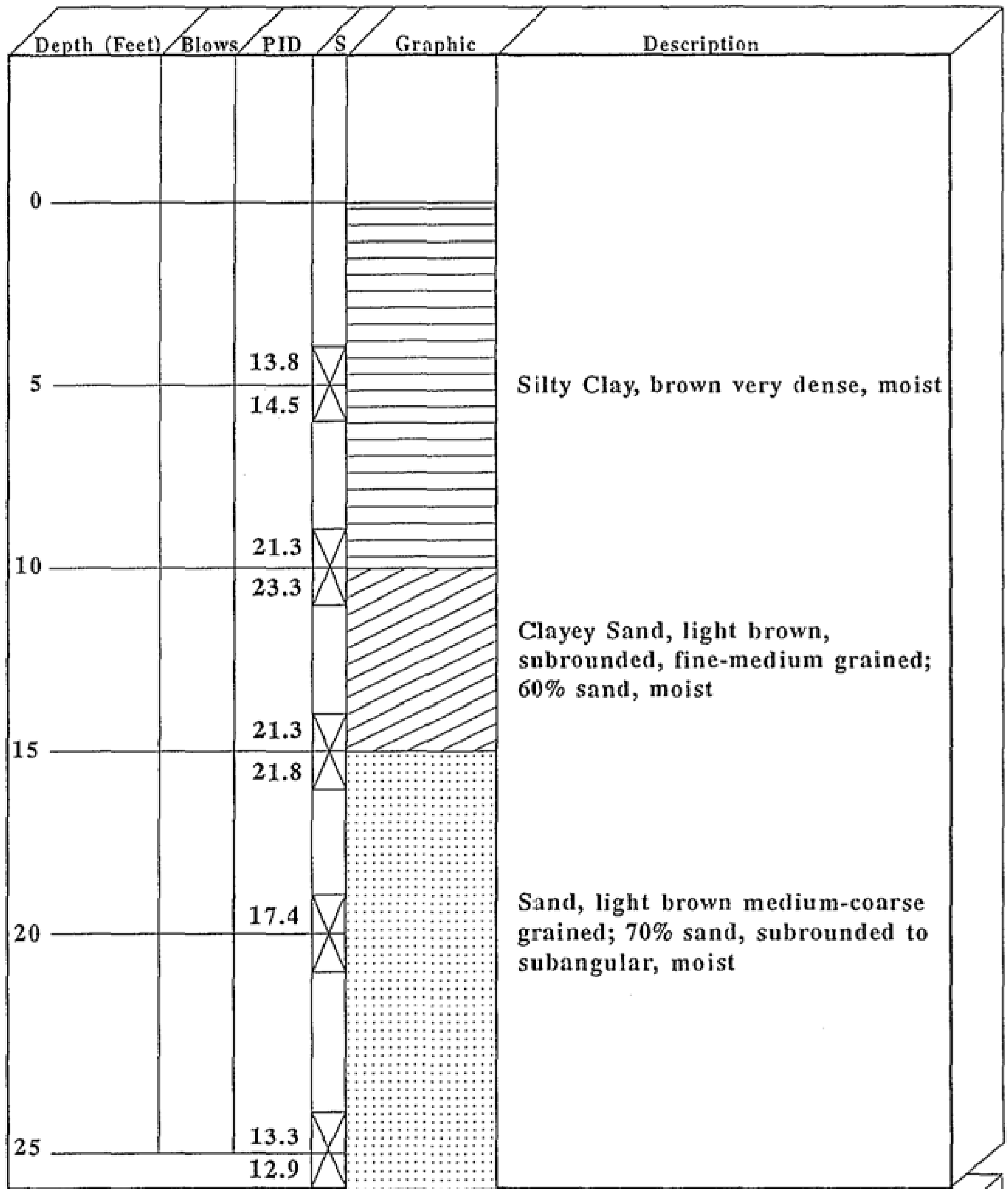
Drilling Co.: Layne-Western

Drilling Method: Hollow-Stem Auger

Sampling Method: 2" Split Spoon

Log of Boring BH-6
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
Operational Technologies Corporation

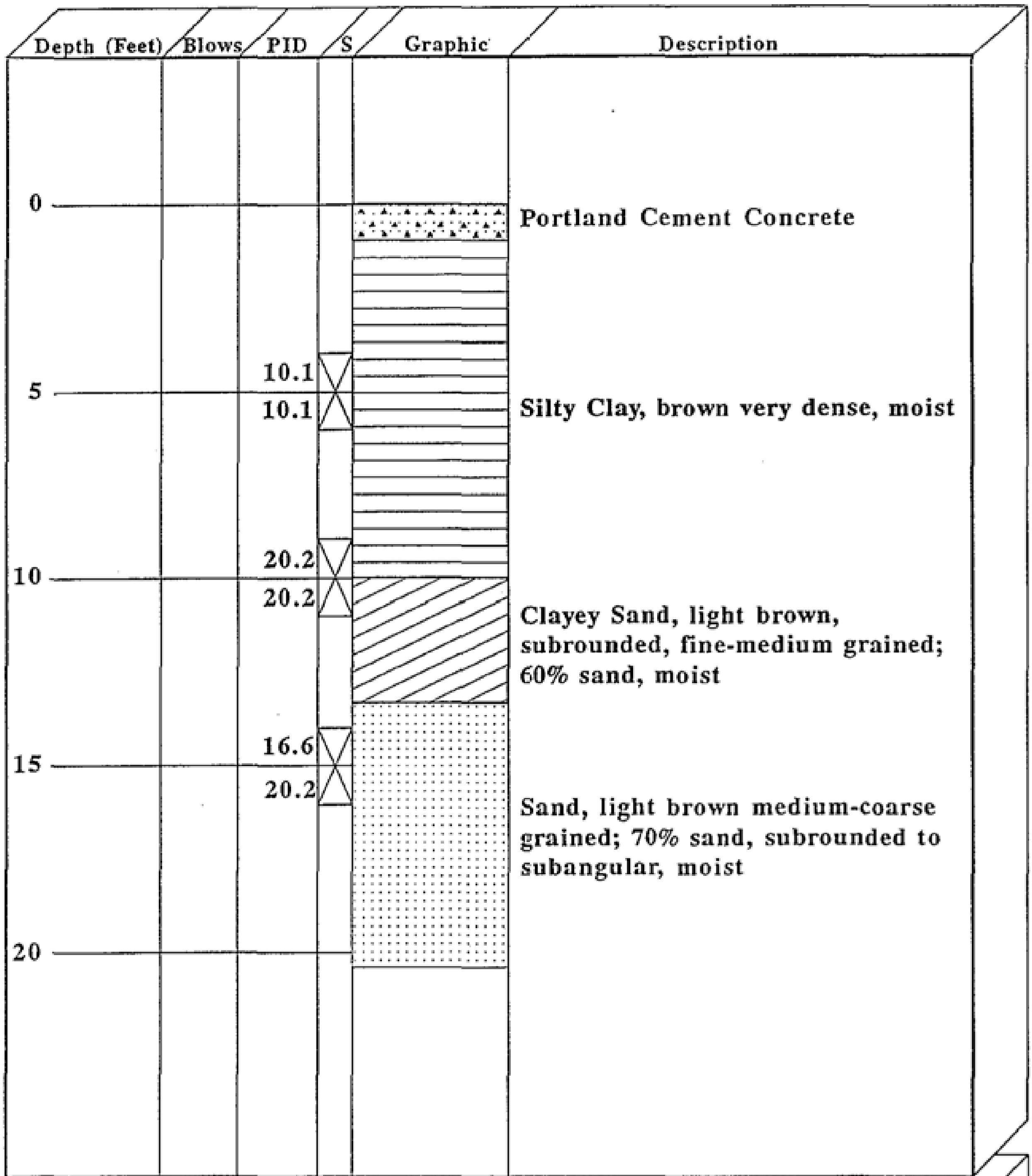


Logged By: JHM
Drilling Co.: Layne-Western

Date Drilled: 14 Nov 91
Drilling Method: Hollow-Stem Auger
Sampling Method: 2" Split Spoon

Log of Monitor Well MW-1
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION



Logged By: JHM

Drilling Co.: Layne-Western

Date Drilled: 14 Nov 91

Drilling Method: Hollow-Stem Auger

Sampling Method: 2" Split Spoon

Log of Monitor Well MW-2
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
Operational Technologies Corporation

Depth (Feet)	Blows	PID	S	Graphic	Description
0					
		1.7			
5					
		1.7			
					Silty Clay, brown very dense, moist
		1.9			
10					
		1.9			
		2.1			
15					
		2.3			
		NR			
20					
		NR			
					Sand, light brown medium-coarse grained; 70% sand, subrounded to subangular, moist

Logged By: JHM

Drilling Co.: Layne-Western

Date Drilled: 15 Nov 91

Drilling Method: Hollow-Stem Auger

Sampling Method: 2" Split Spoon

Log of Monitor Well MW-3
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
Operational Technologies Corporation

Depth (Feet)	Blows	PID	S	Graphic	Description
0					
		6.0			
5					
		6.1			
		2.7			
10					Silty Clay, brown very dense, moist
		2.7			
		3.6			
15					
		3.7			
		3.7			
20					
		3.9			

Logged By: JHM

Date Drilled: 17 Nov 91

Drilling Co.: Layne-Western

Drilling Method: Hollow-Stem Auger

Sampling Method: 2" Split Spoon

Log of Monitor Well MW-4
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION

Depth (Feet)	Blows	PID	S	Graphic	Description
0					
		2.0	X		
5					
		2.0	X		
		2.0	X		Silty Clay, brown very dense, moist
10					
		2.1	X		
		3.3	X		
15					
		3.2	X		
					Clayey Sand, light brown, subrounded, fine-medium grained; 60% sand, moist
		1.9	X		
20					
		1.8	X		

Logged By: JHM

Drilling Co.: Layne-Western

Date Drilled: 18 Nov 91

Drilling Method: Hollow-Stem Auger

Sampling Method: 2" Split Spoon

Log of Monitor Well MW-5
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH

Operational Technologies Corporation

Depth (Feet)	Blows	PID	S	Graphic	Description
0					
5		0.0			Silty Clay, brown very dense, moist
10		0.0			
15		0.0			Clayey Sand, light brown, subrounded, fine-medium grained; 60% sand, moist
20					

Logged By: JHM

Drilling Co.: Layne-Western

Date Drilled: 19 Nov 91

Drilling Method: Hollow-Stem Auger

Sampling Method: 2" Split Spoon

Log of Monitor Well MW-6
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
Operational Technologies Corporation

Depth (Feet)	Blows	PID	S	Graphic	Description
0					
5		6.5	X		Silty Clay, brown very dense, moist
10		6.4	X		
15		3.7	X		Clayey Sand, light brown, subrounded, fine-medium grained; 60% sand, moist
		1.8	X		Sand, light brown medium-coarse grained; 70% sand, subrounded to subangular, moist
20					

