

Appendix 7

Ecological Risk Assessment Tables

TABLE 29
AOC 7D - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

Field Sample ID:	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7D-SS-GP1(0-6INCHES)	FGOW-AOC7D-SS-GP2(0-6INCHES)	FGOW-AOC7D-SS-GP3(0-6INCHES)	FGOW-AOC7D-SS-GP4(0-6INCHES)	FGOW-AOC7D-SS-GP5(0-6INCHES)
1,2,4-Trimethylbenzene	95-63-6	ug/kg	NA	2.8 J	0.92 J	5.1 U	6 U	1.4 JJQ
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/kg	35.2	15 U	9.8 U	10 U	12 U	18 U
1,2-Dibromoethane (EDB)	106-93-4	ug/kg	1230.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
1,2-Dichlorobenzene	95-50-1	ug/kg	2960.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
1,2-Dichloroethane	107-06-2	ug/kg	21200.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
1,2-Dichloropropane	78-87-5	ug/kg	32700.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	7.4 U	4.9 U	5.1 U	6 U	8.8 U
1,3-Dichlorobenzene	541-73-1	ug/kg	37700.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
1,3-Dichloropropane	142-28-9	ug/kg	NA	7.4 U	4.9 U	5.1 U	6 U	8.8 U
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
2,2-Dichloropropane	594-20-7	ug/kg	9600.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
2-Butanone (MEK)	78-93-3	ug/kg	89600.0	29 U	20 U	20 U	24 U	35 U
2-Chlorotoluene	95-49-8	ug/kg	NA	7.4 U	4.9 U	5.1 U	6 U	8.8 U
2-Hexanone	591-78-6	ug/kg	12600.0	29 U	20 U	20 U	24 U	35 U
4-Chlorotoluene	106-43-4	ug/kg	NA	7.4 U	4.9 U	5.1 U	6 U	8.8 U
4-Methyl-2-pentanone	108-10-1	ug/kg	443000.0	29 U	20 U	20 U	24 U	35 U
Acetone	67-64-1	ug/kg	2500.0	29 U	20 U	20 U	14 JJ	9.6 JJQ
Benzene	71-43-2	ug/kg	255.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Bromobenzene	108-86-1	ug/kg	NA	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Bromochloromethane	74-97-5	ug/kg	NA	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Bromodichloromethane	75-27-4	ug/kg	540.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Bromoform	75-25-2	ug/kg	15900.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Bromomethane	74-83-9	ug/kg	235.0	15 U	9.8 U	10 U	12 U	18 U
Carbon disulfide	75-15-0	ug/kg	94.1	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Carbon tetrachloride	56-23-5	ug/kg	2980.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Chlorobenzene	108-90-7	ug/kg	13100.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Chloroethane	75-00-3	ug/kg	NA	15 U	9.8 U	10 U	12 U	18 U
Chloroform	67-66-3	ug/kg	1190.0	15 U	9.8 U	10 U	12 U	18 U
Chloromethane	74-87-3	ug/kg	10400.0	15 U	9.8 U	10 U	12 U	18 U
cis-1,2-Dichloroethene	156-59-2	ug/kg	200.0	3.7 U	2.4 U	2.6 U	3 U	4.4 U
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Dibromochloromethane	124-48-1	ug/kg	2050.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Dibromomethane	74-95-3	ug/kg	65000.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Dichlorodifluoromethane	75-71-8	ug/kg	39500.0	15 U	9.8 U	10 U	12 U	18 U
Ethylbenzene	100-41-4	ug/kg	5160.0	1.9 J	4.9 U	5.1 U	6 U	8.8 U
Hexachlorobutadiene	87-68-3	ug/kg	39.8	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Isopropylbenzene	98-82-8	ug/kg	NA	7.4 U	4.9 U	5.1 U	6 U	8.8 U
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	3.6 J	1.3 J	2.6 U	3 U	4.4 U
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	29 U	20 U	20 U	24 U	35 U
Methylene chloride	75-09-2	ug/kg	4050.0	1.2 J	4.9 U	5.1 U	6 U	8.8 U
n-Butylbenzene	104-51-8	ug/kg	NA	7.4 U	4.9 U	5.1 U	6 U	8.8 U
n-Propylbenzene	103-65-1	ug/kg	NA	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Naphthalene	91-20-3	ug/kg	99.4	1.3 J	4.9 U	12 U	1 JJ	2.5 JJQ
o-Xylene	95-47-6	ug/kg	NA	3.7 U	2.4 U	2.6 U	3 U	4.4 U
p-Isopropyltoluene	99-87-6	ug/kg	NA	7.4 U	4.9 U	5.1 U	6 U	8.8 U
sec-Butylbenzene	135-98-8	ug/kg	NA	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Styrene	100-42-5	ug/kg	4690.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
tert-Butylbenzene	98-06-6	ug/kg	NA	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Tetrachloroethene	127-18-4	ug/kg	9920.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Toluene	108-88-3	ug/kg	5450.0	1.8 J	0.81 J	5.1 U	1.2 JJ	8.8 U
trans-1,2-Dichloroethene	156-60-5	ug/kg	784.0	3.7 U	2.4 U	2.6 U	3 U	4.4 U
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Trichloroethene	79-01-6	ug/kg	12400.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Trichlorofluoromethane	75-69-4	ug/kg	16400.0	15 U	9.8 U	10 U	12 U	18 U
Vinyl chloride	75-01-4	ug/kg	646.0	7.4 U	4.9 U	5.1 U	6 U	8.8 U
Other								
Nitrocellulose	9004-70-0		NA		1.1 B			2.9 B