Logged By: JHM

Date Drilled: 19 Nov 91

Drilling Co.: Layne-Western

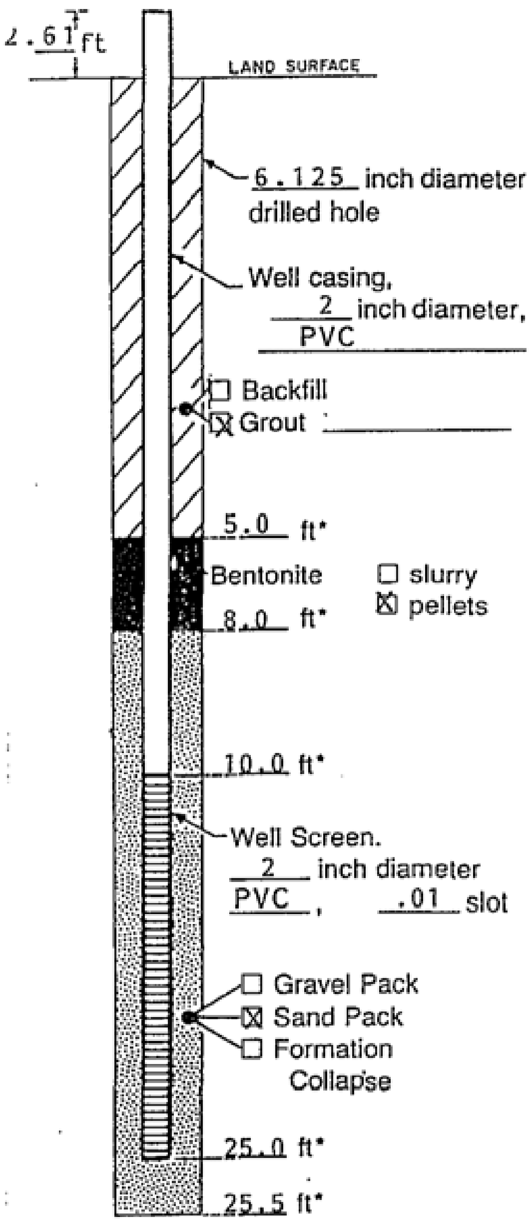
Drilling Method: Hollow-Stem Auger

Sampling Method: 2" Split Spoon

Log of Monitor Well MW-7
Lincoln Air National Guard Base
Lincoln, Nebraska

OPTECH
OPERATIONAL TECHNOLOGIES CORPORATION

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project 155th TRG Lincoln, NE Well LANCB-MW 1

Town/City Lincoln

County Lancaster State Nebraska

Permit No. N/A

Land-Surface Elevation and Datum 1162.54 feet ASL

☒ surveyed

☐ estimated

Installation Dates(s) 14 Nov 91

Drilling Method Hollow Stem Auger

Drilling Contractor Layne-Western Company, Inc.

Drilling Fluid None

Development Techniques(s) and Date(s)

Bailer & Rediflow 2 pump

Fluid Loss During Drilling None gallons

Water Removed During Development 39 gallons

Static Depth to Water 14.90 feet below M.P.

Pumping Depth to Water ______ feet below M.P.

Pumping Duration 2.0 hours

Yield ______ gpm Date 20 Nov 91

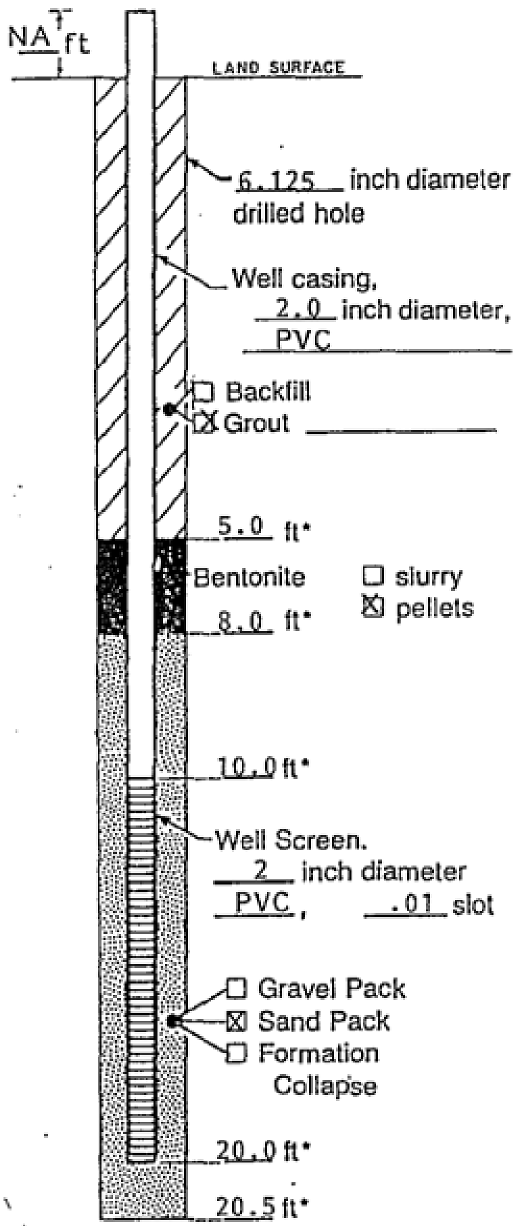
Specific Capacity ______ gpm/ft

Well Purpose Ground Water Monitoring

Remarks ______

Prepared by ______

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project 155th TRC Lincoln, NE Well LANCB MW-2

Town/City Lincoln

County Lancaster State Nebraska

Permit No. NA

Land-Surface Elevation and Datum 1160.88 feet ASL

☒ surveyed
☐ estimated

Installation Dates(s) 14 Nov 91

Drilling Method Hollow Stem Auger

Drilling Contractor Lanyne-Western

Drilling Fluid None

Development Techniques(s) and Date(s)
Bailer & Rediflow 2 pump & surge block

Fluid Loss During Drilling None gallons

Water Removed During Development 17 gallons

Static Depth to Water 14.89 feet below M.P.

Pumping Depth to Water NA feet below M.P.

Pumping Duration 3.5 hours

Yield NA gpm Date 20 Nov 91

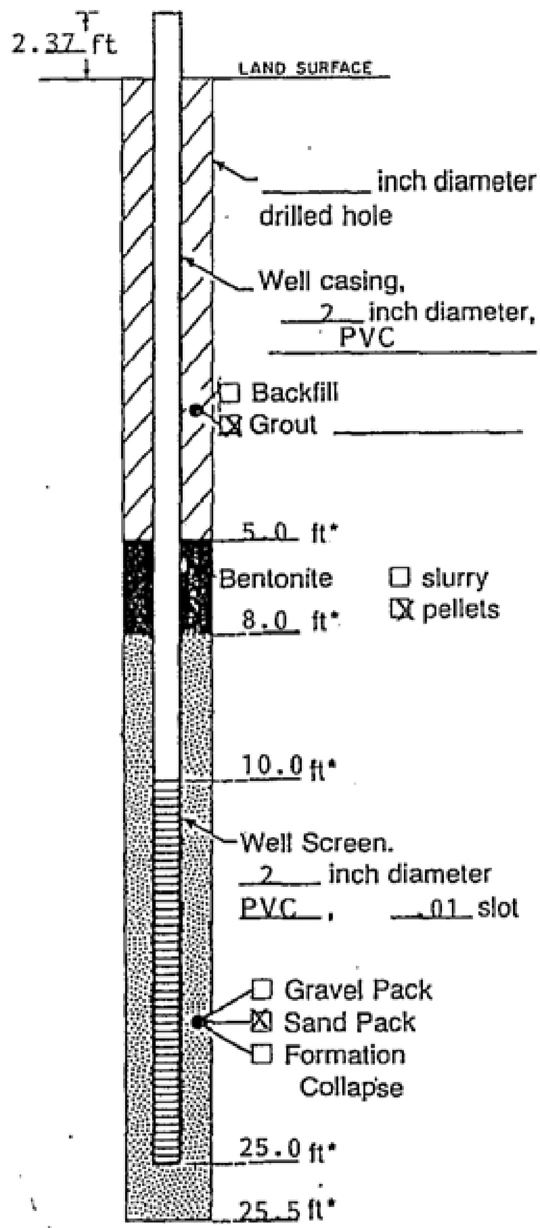
Specific Capacity NA gpm/ft

Well Purpose Ground Water Monitoring Well

Remarks Well recovered very slowly

Prepared by ______

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project 155th TRC Lincoln, NE Well MW-3

Town/City Lincoln

County Lancaster State Nebraska

Permit No. NA

Land-Surface Elevation and Datum 1162.54 feet ☒ surveyed

ASL ☐ estimated

Installation Dates(s) 15 Nov 91

Drilling Method Hollow Stem Auger

Drilling Contractor Layne-Western

Drilling Fluid None

Development Techniques(s) and Date(s)

Rediflow 2 pump

Fluid Loss During Drilling None gallons

Water Removed During Development 42 gallons

Static Depth to Water 15.00 feet below M.P.

Pumping Depth to Water NA feet below M.P.

Pumping Duration 2.0 hours

Yield NA gpm Date 20 Nov 91

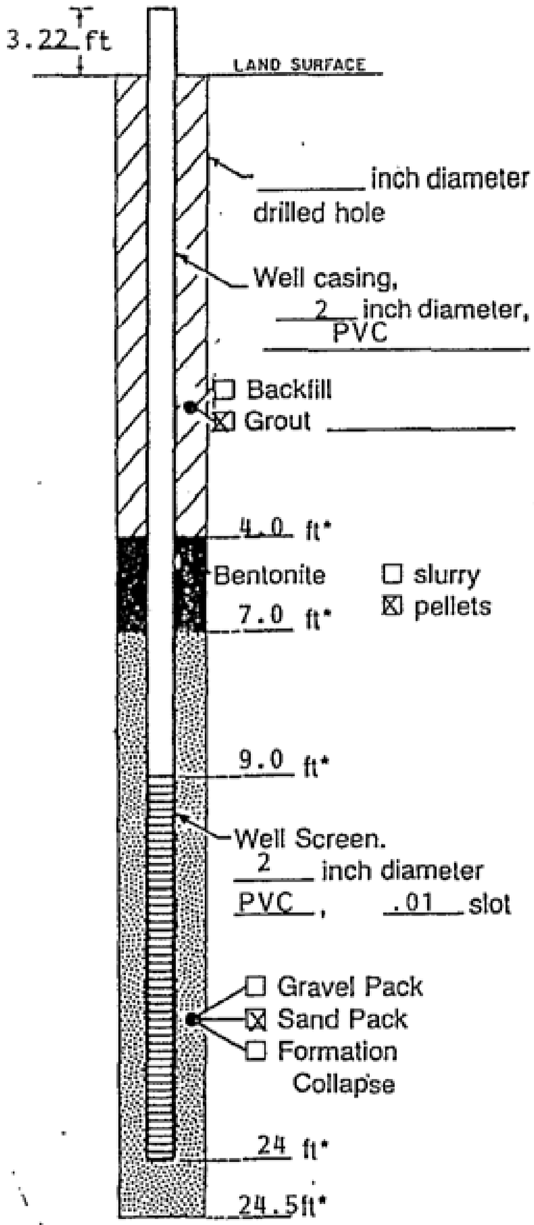
Specific Capacity NA gpm/ft

Well Purpose Ground Water Monitoring Well

Remarks

Prepared by

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project: 155th TRG Lincoln, NE   Well: LANGB MW-4

Town/City: Lincoln

County: Lancaster   State: Nebraska

Permit No.: NA

Land-Surface Elevation and Datum: 1164.39 feet ASL   ☒ surveyed ☐ estimated

Installation Dates(s): 17 Nov 91

Drilling Method: Hollow stem Auger

Drilling Contractor: Layne-Western

Drilling Fluid: None

Development Techniques(s) and Date(s): Rediflow 2 pump

Fluid Loss During Drilling: ______ gallons

Water Removed During Development: 47 gallons

Static Depth to Water: 17.00 feet below M.P.

Pumping Depth to Water: NA feet below M.P.

Pumping Duration: 2.0 hours

Yield: NA gpm   Date: 20 Nov 91

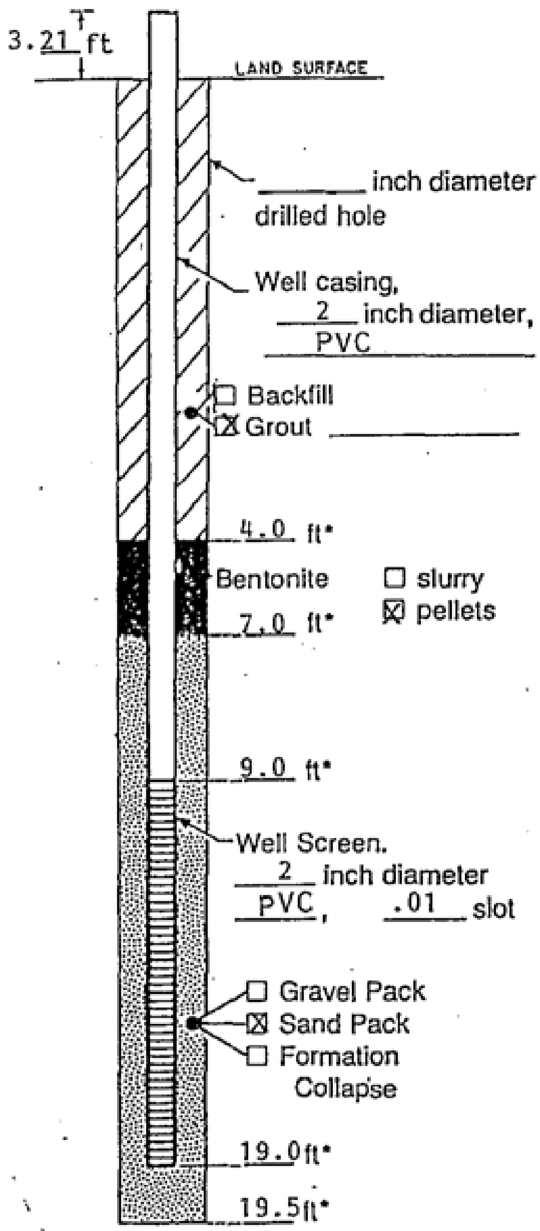
Specific Capacity: NA gpm/ft

Well Purpose: Ground Water Monitoring Well

Remarks: ______

Prepared by: ______

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project 155th TRG Lincoln, NE Well LANGB MW-5

Town/City Lincoln

County Lancaster State Nebraska

Permit No. NA

Land-Surface Elevation and Datum 1164.93 feet ☒ surveyed ☐ estimated

Installation Dates(s) 18 Nov 91

Drilling Method Hollow Stem Auger

Drilling Contractor Layne-Western

Drilling Fluid None

Development Techniques(s) and Date(s)

Rediflow 2 pump

Fluid Loss During Drilling None gallons

Water Removed During Development 42 gallons

Static Depth to Water 17.29 feet below M.P.

Pumping Depth to Water NA feet below M.P.

Pumping Duration 1.5 hours

Yield NA gpm Date 20 Nov 91

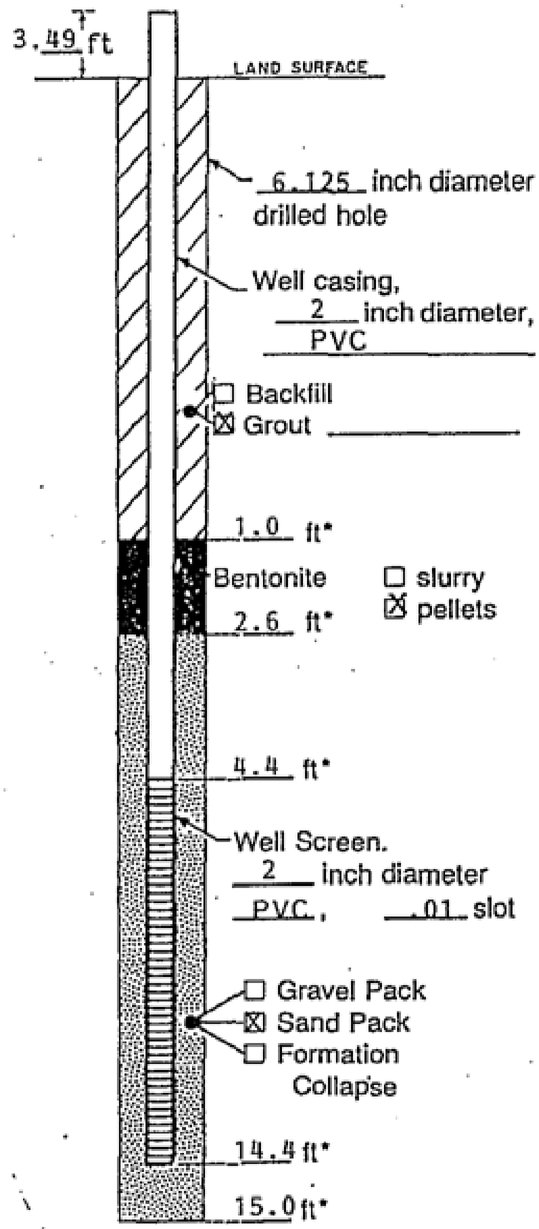
Specific Capacity NA gpm/ft

Well Purpose Ground Water Monitoring Well

Remarks

Prepared by

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project 155th TRG Lincoln, NE Well LANGB MW-6

Town/City Lincoln

County Lancaster State Nebraska

Permit No. NA

Land-Surface Elevation and Datum 1155.81 feet ASL ☒ surveyed ☐ estimated

Installation Dates(s) 19 Nov 91

Drilling Method Hollow Stem Auger

Drilling Contractor Layne-Western

Drilling Fluid None

Development Techniques(s) and Date(s)

Rediflow 2 Pump & Bailer

Fluid Loss During Drilling NA gallons

Water Removed During Development 40 gallons

Static Depth to Water 9.20 feet below M.P.

Pumping Depth to Water NA feet below M.P.

Pumping Duration 1.0 hours

Yield NA gpm Date 20 Nov 91

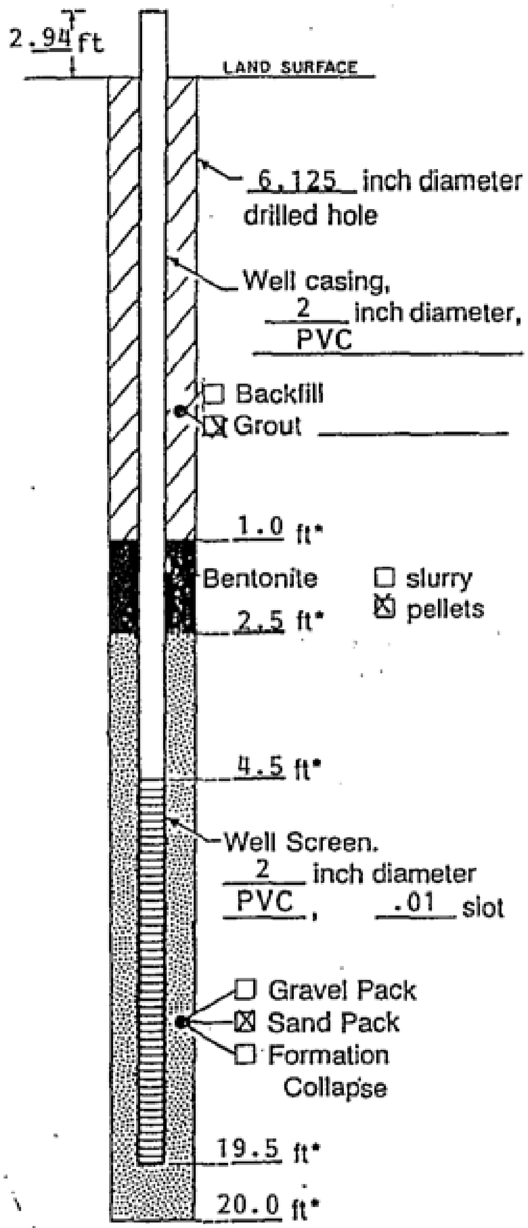
Specific Capacity NA gpm/ft

Well Purpose Ground Water Monitoring Well

Remarks

Prepared by

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project: 155th TRC Lincoln, NE   Well: LANCB MW-7

Town/City: Lincoln

County: Lancaster   State: Nebraska

Permit No.: NA

Land-Surface Elevation and Datum: 1154.92 feet ASL   ☒ surveyed ☐ estimated

Installation Dates(s): 19 Nov 91

Drilling Method: Hollow Stem Auger

Drilling Contractor: Layne-Western

Drilling Fluid: None

Development Techniques(s) and Date(s): Rediflow 2 pump & bailer

Fluid Loss During Drilling: None gallons

Water Removed During Development: 40 gallons

Static Depth to Water: 8.33 feet below M.P.

Pumping Depth to Water: NA feet below M.P.

Pumping Duration: 1.5 hours

Yield: NA gpm   Date: 20 Nov 91

Specific Capacity: NA gpm/ft

Well Purpose: Ground Water Monitoring Well

Remarks:

Prepared by:

APPENDIX B

QUALITY CONTROL AND QUALITY ASSURANCE

Operational Technologies Corporation
QUALITY ASSURANCE/QUALITY CONTROL PLAN FOR AN ENVIRONMENTAL SITE ASSESSMENT

SECTION 1: BACKGROUND INFORMATION

Site Name: Lincoln ANG Base, Nebraska | **Task No.:** N/A

Site Location: Lincoln, Nebraska

Contractor Name: Operational Technologies Corporation
4100 N.W. Loop 410, Suite 230
San Antonio, Texas 78229

Contract No.: 130610039

Date: December 2, 1991

Key Contract Personnel:

Name	Discipline
John Morris	Project/Site Manager
Richardo Saucedo	Environmental Engineer
Steve Wilson	QA/OC

Key Base Points of Contact:

Name	Organization 155th TRGp
TSgt T. W. Ennis	Bioenvironmental Office
Major Carl Willart	Environmental Office
Scott Sandquist	BCE

Approvals:

Title	Signature	Date
Project QA Manager	[signature]	4 Dec 91
QA Technician	N/A	N/A
Site Manager	[signature]	2 Dec 91
Project Manager	[signature]	2 Dec 91

Name & Type of Laboratory Performing Analysis:

Name: HWS Technologies, Inc., 825 T Street, Lincoln, NE 68501
Type: Full Service

Drillers: Land-Western Company, Inc., 1900 Shawnee Mission Parkway, Shawnee Mission, KS 66201

Background:

Survey: Jagger Porter Surveyors, Lincoln, NE

Brief description of events or occurrences leading to initiation of sampling activity:

Oil-Gas Separator excess to ANG needs; Base pulled tanks. Subsequent city trenching for new sewer line revealed suspected contaminated dirt. May have been from former site.