Notes:
Shaded cells indicate chemicals identified as exceeding screening values.
DL = Detection Limit
HQ = Hazard Quotient = Chemical concentration/SV
Max = Maximum Detected Concentration
mg/kg = milligram per kilogram
SV = Screening Value
ug/kg = microgram per kilogram
B - blank contamination above the method detection limit
E - estimated because value is above linear calibration range
J - estimated
j - estimated
K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranthene and benzo(k)fluoranthene
Q - One or more quality control criteria failed
U - undetected at the limit of detection

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FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

Field Sample ID:	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7D-SS-GP6(0-6INCHES)	FGOW-AOC7D-SS-GP7(0-6INCHES)	FGOW-AOC7D-SS-GP8(0-6INCHES)	FGOW-AOC7D-SS-GP9(0-6INCHES)	FGOW-AOC7D-SS-SS1
1,2,4-Trimethylbenzene	95-63-6	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/kg	35.2	12 U	9.2 U	25 U	13 U	
1,2-Dibromoethane (EDB)	106-93-4	ug/kg	1230.0	6 U	4.6 U	13 U	6.3 U	
1,2-Dichlorobenzene	95-50-1	ug/kg	2960.0	6 U	4.6 U	13 U	6.3 U	
1,2-Dichloroethane	107-06-2	ug/kg	21200.0	6 U	4.6 U	13 U	6.3 U	
1,2-Dichloropropane	78-87-5	ug/kg	32700.0	6 U	4.6 U	13 U	6.3 U	
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
1,3-Dichlorobenzene	541-73-1	ug/kg	37700.0	6 U	4.6 U	13 U	6.3 U	
1,3-Dichloropropane	142-28-9	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0	6 U	4.6 U	13 U	6.3 U	
2,2-Dichloropropane	594-20-7	ug/kg	9600.0	6 U	4.6 U	13 U	6.3 U	
2-Butanone (MEK)	78-93-3	ug/kg	89600.0	24 U	18 U	50 U	25 U	
2-Chlorotoluene	95-49-8	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
2-Hexanone	591-78-6	ug/kg	12600.0	24 U	18 U	50 U	25 U	
4-Chlorotoluene	106-43-4	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
4-Methyl-2-pentanone	108-10-1	ug/kg	443000.0	24 U	18 U	50 U	25 U	
Acetone	67-64-1	ug/kg	2500.0	24 U	18 U	50 U	25 U	
Benzene	71-43-2	ug/kg	255.0	6 U	4.6 U	13 U	6.3 U	
Bromobenzene	108-86-1	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
Bromochloromethane	74-97-5	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
Bromodichloromethane	75-27-4	ug/kg	540.0	6 U	4.6 U	13 U	6.3 U	
Bromoform	75-25-2	ug/kg	15900.0	6 U	4.6 U	13 U	6.3 U	
Bromomethane	74-83-9	ug/kg	235.0	12 U	9.2 U	25 U	13 U	
Carbon disulfide	75-15-0	ug/kg	94.1	6 U	4.6 U	13 U	6.3 U	
Carbon tetrachloride	56-23-5	ug/kg	2980.0	6 U	4.6 U	13 U	6.3 U	
Chlorobenzene	108-90-7	ug/kg	13100.0	6 U	4.6 U	13 U	6.3 U	
Chloroethane	75-00-3	ug/kg	NA	12 U	9.2 U	25 U	13 U	
Chloroform	67-66-3	ug/kg	1190.0	12 U	9.2 U	25 U	13 U	
Chloromethane	74-87-3	ug/kg	10400.0	12 U	9.2 U	25 U	13 U	
cis-1,2-Dichloroethene	156-59-2	ug/kg	200.0	3 U	2.3 U	6.3 U	3.2 U	
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398.0	6 U	4.6 U	13 U	6.3 U	
Dibromochloromethane	124-48-1	ug/kg	2050.0	6 U	4.6 U	13 U	6.3 U	
Dibromomethane	74-95-3	ug/kg	65000.0	6 U	4.6 U	13 U	6.3 U	
Dichlorodifluoromethane	75-71-8	ug/kg	39500.0	12 U	9.2 U	25 U	13 U	
Ethylbenzene	100-41-4	ug/kg	5160.0	6 U	4.6 U	13 U	6.3 U	
Hexachlorobutadiene	87-68-3	ug/kg	39.8	6 U	4.6 U	13 U	6.3 U	
Isopropylbenzene	98-82-8	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	3 U	2.3 U	6.3 U	3.2 U	
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	24 U	18 U	50 U	25 U	
Methylene chloride	75-09-2	ug/kg	4050.0	6 U	4.6 U	2 JBU	6.3 U	
n-Butylbenzene	104-51-8	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
n-Propylbenzene	103-65-1	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
Naphthalene	91-20-3	ug/kg	99.4	0.95 J	3.8 J	4.7 J	1.4 J	
o-Xylene	95-47-6	ug/kg	NA	3 U	2.3 U	6.3 U	3.2 U	
p-Isopropyltoluene	99-87-6	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
sec-Butylbenzene	135-98-8	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
Styrene	100-42-5	ug/kg	4690.0	6 U	4.6 U	13 U	6.3 U	
tert-Butylbenzene	98-06-6	ug/kg	NA	6 U	4.6 U	13 U	6.3 U	
Tetrachloroethene	127-18-4	ug/kg	9920.0	6 U	4.6 U	13 U	6.3 U	
Toluene	108-88-3	ug/kg	5450.0	6 U	4.6 U	13 U	6.3 U	
trans-1,2-Dichloroethene	156-60-5	ug/kg	784.0	3 U	2.3 U	6.3 U	3.2 U	
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398.0	6 U	4.6 U	13 U	6.3 U	
Trichloroethene	79-01-6	ug/kg	12400.0	6 U	4.6 U	13 U	6.3 U	
Trichlorofluoromethane	75-69-4	ug/kg	16400.0	12 U	9.2 U	25 U	13 U	
Vinyl chloride	75-01-4	ug/kg	646.0	6 U	4.6 U	13 U	6.3 U	
Other								
Nitrocellulose	9004-70-0		NA	1.3 B			3.6 B	1.1 B

Notes:

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DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

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B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

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K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranth

Q - One or more quality control criteria failed

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FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