List of chemicals that may have contributed to contamination:

White Oil
TP-4

Suspected range of contamination (if known): N/A

Sampling area size: 200 Ft X 500 Ft Nearest residence: 1 mile

Nearest well(s):

Private:	2 + miles North and 2 + miles S.W. of site - rural wells only
Industrial:	Kawasaki Plant 2 + miles North of site
Municipal:	None
Irrigation:	None
Other:	None
Sources:	City Water Dept. (John Marinsky/471-7571)
	County Health Dept (Jerry Hood/471-8029)

Subsurface structures near site (basements, utility lines, etc.):

Gas Note: Lines clearly marked with flags and paint prior to drilling operations
Sewer
Telephone
Electricity

Description of local water table: Approximately 12 ft. from surface.

Distance to surface water: Old Oak Creek channel adjacent to site contains surface water.

Owner Name: 155th TAC RECCE Group Phone:__________________
Address: Lincoln ANG Base, NE

Operator Name: Same as above Phone: ________________
Address: Same as above

Is site active? _____ Yes __X__ No _____ Unknown

Actual site inactive, but located adjacent to active fuel tank storage and aircraft parking ramps.

Do you have a site access agreement? __X__ Yes _____ No

Site access part of contractural agreement with National Guard Bureau.

Have you acquired all required permits to conduct sampling/drilling?

__X__ Yes _____ No

Do any wells need to be relocated to accommodate nearby subsurface obstructions?

__X__ Yes _____ No

MW-5 relocated to accommodate gas line.

Are there any workers onsite? If yes, approximate # _____ Yes __X__ No

Information from previous investigations:

Engineering Science report used as background for site work plan.

Analytical Data (from previous investigations):

Engineering Science Report used as background for site work plan.

Has a release of hazardous substances into the air, water, or ground been previously documented at the site? (If yes, describe):

Yes - evidence of discolored soil during city sewer trenching.

Have odors been reported?

Yes - during tank removal and sewer line installation.

Are there any reports of adverse health effects (e.g., headaches, nausea, dizziness) potentially resulting from migration of hazardous substances through the air?

None reported

Has foul-tasting or foul-smelling water been reported by any nearby drinking water users?

No.

DATA QUALITY OBJECTIVES:

The levels of quality required for the data will be established to answer these project assessment goals:

1. To determine whether or not an underground storage tank or its associated piping has leaked.
2. To determine the nature and the extent of soil and groundwater contamination as related to spills.
3. To determine the existence of floating product and the extent of contamination through the use of field screening methods.
4. To verify the severity of contamination through the laboratory analysis of samples taken from the site.
5. To provide the ANG with a recommended course of action based on the analyses of valid data.

DATA USE OBJECTIVES:

Are these data intended for use in litigation?	____ Yes	_X_ No
Are these data intended for use in site characterization?	_X_ Yes	____ No
Are these data intended for use in risk assessments?	_X_ Yes	____ No
Are these data intended for use in monitoring purposes?	_X_ Yes	____ No
Are these data intended for use in PRP determination?	____ Yes	_X_ No

Please indicate below any other intended uses of project data.
N/A

SECTION 2: PROJECT METHODOLOGIES

SAMPLE REQUIREMENTS:

SITE SAMPLING ACTIVITY		REQUIRED	NOT REQUIRED
Vapor Monitoring		X	
Surface Soil Sampling	0 - 1 foot depth	X	
Subsurface Soil Sampling	>1 foot depth	X	
Surface Water Sampling			X
Monitoring Well Installation		X	
Well Development & Purging		X	
Groundwater Sampling With Bailers		X	
Wipe Sampling			X
Field Equipment Decontamination		X	

REQUIRED EQUIPMENT:

Is all required equipment on site and serviceable? __X__ Yes ____ No

Are operators thoroughly familiar with proper equipment operation?

Yes.

Are all necessary pieces of equipment available throughout the planned task period?

Yes - all equipment OpTech supplied.

If the assessment period is extended, is necessary equipment fully available?

Yes.

In accordance with work plan, list required equipment: (List of equipment)

PID	Bailers (Teflon)	Camera & Film	Knife
Ph/Conducting/Temp Meter	Plastic rope	Plastic bottles	Tool Kit
?	Decon tubs	First Aid Kit	Site Boundary Marker
Hard Hats	Brushes	Sample bottles	Spray Paint
Boots	Alconox	Duct Tape	Sponge
Rubber Gloves	Methanol	Plastic bags	Stencils
Rubber Gloves (Disposable)	Two Pump Sprayers	Plastic sheets	Waterproof boots
Bailers (PVS)	Split Spoon Samplers	Aluminum Foil	Indelible pens

[Use Continuation Sheet If Necessary]

Are new latex gloves available in sufficient quantity for all site personnel?

Yes - multiple boxes available.

Are all personnel aware that new gloves must be used to collect samples where cross-contamination of samples may be a problem?

Yes - Procedures for glove exchange at time of decontamination established.

Have all sampling personnel passed the 40-hour SARA/OSHA training program for work at hazardous materials sites?

Yes.

Have all sampling personnel been trained on the specific site plan and the contaminating materials expected to be encountered on the site?

Yes - through plan reivew and objectives briefings by Site Manager.

VAPOR MONITORING:

Once the UST and associated piping were removed, was approximately 2 feet of soil excavated from below the tank?

N/A - tank already removed.

Was exposed soil tested for the presence of volatile organic compounds using a portable photo ionization detector (PID) or an Organic Vapor Detector (OVA)?

If initial PID readings were >100 parts per million (ppm), was the soil excavation continued until PID readings were <100 ppm or until 5 feet of soil was excavated?

N/A - no soil excavation - only soil borings.

Once the final boring depth was reached, were soil samples taken for lab analysis?

Yes - soil samples taken every 5 ft. until reaching top of water table.

SURFACE SOIL SAMPLING:

Were soil samples taken from each side wall of the excavation?

N/A - surface samples taken from suspected contaminated soil from city work and tank removal.

Are hydraulic seals and locking well covers properly used to reduce the potential for cross-contamination of monitoring wells?

Yes - well covers individually stenciled with florescent spray paint to ensure ID.

Is the borehole at least 2 inches in diameter larger than the casing diameter to permit the insertion of the tremie pipe?

Yes.

Was the hole drilled slightly deeper than the required depth to allow for the combined length of casing and screen?

Yes.

Was the final completion depth sounded with a decontaminated, weighted tape before continuance of well placement?

Yes.

With the auger flights in place, was the surface properly prepared for the wellhead pad?

Yes - forms placed for pad pouring - escess dirt removed.

Were the casing and screen properly decontaminated before makeup?

Yes.

When the drill rods and bit or the auger flights were withdrawn (NOT APPLICABLE FOR HOLLOW-STEM AUGERS), was the depth of the hole checked with a decontaminated, weighted surveyor's tape?

N/A.

Was the casing string, screen down, hung over or in the top of the borehole? Was the casing string then lowered into the well? Was care taken to not bump the sides of the borehole to prevent unnecessary sloughing?

Yes.

Was the filter pack properly installed through the tremie? Were at least 6 inches of filter pack spotted at the bottom of the hole, under the screen? Was the tremie slowly withdrawn so that the filter pack was placed evenly around the screen without bridging? Was the filter pack installed at least 2 - 3 feet above the screen? Was a minimum of 2 - 3 feet of bentonite used above the screen?

Yes - no theme used. Filter pack poured with care to prevent bridging.

If >35 feet deep, were proper procedures used to tremie onto the top of the filter pack? If <35 feet, were bentonite pellets or chips (not powder) gravity fed onto the top of the filter pack?

Yes.

If below the water table, were bentonite chips used, rather than granular, flake, or slurried bentonite?

Yes. no granular/flake/slvary on site.

If a tremie pipe was used, was it slowly withdrawn as bentonite was added to ensure an evenly distributed seal around the annulus? Was the depth checked with a decontaminated, weighted surveyor's tape?

N/A.

If the bentonite seal was installed above the water table line, was it properly hydrated according to manufacturer's instructions? Was proper hydration time allowed before proceeding?

Yes.

Was the concete used for the wellhead pad properly mixed and placed? Was the well cover locked?

Yes. locked by OpTech personnel - keys given to Bioenvironmental Office.

Was the well identification stamped in the protective casing?

All covers stenciled with flourescent orange paint. All drums stenciled with well ID, Non-Potable Water and OpTech name and telephone number.

WELL DEVELOPMENT AND PURGING:

If a cement bentonite grout was used to seal the annular space, were at least 24 hours allowed after completion?

Yes.

Were wells purged of stagnant water immediately before groundwater sampling?

Yes. Amounts dependent on water levels and development history.

Was each well sampled within 3 hours of purging? If in a low recharge area, was each well sampled within the maximum time of 24 hours from purging?

Yes.

Were wells purged in accordance with protective clothing required in the site Health and Safety Plan?

Yes.

After opening, were the condition of the wellhead, cover, and surveyed reference mark noted and logged?

Yes - during development and sampling wells surveyed during development operations.

Was the well volume (volume of water within the well bore) calculated using the casing diameter or borehole diameter in feet and the distance from the well bottom to the static water level in feet?

Yes.

Was the well volume logged properly?

Yes.

Was the pump and tubing or the bailer prepared properly and lowered into the casing?

Yes.

Were the proper number of well volumes required in the project plan removed (generally, 3 - 5; less in low-recharge aquifers)? Was all pertinent data logged in the field logbook?

Yes. Amounts based on bailer volume and well volume. Varied by well.

Were pump assemblies or bailers properly removed and decontaminated?

Yes - strict decontamination procedures used.

Was the well site cleaned? Was the well cover locked?

Yes - end of each day.

Was produced water properly disposed of according to the project work plan?

Yes - drummed pending lab results.

GROUNDWATER SAMPLING WITH BAILERS:

After preparing the well site, was the well opened and the condition of the casing and cap noted and logged?

Yes.

Were vapors checked for using vapor analyzing equipment?

Yes-PID

Was the depth to well bottom and static water level measured and recorded?

Yes - decontaminated weighted electronic tape.

Were at lease 3 volumes removed from the well using decontaminated bailers attached to a secured line?

Yes - teflon bailer used only for sampling. PVC bailers used during well development.

Were the bailers lowered carefully so as not to touch the casing or the bottom of the well?

Yes.

Was the bailer allowed to enter the water slowly to prevent aeration (particularly when VOA and SVOA samples were taken)?

Yes.

Was the first bailer of water used as a rinse and then discarded?

Yes.

When brought back to the top of the well, was care taken so that the attached line did not touch the ground?

Yes - hand over hand technique used.

Was the bailer hung on a bailer stand, other support, or by an assistant to keep it off the ground?

Hand held at all times.

When removing water, was the well allowed to recover sufficiently to allow the bailer to be completely submerged without hitting the well bottom?

Yes.

Was the bailer decontaminated after purging?

Yes - rope replaced between wells. Ropes never allowed to touch ground.