Field Sample ID:	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7D-SS-SS2	FGOW-AOC7D-SS-SS3	FGOW-AOC7D-SS-SS4	Comments	Exceeds Screening Value?
PCBs								
Aroclor 1016	12674-11-2	ug/kg	NA		40 U	82 U	No SV	No SV
Aroclor 1221	11104-28-2	ug/kg	NA		40 U	82 U	No SV	No SV
Aroclor 1232	11141-16-5	ug/kg	NA		40 U	82 U	No SV	No SV
Aroclor 1242	53469-21-9	ug/kg	NA		40 U	82 U	No SV	No SV
Aroclor 1248	12672-29-6	ug/kg	NA		40 U	82 U	No SV	No SV
Aroclor 1254	11097-69-1	ug/kg	NA		64 J	320 JJ	Detected; No SV	No SV
Aroclor 1260	11096-82-5	ug/kg	NA		42 J	190 JJ	Detected; No SV	No SV
Explosives								
2,4-Dinitrotoluene	121-14-2	mg/kg	1.3	0.25 U				No
2,6-Dinitrotoluene	606-20-2	mg/kg	0.033	0.25 U			DL>SV	Yes
Metals								
Arsenic	7440-38-2	mg/kg	18.0					No
Barium	7440-39-3	mg/kg	330.0				Max>SV; maxHQ=1.03	Yes
Cadmium	7440-43-9	mg/kg	0.4				Max>SV; maxHQ=5.56	Yes
Chromium	7440-47-3	mg/kg	26.0				Max>SV; maxHQ=1.08	Yes
Lead	7439-92-1	mg/kg	11.0				Max>SV; maxHQ=66.36	Yes
Mercury	7439-97-6	mg/kg	0.1				Max>SV; maxHQ=11.00	Yes
Selenium	7782-49-2	mg/kg	0.5				Max>SV; maxHQ=5.38	Yes
Silver	7440-22-4	mg/kg	4.2					No
SVOCs								
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110.0					No
1,2-Dichlorobenzene	95-50-1	ug/kg	2960.0					No
1,2-Diphenylhydrazine	122-66-7	ug/kg	NA				No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	37700.0					No
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0				DL>SV	Yes
2,4,5-Trichlorophenol	95-95-4	ug/kg	14100.0					No
2,4,6-Trichlorophenol	88-06-2	ug/kg	9940.0					No
2,4-Dichlorophenol	120-83-2	ug/kg	87500.0					No
2,4-Dimethylphenol	105-67-9	ug/kg	10.0				DL>SV	Yes
2,4-Dinitrophenol	51-28-5	ug/kg	60.9				DL>SV	Yes
2,4-Dinitrotoluene	121-14-2	ug/kg	1.3				See explosives analysis	
2,6-Dichlorophenol	87-65-0	ug/kg	1170.0					No
2,6-Dinitrotoluene	606-20-2	ug/kg	0.0				See explosives analysis	
2-Chloronaphthalene	91-58-7	ug/kg	12.2				DL>SV	Yes
2-Chlorophenol	95-57-8	ug/kg	243.0				DL>SV	Yes
2-Methylnaphthalene	91-57-6	ug/kg	3240.0					No
2-Methylphenol	95-48-7	ug/kg	40400.0					No
2-Nitroaniline	88-74-4	ug/kg	74100.0					No
2-Nitrophenol	88-75-5	ug/kg	1600.0					No
3,3-Dichlorobenzidine	91-94-1	ug/kg	646.0				DL>SV	Yes
3-Methylphenol & 4-Methylphenol	65794-96-9	ug/kg	NA				No SV	No SV
3-Nitroaniline	99-09-2	ug/kg	3160.0				DL>SV	Yes
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	144.0				DL>SV	Yes
4-Bromophenyl phenyl ether	101-55-3	ug/kg	NA				No SV	No SV
4-Chloro-3-methylphenol	59-50-7	ug/kg	7950.0					No
4-Chloroaniline	106-47-8	ug/kg	1100.0					No
4-Chlorophenyl phenyl ether	7005-72-3	ug/kg	NA				No SV	No SV
4-Nitroaniline	100-01-6	ug/kg	21900.0					No
4-Nitrophenol	100-02-7	ug/kg	5120.0					No