Were volatile organic analyte (VOA) samples obtained first from the well? Were semivolatiles (SVOA) obtained second? Were other samples obtained third?

Yes - BTEX obtained afterVOA/SVOS.

When obtaining the VOA and SVOA samples, was the bailer release valve used to carefully transfer water in to the sample bottle? Was the sample bottle tilted to prevent aeration?

Yes - sample bottles inverted to check for bubbles - no headspace allowed.

If sample filtration was required, was it done immediately after sample retrieval?

N/A.

Were samples placed in proper sample containers, preservative added (if needed) capped, sealed, labeled, and immediately placed in the chilled field cooler?

4 drops HCL in each sample bottle. Labels prefilled out. Chilled immediately and logged in C of C.

Was the well area cleaned up after sampling? Was the well cover closed and locked? Were field activities recorded in the field log book?

Yes. Site Managers directed site areas to be kept clean. Final cleaning on sampling day completed.

WIPE SAMPLING:

N/A.

FIELD EQUIPMENT DECONTAMINATION:

Have all decontamination supplies been brought to the work site?

Yes.

Is plastic sheeting placed on the ground to contain all equipment to be cleaned?

Yes - care taken to keep pump sprayer heads uncontaminated as well.

If exposed to contaminants, was field equipment properly decontaminated?

+ Sprayed using steam or high-pressure sprayer with soapy water - hands scrubbed also using warm water
+ Rinsed using potable (tap) water. Yes.
+ Sprayed with distilled water with a manual pump sprayer; rinsed with methanol. Yes.
+ Removed from the area and allowed to air dry

Was sampling equipment:

+ Thoroughly washed in soapy water to remove all clinging dirt Yes
+ Rinsed in clear tap water Yes
+ Rinsed in distilled water Yes
+ Rinsed with methanol Yes
+ Rinsed in hexane if having come in contact with polar organic compounds such as pesticides, PCBs, or fuels N/A

After drying, was decontaminated sampling equipment wrapped in aluminum foil and properly stored? Yes

Were all contaminated waters, used solvents and acids, plastic sheeting, disposable gloves, boots, and clothing placed in drums and properly labeled for disposal? Yes

Were liquids and solids drummed separately? Yes

FIELD LOG BOOKS:

Was each field employee keeping a field log book to record daily field activities? Yes

Was the log book written in indelible ink and did it contain, at a minimum:

+ Date, time, and type of activity Yes
+ Names and organizations of persons on-site Yes
+ Weather conditions Yes
+ Sampling and preservation procedures Yes
+ Sampling locations, depths, and conditions Yes
+ Time of sampling and sample description Yes
+ Tank removal details N/A
+ Remarks Yes
+ Signature of author Yes
+ Well depts Yes
+ Readings from equipment Yes

SAMPLING DOCUMENTATION:

Were preprinted adhesive-backed labels affixed to sample jars and properly filled out using indelible ink with: Lab Labels Used

+ Project Number	
+ Sample ID Number	Yes
+ Date & Time of Sample Collection	Yes
+ Sample Location	Yes
+ Name of Sample	Yes
+ Sample Type	Yes
+ Sample Preservative (if any)	Yes

SAMPLE SEALS:

Were preprinted adhesive-backed paper seals placed over the lid of each sample jar at the time of collection?

No. Lab procedures did not require or provide - OpTech will supply in future.

Were paper seals placed on the ice chests to seal them at the time of transport to the laboratory?

No - ice chest kept under personal control of Site Manager.

Did the seals contain all of the following in indelible ink: N/A

+ Sample Number
+ Date of Sample Collection
+ Signature and Printed Name
+ Title of Sample

SECTION 3: CHAIN OF CUSTODY PROCEDURES

Were all personnel thoroughly familiar with procedures to ensure the possession and handling of samples was strictly controlled?

Yes.

Were all personnel familiar with the risk of invalidating samples if chain of custody procedures were broken?

Yes.

Were procedures in effect to ensure chain of custody forms were preserved and not discarded?

Yes.

Were all personnel familiar with procedures to make corrections on chain of custody forms?

+ All corrections initialed and dated	Yes
+ Entry errors lined out with a single line so that writing is still legible	Yes
+ No white out used to cover mistakes	Yes

Were chain of custody forms properly filled out in indelible ink to include:

+	Project name, number, and location	Project/Site Manager filled out at time of sampling.
+	Signature of collector	
+	Date and time of collection	
+	Sample identification numbers	
+	Number of containers in sample set	Yes
+	Description of samples and containers	Yes
+	Names (printed) and signatures of persons who assume custody of the samples	Yes
+	Requested analysis for each sample	Yes
+	Name of laboratory to receive samples	Yes
+	Name of person at OpTech to receive laboratory report	Yes
+	Laboratory turnaround time - Requested 48 hour turnaround.	

Were procedures in effect to ensure samples were in the positive control of personnel at all times?

+	In his or her physical possession	Yes
+	In his or her view	Yes
+	Secured by the person in an area restricted to authorized personnel	Yes

When transferring samples, did the responsible person require:

+	The name (printed) and signature of the transferee and the new custodian	Yes
+	The name and the company or agency that each signatory represents	Yes
+	The date and time of transfer	Yes

Were field sampling personnel aware of their responsibilities for the positive control of samples until formal chain of custody transfer to OpTech or laboratory personnel?

Yes.

Were samples kept in a secure area at all times or in a locked, refrigerated storage compartment which is secure from tampering?

Cooled under positive control - transferred directly to Lab.

Are laboratory couriers escorted to the locked storage area by the sample custodian and formal chain of custody procedures used to transfer custody?

Yes.

Is a photocopy of the chain of custody sheet made and placed in the project file?

Yes.

Does the original of the chain of custody sheet accompany the samples to the laboratory?

Yes.

When sample analysis has been completed, is the original of the chain of custody form returned to OpTech for filing in the project file?

Yes.

SECTION 4: CALIBRATION PROCEDURES

Were appropriate field site personnel familiar with calibration requirements specific to the project?

Yes.

Were effective calibration procedures in effect to ensure equipment worked properly and rendered valid measurements?

Yes.

Were EPA-approved calibration methods used?

Yes.

Was calibration required on a periodic basis depending on the requirements of each piece of equipment?

Yes. High reading in PH for one sample - recalibration - reading proved correct.

Were spare parts on hand to keep equipment operational?

N/A

Were preventive maintenance routines conducted on field equipment to ensure their availability?

N/A - equipment cleaned and stored in cases to prevent damage each day.

SECTION 5: DATA QUALITY ASSESSMENT

Were project plan data QA objectives met in terms of:

+	Precision:	From duplicate measurements, the Relative Percent Difference (RPD) met planned goals.	Yes.
+	Completeness:	The total number of measurements judged valid were accomplished to achieve a specified statistical level of confidence in decision making.	Yes.
+	Accuracy:	Where Standard Reference Material (SRM) was used to validate analytical processes, the percent recovery (the measured concentration of SRM divided by the actual concentraton of SRM times 100 percent) was within planned goals.	Yes.

Was each site worker equipped with all needed personal protective gear?

Yes. TYVEX worn - gloves - ear protection - hard hats.

Had site-specific emergency response procedures been developed?

Yes.

Were emergency response procedures briefed at the daily safety meetings?

Yes. coordinated with Base Clinic.

Were specific prohibited activities covered in the safety briefings?

Yes.

Were personal decontamination procedures in effect?

No. Durable gloves during sampling to ensure no cross-contamination.

Were any medical surveillance requirements in effect?

No.

Were all personnel familiar with the site safety record and "lessons learned" from any previous safety incidents?

N/A.

SECTION 8: DELIVERABLES

Were project personnel familiar with deliverable schedules?

Yes.

Were project managers thoroughly familiar with deliverable schedules?

Yes.

Were all deliverable schedules met?

Yes.

APPENDIX C

LABORATORY ANALYTICAL REPORTS

OPTECH

OPERATIONAL TECHNOLOGIES CORPORATION

DATA VALIDATION CHECKLIST

PROJECT NAME/NUMBER: LINCOLN AIR NATIONAL GUARD BASE
SAMPLE IDENTIFICATION: LANGB
SAMPLING TEAM: RICARDO SAUCEDO, STEVE WILSON AND JOHN MORRIS
ANALYSIS LABORATORY: HWS TECHNOLOGIES INC, LINCOLN, NEBRASKA
ANALYSIS PERFORMED: SW 846-602, 418.1, 8010A

OVERALL VALIDATION CLASSIFICATION		
UNUSUABLE	LEVEL A	LEVEL B

DETERMINED BY/ NAME: STEVE WILSON DATE: 06 NOVEMBER 1991

		RESPONSIBLE PARTY/ SOURCE OF INFORMATION	REPORTING REQUIREMENTS	PASS	FAIL	NOT APPLIC.	EXCEPTIONS	INITIALS
LEVEL A CRITERIA		SAMPLING TEAM/ WATER SAMPLING LOG (WSL)	• Sampling date	✓				
			• Sampler(s)	✓				
			• Sampling Site/Well No.	✓				
			• Sampling location description (well location, surface water station)	✓				
			• Sampling depth (for soils)	✓				
			• Collection technique (Bailer or pump type)	✓				
			• Field preparation techniques (sieving, compositing, etc.)	✓				
			• Preservation methods	✓				
			• Visual classification of sample (for soils)	✓				
			• WSLs completed and accounted for	✓				
		ANALYZING LABORATORY/ DATA SUMMARY	• Analysis date & preparation techniques	✓				
			• Analysis methods	✓				
			• Analysis detection limits	✓				
LEVEL B CRITERIA	QUANTITATIVE STATISTICAL SIGNIFICANCE	ANALYZING LABORATORY/ STANDARD OPERATING PROCEDURES	• Documentation of laboratory/field instrumentation calibration	✓				
			• Sampling bottle preparation description	✓				
			• Procedural reference and/or calibration data	✓				
			• Verification of standards (using EPA or NBS standards)	✓				
			• Analysis of laboratory (reagent) blanks	✓				
			• Analysis of laboratory replicates (duplicates and splits)	✓				
			• Analysis of laboratory spikes	✓				
			• Analysis of field replicates (duplicates and splits)	✓				
			• Presentation of tabulated QA data or QC charts/acceptance criteria	✓				
			• QA/QC certification (or Round-Robin testing)	✓				
			• QC limits consistent with EPA's Contract Laboratory Program			✓		
	CUSTODY AND DOCUMENT CONTROL	SAMPLING TEAM/ CHAIN OF CUSTODY FORM	• Chain-of-custody documentation	✓				
			• Documents secured	✓				
			• Form(s) completed	✓				
		ANALYZING LABORATORY/ STANDARD OPERATING PROCEDURES	• Transfer-of-custody documentation available	✓				
			• Laboratory custody documented	✓				
			• Laboratory sample custodian with secured sample storage area	✓				
			• Sampling designation number(s)	✓				
	SAMPLE REPRESENTATIVENESS	SAMPLING TEAM/ CONSISTENT WITH WORK PLAN	• Proper sample collection used	✓				
			• Sample site selection criteria provided representativeness	✓				
		ANALYZING LAB/ STANDARD OPERATING PROCEDURES	• Holding times not exceeded	✓				
			• Suitable sample storage (temperature, light, moisture, etc.)	✓				
			• Proper sample containers used (i.e., inert)	✓				

Comments:

NOTES: • CHECKLIST SHOULD ACCOMPANY THE SAMPLES ALONG WITH THE CHAIN-OF-CUSTODY FORM
• ALL ENTRIES MUST BE INITIALED BY SAMPLING TEAM OR LABORATORY PERSONNEL

OPERATIONAL TECHNOLOGIES CORPORATION
4100 N.W. Loop 410, Suite 230
San Antonio, Texas 78229-4253
Phone: (512) 731-0000
Fax: (512) 731-0008

HWS TECHNOLOGIES INC.