Acenaphthene	83-32-9	ug/kg	682000.0					No
Acenaphthylene	208-96-8	ug/kg	628000.0					No
Anthracene	120-12-7	ug/kg	1480000.0					No
Benzidine	92-87-5	ug/kg	NA				No SV	No SV
Benzo(a)anthracene	56-55-3	ug/kg	5210.0				Max>SV; maxHQ=1.28	Yes
Benzo(a)pyrene	50-32-8	ug/kg	1520.0				Max>SV; maxHQ=3.62	Yes
Benzo(b)fluoranthene	205-99-2	ug/kg	59800.0					No
Benzo(ghi)perylene	191-24-2	ug/kg	119000.0					No
Benzo(k)fluoranthene	207-08-9	ug/kg	148000.0					No
Benzoic acid	65-85-0	ug/kg	NA				No SV	No SV
Benzyl alcohol	100-51-6	ug/kg	65800.0					No
bis(2-Chloroethoxy)methane	111-91-1	ug/kg	302.0				DL>SV	Yes
bis(2-Chloroethyl) ether	111-44-4	ug/kg	23700.0					No
bis(2-Chloroisopropyl) ether	108-60-1	ug/kg	19900.0					No
bis(2-Ethylhexyl) phthalate	117-81-7	ug/kg	925.0				Max>SV; maxHQ=10.81	Yes
Butyl benzyl phthalate	85-68-7	ug/kg	239.0				DL>SV	Yes
Carbazole	86-74-8	ug/kg	NA				Detected; No SV	No SV
Chrysene	218-01-9	ug/kg	4730.0				Max>SV; maxHQ=1.31	Yes
Di-n-butyl phthalate	84-74-2	ug/kg	150.0				DL>SV	Yes
Di-n-octyl phthalate	117-84-0	ug/kg	709000.0					No
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400.0					No
Dibenzofuran	132-64-9	ug/kg	NA				Detected; No SV	No SV
Diethyl phthalate	84-66-2	ug/kg	24800.0					No
Dimethyl phthalate	131-11-3	ug/kg	734000.0					No
Diphenylamine	122-39-4		1010.0	450 U				No
Fluoranthene	206-44-0	ug/kg	122000.0					No
Fluorene	86-73-7	ug/kg	122000.0					No
Hexachlorobenzene	118-74-1	ug/kg	199.0				DL>SV	Yes
Hexachlorobutadiene	87-68-3	ug/kg	39.8				DL>SV	Yes
Hexachloroethane	67-72-1	ug/kg	596.0				DL>SV	Yes
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12600.0					No
Isophorone	78-59-1	ug/kg	139000.0					No
N-Nitrosodi-n-propylamine	621-64-7	ug/kg	544.0				DL>SV	Yes
N-Nitrosodimethylamine	62-75-9	ug/kg	0.0				DL>SV	Yes
N-Nitrosodiphenylamine	86-30-6	ug/kg	545.0				DL>SV	Yes
N-Nitrosopyrrolidine	930-55-2	ug/kg	12.6				DL>SV	Yes
Naphthalene	91-20-3	ug/kg	99.4				Max>SV; maxHQ=2.72	Yes
Nitrobenzene	98-95-3	ug/kg	1310.0					No
Pentachlorophenol	87-86-5	ug/kg	2100.0					No
Phenanthrene	85-01-8	ug/kg	45700.0					No
Phenol	108-95-2	ug/kg	120000.0					No
Pyrene	129-00-0	ug/kg	78500.0					No
VOCs								
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	225000.0					No
1,1,1-Trichloroethane	71-55-6	ug/kg	29800.0					No
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	127.0					No
1,1,2-Trichloroethane	79-00-5	ug/kg	28600.0					No
1,1-Dichloroethane	75-34-3	ug/kg	20100.0					No
1,1-Dichloroethene	75-35-4	ug/kg	8280.0					No
1,1-Dichloropropene	563-58-6	ug/kg	NA				No SV	No SV
1,2,3-Trichlorobenzene	87-61-6	ug/kg	NA				No SV	No SV
1,2,3-Trichloropropane	96-18-4	ug/kg	3360.0					No
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110.0					No