825 J Street P.O. Box 80358 Lincoln, Nebraska 68501 Telephone (402) 479-2200

ANALYTICAL LABORATORY REPORT

CLIENT: Operational Technologies Inc.
ATTN: Mr. John Morris
4100 NW Loop 410
Suite 230
San Antonio, TX 78279

DATE COLLECTED: 11-14-91
DATE REPORTED: 11-19-91
DATE RECEIVED: 11-14-91
PURCHASE AUTHORIZATION:
JOB NO.: 72-81-8306.00
REPORT NO.: 91B80

CLIENT/FIELD IDENTIFICATION: BH1-SS 16-16.5'

LABORATORY IDENTIFICATION NO.: 37411

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	mg/kg	ND (0.25)	173/91244	111591	RS
Toluene	mg/kg	ND (0.25)	173/91244	111591	RS
Ethylbenzene	mg/kg	ND (0.25)	173/91244	111591	RS
Xylenes (Dimetyhlbenzene)	mg/kg	ND (0.25)	173/91244	111591	RS
1,2-Dichlorobenzene	mg/kg	ND (0.25)	173/91244	111591	RS
1,3-Dichlorobenzene	mg/kg	ND (0.25)	173/91244	111591	RS
1,4-Dichlorobenzene	mg/kg	ND (0.25)	173/91244	111591	RS
Total Recoverable Petroleum Hydrocarbons in Soil	mg/kg	ND (25)	363/91104	111891	PH

End of Sample No. 37411.

CLIENT/FIELD IDENTIFICATION: BH1-SS 16.5-17'

LABORATORY IDENTIFICATION NO.: 37412

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	mg/kg	ND (0.25)	173/91244	111591	RS
Toluene	mg/kg	ND (0.25)	173/91244	111591	RS
Ethylbenzene	mg/kg	ND (0.25)	173/91244	111591	RS
Xylenes (Dimetyhlbenzene)	mg/kg	ND (0.25)	173/91244	111591	RS
1,2-Dichlorobenzene	mg/kg	ND (0.25)	173/91244	111591	RS
1,3-Dichlorobenzene	mg/kg	ND (0.25)	173/91244	111591	RS
1,4-Dichlorobenzene	mg/kg	ND (0.25)	173/91244	111591	RS
Total Recoverable Petroleum Hydrocarbons in Soil	mg/kg	ND (25)	363/91104	111891	PH

End of Sample No. 37412. Report No. 91B80 Continued on Next Page.

CLIENT/FIELD IDENTIFICATION: Quality Control Sample

LABORATORY IDENTIFICATION NO.: 37412 Matrix Spike (40 ug/L)

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	% Recovery	106	173/91245	111891	RS
Toluene	% Recovery	106	173/91245	111891	RS
Ethylbenzene	% Recovery	107	173/91245	111891	RS
Xylenes (Dimethylbenzene)	% Recovery	107	173/91245	111891	RS
1,2-Dichlorobenzene	% Recovery	99	173/91244	111591	RS
1,3-Dichlorobenzene	% Recovery	91	173/91244	111591	RS
1,4-Dichlorobenzene	% Recovery	103	173/91244	111591	RS

End of Quality Contol Sample.

CLIENT/FIELD IDENTIFICATION: Quality Control Sample

LABORATORY IDENTIFICATION NO.: Inhouse (6.7 mg/L)

Analysis	Units	Concentration	Book/Page	Date	Analyst
Total Recoverable Petroleum Hydrocarbons	% Recovery	102	363/91105	111891	PH

End of Quality Contol Sample.

Analysis	Detection Limit	Test Method	Description
Benzene	2.0 ug/L	602	Purge and Trap/ G.C.-F.I.D. or P.I.D.
Toluene	2.0 ug/L	602	
Ethylbenzene	2.0 ug/L	602	
Xylenes (Dimethylbenzene)	2.0 ug/L	602	
1,2-Dichlorobenzene	2.0 ug/L	8010A	Purge & Trap G.C.-F.I.D.
1,3-Dichlorobenzene	2.0 ug/L	8010A	
1,4-Dichlorobenzene	2.0 ug/L	8010A	
Total Recoverable Petroleum Hydrocarbons	0.5 mg/L	418.1	Infrared

End of Report No. 91B80.

Sample collection techniques, sample containers, sample sizes, sample preservation and physical/chemical analyses were performed in accordance with "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", EPA 600/4-82-057, "Methods for Chemical Analysis of Water and Wastes," EPA 600/4-79-20, and "Test Methods for Evaluating Solid Waste," EPA SW-846.

ND ( ), where denoted, indicates none detected with the detection limit in parentheses.

By ______________________
Supervisor, Analytical Services Division

MISC

HWS Technologies Inc.

LINCOLN OFFICE
825 J St., Box 80358
Lincoln, NE 68501
402/479-2200

HAZARDOUS WASTE ANALYSIS REQUEST AND CHAIN OF CUSTODY SHEET

PROJECT MANAGER

PROJECT NO.

PROJECT NAME/COMPANY: AIR NATIONAL GUARD LINCOLN AIRPORT

SAMPLER (Signature)

DATE/TIME: NOV-14-91 / 5:28PM

TESTS REQUESTED: BTEX, TPH, Chlorobenzene

LAB NO.	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NUM. OF CON-TAINERS	BTEX, TPH, Chlorobenzene	REMARKS
37411	11-14-91	5:30			LANGB-BH1-SS-16-16.5'	1	✓	
37412	11-14-91	5:30			LANGB-BH1-SS1-16.5-17'	1	✓	

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COLLABORATIVE LAB (IF REQUIRED)

COLL. LAB ID. NO.	LAB NO. FROM ABOVE	TO LAB NAME, LOCATION	DATE SHIPPED

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	11-14-91	5:32	Nancy Brown	11/14/91	5:32						

Remarks:

HWS TECHNOLOGIES INC.

825 J Street P.O. Box 80358 Lincoln, Nebraska 68501 Telephone (402) 479-2200

ANALYTICAL LABORATORY REPORT

CLIENT: Operational Technologies Inc.
ATTN: John Morris
4100 N.W. Loop 410
San Antonio, TX 78279

DATE COLLECTED: 11-15-91
DATE REPORTED: 11-21-91
DATE RECEIVED: 11-15-91
PURCHASE AUTHORIZATION:
JOB NO.: 72-81-8306.00
REPORT NO.: 91B93

CLIENT/FIELD IDENTIFICATION: BH2-SS 9.5-10'

LABORATORY IDENTIFICATION NO.: 37450

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	mg/Kg	ND (0.25)	173/91245	111891	RS
Toluene	mg/Kg	ND (0.25)	173/91245	111891	RS
Ethylbenzene	mg/Kg	ND (0.25)	173/91245	111891	RS
Xylenes (Dimethyl Benzene)	mg/Kg	ND (0.25)	173/91245	111891	RS
1,2-Dichlorobenzene	mg/Kg	1.3	173/91245	111891	RS
1,3-Dichlorobenzene	mg/Kg	ND (0.25)	173/91245	111891	RS
1,4-Dichlorobenzene	mg/Kg	ND (0.25)	173/91245	111891	RS
Total Recoverable Petroleums Hydrocarbon In Soil	mg/Kg	ND (22)	363/91107	111991	PH

End of Sample No. 37450.

CLIENT/FIELD IDENTIFICATION: BH2-SS 15-15.5

LABORATORY IDENTIFICATION NO.: 37451

Analysis	Units	Concentration	Book/Page	Date.	Analyst
Benzene	mg/Kg	76	173/91245	111891	RS
Toluene	mg/Kg	21	173/91245	111891	RS
Ethylbenzene	mg/Kg	13	173/91245	111891	RS
Xylenes (Dimethyl Benzene)	mg/Kg	76	173/91245	111891	RS
1,2-Dichlorobenzene	mg/Kg	11	173/91245	111891	RS
1,3-Dichlorobenzene	mg/Kg	16	173/91245	111891	RS
1,4-Dichlorobenzene	mg/Kg	9.5	173/91245	111891	RS
Total Recoverable Petroleums Hydrocarbon In Soil	mg/Kg	ND (23)	363/91107	111991	PH

End of Sample No. 37451. Report No. 91B93 Continued on Next Page.

CLIENT/FIELD IDENTIFICATION: Quality Control Sample

LABORATORY IDENTIFICATION NO.: Inhouse (336 mg/Kg)

Analysis	Units	Concentration	Book/Page	Date	Analyst
Total Recoverable Petroleum Hydrocarbons	% Recovery	101	363/91107	111991	PH

End of Quality Control Sample.

CLIENT/FIELD IDENTIFICATION: Quality Control Sample

LABORATORY IDENTIFICATION NO.: 37450 Matrix Spike (40 ug/L)

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	% Recovery	99	173/91245	111891	RS
Toluene	% Recovery	103	173/91245	111891	RS
Ethylbenzene	% Recovery	103	173/91245	111891	RS
Xylenes (Dimethylbenzene)	% Recovery	95	173/91245	111891	RS
1,3-Dichlorobenzene	% Recovery	103	173/91245	111891	RS
1,4-Dichlorobenzene	% Recovery	101	173/91245	111891	RS
1,2-Dichlorobenzene	% Recovery	81	173/91245	111891	RS

End of Quality Control Sample.

Analysis	Detection Limit	Test Method	Description
Benzene	2.0 ug/L	602	Purge and Trap G.C.-F.I.D. or P.I.D.
Toluene	2.0 ug/L	602	
Ethylbenzene	2.0 ug/L	602	
Xylenes (Dimethylbenzene)	2.0 ug/L	602	
1,3-Dichlorobenzene	2.0 ug/L		Purge and Trap G.C.-F.I.D.
1,4-Dichlorobenzene	2.0 ug/L		
1,2-Dichlorobenzene	2.0 ug/L		
Total Recoverable Petroleum Hydrocarbons	25 mg/Kg	418.1	Infrared

End of Report No. 91B93.

Samples analyzed as received in accordance with "Test Methods for Evaluating Solid Waste," EPA SW-846.

ND ( ), where denoted, indicates none detected with the detection limit in parentheses.

OPERTECH

By R. Uzmick
Supervisor, Analytical Services Division

HWS Technologies Inc.