TABLE 29
AOC 7D - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

Field Sample ID:	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7D-SS-SS2	FGOW-AOC7D-SS-SS3	FGOW-AOC7D-SS-SS4	Comments	Exceeds Screening Value?
1,2,4-Trimethylbenzene	95-63-6	ug/kg	NA				Detected; No SV	No SV
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/kg	35.2					No
1,2-Dibromoethane (EDB)	106-93-4	ug/kg	1230.0					No
1,2-Dichlorobenzene	95-50-1	ug/kg	2960.0					No
1,2-Dichloroethane	107-06-2	ug/kg	21200.0					No
1,2-Dichloropropane	78-87-5	ug/kg	32700.0					No
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA				No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	37700.0				No	No
1,3-Dichloropropane	142-28-9	ug/kg	NA				No SV	No SV
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0					No
2,2-Dichloropropane	594-20-7	ug/kg	9600.0					No
2-Butanone (MEK)	78-93-3	ug/kg	89600.0					No
2-Chlorotoluene	95-49-8	ug/kg	NA				No SV	No SV
2-Hexanone	591-78-6	ug/kg	12600.0					No
4-Chlorotoluene	106-43-4	ug/kg	NA				No SV	No SV
4-Methyl-2-pentanone	108-10-1	ug/kg	443000.0					No
Acetone	67-64-1	ug/kg	2500.0					No
Benzene	71-43-2	ug/kg	255.0					No
Bromobenzene	108-86-1	ug/kg	NA				No SV	No SV
Bromochloromethane	74-97-5	ug/kg	NA				No SV	No SV
Bromodichloromethane	75-27-4	ug/kg	540.0					No
Bromoform	75-25-2	ug/kg	15900.0					No
Bromomethane	74-83-9	ug/kg	235.0					No
Carbon disulfide	75-15-0	ug/kg	94.1					No
Carbon tetrachloride	56-23-5	ug/kg	2980.0					No
Chlorobenzene	108-90-7	ug/kg	13100.0					No
Chloroethane	75-00-3	ug/kg	NA				No SV	No SV
Chloroform	67-66-3	ug/kg	1190.0					No
Chloromethane	74-87-3	ug/kg	10400.0					No
cis-1,2-Dichloroethene	156-59-2	ug/kg	200.0					No
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398.0					No
Dibromochloromethane	124-48-1	ug/kg	2050.0					No
Dibromomethane	74-95-3	ug/kg	65000.0					No
Dichlorodifluoromethane	75-71-8	ug/kg	39500.0					No
Ethylbenzene	100-41-4	ug/kg	5160.0					No
Hexachlorobutadiene	87-68-3	ug/kg	39.8					No
Isopropylbenzene	98-82-8	ug/kg	NA				No SV	No SV
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA				Detected; No SV	No SV
Methyl tert-butyl ether	1634-04-4	ug/kg	NA				No SV	No SV
Methylene chloride	75-09-2	ug/kg	4050.0					No
n-Butylbenzene	104-51-8	ug/kg	NA				No SV	No SV
n-Propylbenzene	103-65-1	ug/kg	NA				No SV	No SV
Naphthalene	91-20-3	ug/kg	99.4					No
o-Xylene	95-47-6	ug/kg	NA				No SV	No SV
p-Isopropyltoluene	99-87-6	ug/kg	NA				No SV	No SV
sec-Butylbenzene	135-98-8	ug/kg	NA				No SV	No SV
Styrene	100-42-5	ug/kg	4690.0					No
tert-Butylbenzene	98-06-6	ug/kg	NA				No SV	No SV
Tetrachloroethene	127-18-4	ug/kg	9920.0					No
Toluene	108-88-3	ug/kg	5450.0					No
trans-1,2-Dichloroethene	156-60-5	ug/kg	784.0					No
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398.0					No
Trichloroethene	79-01-6	ug/kg	12400.0					No
Trichlorofluoromethane	75-69-4	ug/kg	16400.0					No
Vinyl chloride	75-01-4	ug/kg	646.0					No
Other								
Nitrocellulose	9004-70-0		NA	5	B		Detected; No SV	No SV