LINCOLN OFFICE
825 J St., Box 80358
Lincoln, NE 68501
402/479-2200

HAZARDOUS WASTE ANALYSIS REQUEST AND CHAIN OF CUSTODY SHEET

PROJECT MANAGER: John Morris

PROJECT NO.:

PROJECT NAME/COMPANY: Lincoln Air National Guard Base

SAMPLER (Signature): [signature]

DATE/TIME: 15-11-91

TESTS REQUESTED: BTEX, TRPH, Chlorobenzenes

LAB NO.	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NUM. OF CONTAINERS	BTEX	TRPH	Chlorobenzenes	REMARKS
37450	15-11	10:20		✓	LANGB-BH2-SS 9.5-10'	1	X	X	X	Rush Turn Around
37451	15-11	10:30		✓	LANGB-BH2-SS 15-15.5'	3	X	X	X	Rush Turn Around

COLLABORATIVE LAB (IF REQUIRED)

COLL. LAB ID. NO.	LAB NO. FROM ABOVE	TO LAB NAME, LOCATION	DATE SHIPPED

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	15-11	5:50	Nancy Brown	11-15-91	17:25						

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Preserved: Yes No

Remarks:

HWS TECHNOLOGIES INC.

825 J Street P.O. Box 80358 Lincoln, Nebraska 68501 Telephone (402) 479-2200

ANALYTICAL LABORATORY REPORT

CLIENT: Operational Technologies Inc.
ATTN: John Morris
4100 N.W. Loop 410
San Antonio, TX 78279

DATE COLLECTED: 11-16-91
DATE REPORTED: 11-21-91
DATE RECEIVED: 11-18-91
PURCHASE AUTHORIZATION:
JOB NO.: 72-81-8306.00
REPORT NO.: 91B95

CLIENT/FIELD IDENTIFICATION: BH3-SS 10-10.5 Ft.

LABORATORY IDENTIFICATION NO.: 37456

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	mg/Kg	ND (0.25)	173/91246	112091	RS
Toluene	mg/Kg	ND (0.25)	173/91246	112091	RS
Ethylbenzene	mg/Kg	ND (0.25)	173/91246	112091	RS
Xylenes (Dimethyl Benzene)	mg/Kg	ND (0.25)	173/91246	112091	RS
1,2-Dichlorobenzene	mg/Kg	ND (0.25)	173/91246	112091	RS
1,3-Dichlorobenzene	mg/Kg	ND (0.25)	173/91246	112091	RS
1,4-Dichlorobenzene	mg/Kg	ND (0.25)	173/91246	112091	RS
Total Recoverable Petroleums Hydrocarbon In Soil	mg/Kg	ND (22)	363/91107	111991	PH

End of Sample No. 37456.

CLIENT/FIELD IDENTIFICATION: BH4-SS 10.5-11 Ft.

LABORATORY IDENTIFICATION NO.: 37457

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	mg/Kg	ND (0.25)	173/91245	111891	RS
Toluene	mg/Kg	0.80	173/91245	111891	RS
Ethylbenzene	mg/Kg	1.6	173/91245	111891	RS
Xylenes (Dimethyl Benzene)	mg/Kg	2.7	173/91245	111891	RS
1,2-Dichlorobenzene	mg/Kg	0.82	173/91245	111891	RS
1,3-Dichlorobenzene	mg/Kg	1.1	173/91245	111891	RS
1,4-Dichlorobenzene	mg/Kg	0.47	173/91245	111891.	RS
Total Recoverable Petroleums Hydrocarbon In Soil	mg/Kg	ND (22)	363/91107	111991	PH

End of Sample No. 37457. Report No. 91B95 Continued on Next Page.

CLIENT/FIELD IDENTIFICATION: BH5-SS 10-10.5 Ft.

LABORATORY IDENTIFICATION NO.: 37458

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	mg/Kg	ND (0.25)	173/91245	111891	RS
Toluene	mg/Kg	ND (0.25)	173/91245	111891	RS
Ethylbenzene	mg/Kg	ND (0.25)	173/91245	111891	RS
Xylenes (Dimethyl Benzene)	mg/Kg	ND (0.25)	173/91245	111891	RS
1,2-Dichlorobenzene	mg/Kg	ND (0.25)	173/91245	111891	RS
1,3-Dichlorobenzene	mg/Kg	ND (0.25)	173/91245	111891	RS
1,4-Dichlorobenzene	mg/Kg	ND (0.25)	173/91245	111891	RS
Total Recoverable Petroleums Hydrocarbon In Soil	mg/Kg	ND (20)	363/91107	111991	PH

End of Sample No. 37458.

CLIENT/FIELD IDENTIFICATION: BH6-SS 10.5-11 Ft.

LABORATORY IDENTIFICATION NO.: 37459

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	mg/Kg	ND (0.25)	173/91245	111891	RS
Toluene	mg/Kg	ND (0.25)	173/91245	111891	RS
Ethylbenzene	mg/Kg	ND (0.25)	173/91245	111891	RS
Xylenes (Dimethyl Benzene)	mg/Kg	ND (0.25)	173/91245	111891	RS
1,2-Dichlorobenzene	mg/Kg	ND (0.25)	173/91245	111891	RS
1,3-Dichlorobenzene	mg/Kg	ND (0.25)	173/91245	111891	RS
1,4-Dichlorobenzene	mg/Kg	ND (0.25)	173/91245	111891	RS
Total Recoverable Petroleums Hydrocarbon In Soil	mg/Kg	ND (25)	363/91107	111991	PH

End of Sample No. 37459.

CLIENT/FIELD IDENTIFICATION: Quality Control Sample

LABORATORY IDENTIFICATION NO.: 37450 Matrix Spike (40 ug/L)

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	% Recovery	99	173/91245	111891	RS
Toluene	% Recovery	103	173/91245	111891	RS
Ethylbenzene	% Recovery	103	173/91245	111891	RS
Xylenes (Dimethylbenzene)	% Recovery	95	173/91245	111891	RS
1,3-Dichlorobenzene	% Recovery	103	173/91245	111891	RS
1,4-Dichlorobenzene	% Recovery	101	173/91245	111891	RS
1,2-Dichlorobenzene	% Recovery	81	173/91245	111891	RS

End of Quality Control Sample.

CLIENT/FIELD IDENTIFICATION: Quality Control Sample

LABORATORY IDENTIFICATION NO.: Inhouse (336 mg/Kg)

Analysis	Units	Concentration	Book/Page	Date	Analyst
Total Recoverable Petroleum Hydrocarbons	% Recovery	101	363/91107	111991	PH

End of Quality Control Sample.

Analysis	Detection Limit	Test Method	Description
Benzene	2.0 ug/L	602	Purge and Trap G.C.-F.I.D. or P.I.D.
Toluene	2.0 ug/L	602	
Ethylbenzene	2.0 ug/L	602	
Xylenes (Dimethylbenzene)	2.0 ug/L	602	
1,3-Dichlorobenzene	2.0 ug/L		Purge and Trap G.C.-F.I.D.
1,4-Dichlorobenzene	2.0 ug/L		
1,2-Dichlorobenzene	2.0 ug/L		
Total Recoverable Petroleum Hydrocarbons	25 mg/Kg	418.1	Infrared

End of Report No. 91B95.

Samples analyzed as received in accordance with "Test Methods for Evaluating Solid Waste," EPA SW-846.

ND ( ), where denoted, indicates none detected with the detection limit in parentheses.

By R. Horniak
Supervisor, Analytical Services Division

OPERTECH

HWS Technologies Inc.

LINCOLN OFFICE
825 J St., Box 80358
Lincoln, NE 68501
402/479-2200

HAZARDOUS WASTE ANALYSIS REQUEST AND CHAIN OF CUSTODY SHEET

PROJECT MANAGER: John Morris

PROJECT NO.:

PROJECT NAME/COMPANY: Lincoln Air National Guard Base

SAMPLER (Signature):

DATE/TIME: 16-11-91 16:45

TESTS REQUESTED

LAB NO.	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NUM. OF CONTAINERS	BTEX	TRPH	Chlorobenzenes								REMARKS
37456	16-11	10:15		✓	LANGB-BH3-SS 10-10.5'	1	X	X	X								Rush
37457	16-11	11:45		✓	-BH4-SS 10.5-11'	1	X	X	X								"
37458	16-11	14:55		✓	-BH5-SS 10-10.5'	1	X	X	X								"
37459	16-11	15:30		✓	-BH6-SS- 10.5-11'	1	X	X	X								"
	~~H~~																

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COLLABORATIVE LAB (IF REQUIRED)

COLL. LAB ID. NO.	LAB NO. FROM ABOVE	TO LAB NAME, LOCATION	DATE SHIPPED

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	11-17-91	10:42	Kim Beil	11-17-91	10:42						
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Preserved: Yes No

Remarks:

HWS TECHNOLOGIES INC.

825 J Street P.O. Box 80358 Lincoln, Nebraska 68501 Telephone (402) 479-2200

ANALYTICAL LABORATORY REPORT

CLIENT: Operational Technologies Inc.
ATTN: Mr. John Morris
4100 NW Loop 410
Suite 230
San Antonio, TX 78279

DATE COLLECTED: 11-18-91
DATE REPORTED: 11-22-91
DATE RECEIVED: 11-18-91
PURCHASE AUTHORIZATION:
JOB NO.: 72-81-8306.00
REPORT NO.: 91B98

CLIENT/FIELD IDENTIFICATION: MW5-SS 10-10.5 Ft.

LABORATORY IDENTIFICATION NO.: 37463

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	mg/Kg	0.37	173/91246	112091	RS
Toluene	mg/Kg	ND (0.25)	173/91246	112091	RS
Ethylbenzene	mg/Kg	ND (0.25)	173/91246	112091	RS
Xylenes (Dimetyhlbenzene)	mg/Kg	ND (0.25)	173/91246	112091	RS
1,2-Dichlorobenzene	mg/Kg	ND (0.25)	173/91246	112091	RS
1,3-Dichlorobenzene	mg/Kg	ND (0.25)	173/91246	112091	RS
1,4-Dichlorobenzene	mg/Kg	ND (0.25)	173/91246	112091	RS
Total Recoverable Petroleum Hydrocarbons in Soil	mg/Kg	ND (25)	363/91109	112291	PH

End of Sample No. 37463.

CLIENT/FIELD IDENTIFICATION: MW5-SS 15-15.5 Ft.

LABORATORY IDENTIFICATION NO.: 37464

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	mg/Kg	0.31	173/91246	112091	RS
Toluene	mg/Kg	ND (0.25)	173/91246	112091	RS
Ethylbenzene	mg/Kg	ND (0.25)	173/91246	112091	RS
Xylenes (Dimetyhlbenzene)	mg/Kg	ND (0.25)	173/91246	112091	RS
1,2-Dichlorobenzene	mg/Kg	ND (0.25)	173/91246	112091	RS
1,3-Dichlorobenzene	mg/Kg	ND (0.25)	173/91246	112091	RS
1,4-Dichlorobenzene	mg/Kg	ND (0.25)	173/91246	112091	RS
Total Recoverable Petroleum Hydrocarbons in Soil	mg/Kg	ND (25)	363/91109	112291	PH

End of Sample No. 37464. Report No. 91B98 Continued on Next Page.

CLIENT/FIELD IDENTIFICATION: Quality Control Sample

LABORATORY IDENTIFICATION NO.: Inhouse (6.7 mg/Kg)

Analysis	Units	Concentration	Book/Page	Date	Analyst
Total Recoverable Petroleum Hydrocarbons	% Recovery	98	363/91109	112291	PH

End of Quality Contol Sample.

CLIENT/FIELD IDENTIFICATION: Quality Control Sample

LABORATORY IDENTIFICATION NO.: Batch Spike (40 ug/L)

Analysis	Units	Concentration	Book/Page	Date	Analyst
1,2 Dichlorobenzene	% Recovery	102	173/91246	112091	RS
1,3 Dichlorobenzene	% Recovery	102	173/91246	112091	RS
1,4 Dichlorobenzene	% Recovery	101	173/91246	112091	RS

End of Quality Contol Sample.

CLIENT/FIELD IDENTIFICATION: Quality Control Sample

LABORATORY IDENTIFICATION NO.: Batch Spike (40 ug/L)

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	% Recovery	95	173/91246	112091	RS
Toluene	% Recovery	97	173/91246	112091	RS
Ethylbenzene	% Recovery	98	173/91246	112091	RS
Xylenes (Dimethylbenzene)	% Recovery	99	173/91246	112091	RS

End of Quality Contol Sample.

Analysis	Detection Limit	Test Method	Description
Benzene	0.25 mg/Kg	EPA 602/8020	Purge and Trap/ G.C.-F.I.D. or P.I.D.
Toluene	0.25 mg/Kg	EPA 602/8020	
Ethylbenzene	0.25 mg/Kg	EPA 602/8020	
Xylenes (Dimethylbenzene)	0.25 mg/Kg	EPA 602/8020	
1,2 Dichlorobenzene	0.25 mg/Kg	EPA 602/8020	
1,3-Dichlorobenzene	0.25 mg/Kg	EPA 602/8020	
1,4-Dichlorobenzene	0.25 mg/Kg	EPA 602/8020	
Total Recoverable Petroleum Hydrocarbons	25 mg/Kg	EPA 418.1	Infrared

End of Report No. 91B98.

Samples analyzed as received in accordance with "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater", EPA 600/4-82-057, "Test Methods for Evaluating Solid Waste," EPA SW-846, and "Methods for Chemical Analysis of Water and Wastes," EPA 600/4-79-20.

ND ( ), where denoted, indicates none detected with the detection limit in parentheses.

By R. Wozniak
Supervisor, Analytical Services Division

OPERTECH

HWS Technologies Inc.

LINCOLN OFFICE
825 J St., Box 80358
Lincoln, NE 68501
402/479-2200

HAZARDOUS WASTE ANALYSIS REQUEST AND CHAIN OF CUSTODY SHEET

PROJECT MANAGER: John Morris
PROJECT NAME/COMPANY: Lincoln Air National Guard Base
PROJECT NO.:

SAMPLER (Signature): [signature]
DATE/TIME: 18-11-91 16:50

TESTS REQUESTED: BTEX, Chlorinated, TRPH

LAB NO.	DATE	TIME	COMP.	GRAB	SAMPLE IDENTIFICATION	NUM. OF CONTAINERS	BTEX	Chlorinated	TRPH								REMARKS
	18-11	1026		✓	LANGB-MW5-SS 10-10.5	1	X	X	X								Rush
	18-11	1040		✓	LANGB-MW5-SS 15-15.5	1	X	X	X								Rush

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COLLABORATIVE LAB (IF REQUIRED)

COLL. LAB ID. NO.	LAB NO. FROM ABOVE	TO LAB NAME, LOCATION	DATE SHIPPED

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	18-11	17:15	[signature]	11-18-91	1715						
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Preserved: Yes No

Remarks:

HWS TECHNOLOGIES INC.

825 J Street P.O. Box 80358 Lincoln, Nebraska 68501 Telephone (402) 479-2200

ANALYTICAL LABORATORY REPORT

CLIENT: Operational Technologies Inc.
ATTN: Mr. John Morris
4100 NW Loop 410
Suite 230
San Antonio, TX 78279

DATE COLLECTED: 11-23-91
DATE REPORTED: 11-27-91
DATE RECEIVED: 11-25-91
PURCHASE AUTHORIZATION:
JOB NO.: 72-81-8306.00
REPORT NO.: 91C20

CLIENT/FIELD IDENTIFICATION: LANGB MW1-W

LABORATORY IDENTIFICATION NO.: 37516

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	ug/L	ND (2.0)	173/91250	112591	RS
Toluene	ug/L	ND (2.0)	173/91250	112591	RS
Ethylbenzene	ug/L	ND (2.0)	173/91250	112591	RS
Xylenes (Dimetyhlbenzene)	ug/L	3.6	173/91250	112591	RS
1,2-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,3-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,4-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
Total Recoverable Petroleum Hydrocarbons	mg/L	ND (1.6)	363/91110	112691	PH

End of Sample No. 37516.

CLIENT/FIELD IDENTIFICATION: LANGB MW2-W

LABORATORY IDENTIFICATION NO.: 37517

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	ug/L	ND (2.0)	173/91250	112591	RS
Toluene	ug/L	ND (2.0)	173/91250	112591	RS
Ethylbenzene	ug/L	ND (2.0)	173/91250	112591	RS
Xylenes (Dimetyhlbenzene)	ug/L	3.7	173/91250	112591	RS
1,2-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,3-Dichlorobenzene	ug/L	2.5	173/91250	112591	RS
1,4-Dichlorobenzene	ug/L	5.9	173/91250	112591	RS
Total Recoverable Petroleum Hydrocarbons	mg/L	ND (1.3)	363/91110	112691	PH

End of Sample No. 37517. Report No. 91C20 Continued on Next Page.

CLIENT/FIELD IDENTIFICATION: LANGB MW3-W

LABORATORY IDENTIFICATION NO.: 37518

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	ug/L	ND (2.0)	173/91250	112591	RS
Toluene	ug/L	ND (2.0)	173/91250	112591	RS
Ethylbenzene	ug/L	ND (2.0)	173/91250	112591	RS
Xylenes (Dimetyhlbenzene)	ug/L	ND (2.0)	173/91250	112591	RS
1,2-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,3-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,4-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
Total Recoverable Petroleum Hydrocarbons	mg/L	ND (1.2)	363/91110	112691	PH

End of Sample No. 37518.

CLIENT/FIELD IDENTIFICATION: LANGB MW4-W

LABORATORY IDENTIFICATION NO.: 37519

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	ug/L	ND (2.0)	173/91250	112591	RS
Toluene	ug/L	ND (2.0)	173/91250	112591	RS
Ethylbenzene	ug/L	ND (2.0)	173/91250	112591	RS
Xylenes (Dimetyhlbenzene)	ug/L	2.6	173/91250	112591	RS
1,2-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,3-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,4-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
Total Recoverable Petroleum Hydrocarbons	mg/L	ND (1.0)	363/91110	112691	PH

End of Sample No. 37519.

CLIENT/FIELD IDENTIFICATION: LANGB MW5-W

LABORATORY IDENTIFICATION NO.: 37520

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	ug/L	ND (2.0)	173/91250	112591	RS
Toluene	ug/L	2.1	173/91250	112591	RS
Ethylbenzene	ug/L	ND (2.0)	173/91250	112591	RS
Xylenes (Dimetyhlbenzene)	ug/L	ND (2.0)	173/91250	112591	RS
1,2-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,3-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,4-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
Total Recoverable Petroleum Hydrocarbons	mg/L	ND (1.6)	363/91110	112691	PH

End of Sample No. 37520. Report No. 91C20 Continued on Next Page.

CLIENT/FIELD IDENTIFICATION: LANGB MW6-W

LABORATORY IDENTIFICATION NO.: 37521

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	ug/L	ND (2.0)	173/91250	112591	RS
Toluene	ug/L	ND (2.0)	173/91250	112591	RS
Ethylbenzene	ug/L	ND (2.0)	173/91250	112591	RS
Xylenes (Dimetyhlbenzene)	ug/L	ND (2.0)	173/91250	112591	RS
1,2-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,3-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,4-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
Total Recoverable Petroleum Hydrocarbons	mg/L	ND (1.0)	363/91110	112691	PH

End of Sample Number 37521.

CLIENT/FIELD IDENTIFICATION: LANGB MW7-W

LABORATORY IDENTIFICATION NO.: 37522

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	ug/L	ND (2.0)	173/91250	112591	RS
Toluene	ug/L	ND (2.0)	173/91250	112591	RS
Ethylbenzene	ug/L	ND (2.0)	173/91250	112591	RS
Xylenes (Dimetyhlbenzene)	ug/L	ND (2.0)	173/91250	112591	RS
1,2-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,3-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,4-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
Total Recoverable Petroleum Hydrocarbons	mg/L	ND (1.4)	363/91110	112691	PH

End of Sample Number 37522.

CLIENT/FIELD IDENTIFICATION: LANGB MW8-W

LABORATORY IDENTIFICATION NO.: 37523

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	ug/L	ND (2.0)	173/91250	112591	RS
Toluene	ug/L	2.0	173/91250	112591	RS
Ethylbenzene	ug/L	ND (2.0)	173/91250	112591	RS
Xylenes (Dimetyhlbenzene)	ug/L	ND (2.0)	173/91250	112591	RS
1,2-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,3-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,4-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
Total Recoverable Petroleum Hydrocarbons	mg/L	ND (0.9)	363/91110	112691	PH

End of Sample Number 37523. Report No. 91C20 Continued On Next Page.

CLIENT/FIELD IDENTIFICATION: Trip Blank

LABORATORY IDENTIFICATION NO.: 37524

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	ug/L	ND (2.0)	173/91250	112591	RS
Toluene	ug/L	ND (2.0)	173/91250	112591	RS
Ethylbenzene	ug/L	ND (2.0)	173/91250	112591	RS
Xylenes (Dimetyhlbenzene)	ug/L	ND (2.0)	173/91250	112591	RS
1,2-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,3-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,4-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS

End of Sample Number 37524.

CLIENT/FIELD IDENTIFICATION: Rinsate

LABORATORY IDENTIFICATION NO.: 37525

Analysis	Units	Concentration	Book/Page	Date	Analyst
Benzene	ug/L	ND (2.0)	173/91250	112591	RS
Toluene	ug/L	ND (2.0)	173/91250	112591	RS
Ethylbenzene	ug/L	ND (2.0)	173/91250	112591	RS
Xylenes (Dimetyhlbenzene)	ug/L	ND (2.0)	173/91250	112591	RS
1,2-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,3-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS
1,4-Dichlorobenzene	ug/L	ND (2.0)	173/91250	112591	RS

End of Sample Number 37525.

CLIENT/FIELD IDENTIFICATION: Quality Control Sample

LABORATORY IDENTIFICATION NO.: Inhouse (6.7 mg/L)

Analysis	Units	Concentration	Book/Page	Date	Analyst
Total Recoverable Petroleum Hydrocarbons	% Recovery	74	363/91110	112691	PH

End of Quality Control Sample.

CLIENT/FIELD IDENTIFICATION: Quality Control Sample

LABORATORY IDENTIFICATION NO.: Batch Matrix Spike (40 mg/L)

Analysis	Units	Concentration	Book/Page	Date	Analyst
1,2-Dichlorobenzene	% Recovery	97	173/91250	112591	RS
1,3-Dichlorobenzene	% Recovery	104	173/91250	112591	RS
1,4-Dichlorobenzene	% Recovery	103	173/91250	112591	RS

End of Quality Control Sample. Report No. 91C20 Continued Next Page.