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluorant

Q - One or more quality control criteria failed

U - undetected at the limit of detection

Hid DRO/GRO rows - affects the following tables

2
20
22
27
29

TABLE 1

**PRELIMINARY ASSESSMENT ENDPOINTS, RISK HYPOTHESES, AND MEASUREMENT ENDPOINTS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Assessment Endpoint	Risk Hypothesis	Measurement Endpoint
Terrestrial Habitats:		
Survival, growth, and reproduction of terrestrial soil invertebrates.	Are site-related chemical concentrations in soil sufficient to adversely affect soil invertebrate communities based on conservative screening values?	Comparison of maximum chemical concentrations in soil with soil screening values.
Survival, growth, and reproduction of terrestrial soil plant communities.	Are site-related chemical concentrations in soil sufficient to adversely affect soil plant communities based on conservative screening values?	Comparison of maximum chemical concentrations in soil with soil screening values.
Survival, growth, and reproduction of terrestrial avian herbivores.	Are site-related chemical concentrations in soils and surface water sufficient to cause adverse effects (on growth, survival, or reproduction) to avian species that may consume terrestrial plants and drinking water from the site?	Comparison of literature-derived chronic No Observed Adverse Effect Level (NOAEL) values for survival, growth, or reproductive effects with modeled dietary exposures based on maximum soil and surface water concentrations.
Survival, growth, and reproduction of terrestrial avian omnivores.	Are site-related chemical concentrations in soils and surface waters sufficient to cause adverse effects (on growth, survival, or reproduction) to avian species that may consume terrestrial plants, soil invertebrates, and drinking water from the site?	Comparison of literature-derived chronic NOAEL values for survival, growth, or reproductive effects with modeled dietary exposures based on maximum soil and surface water concentrations.
Survival, growth, and reproduction of terrestrial avian carnivores.	Are site-related chemical concentrations in soils and surface waters sufficient to cause adverse effects (on growth, survival, or reproduction) to avian species that may consume small mammals and drinking water from the site?	Comparison of literature-derived chronic NOAEL values for survival, growth, or reproductive effects with modeled dietary exposures based on maximum soil and surface water concentrations.
Survival, growth, and reproduction of terrestrial mammalian herbivores.	Are site-related chemical concentrations in soils and surface waters sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian species that may consume terrestrial plants and drinking water from the site?	Comparison of literature-derived chronic NOAEL values for survival, growth, or reproductive effects with modeled dietary exposures based on maximum soil and surface water concentrations.

TABLE 1

**PRELIMINARY ASSESSMENT ENDPOINTS, RISK HYPOTHESES, AND MEASUREMENT ENDPOINTS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Assessment Endpoint	Risk Hypothesis	Measurement Endpoint
Terrestrial Habitats:		
Survival, growth, and reproduction of terrestrial mammalian insectivores.	Are site-related chemical concentrations in soils and surface waters sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian species that may consume terrestrial soil invertebrates and <u>drinking water from the site?</u>	Comparison of literature-derived chronic NOAEL values for survival, growth, or reproductive effects with modeled dietary exposures based on maximum soil and surface water concentrations.
Survival, growth, and reproduction of terrestrial mammalian omnivores.	Are site-related chemical concentrations in soils and surface waters sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian species that may consume terrestrial plants, soil invertebrates, and drinking water from the site?	Comparison of literature-derived chronic NOAEL values for survival, growth, or reproductive effects with modeled dietary exposures based on maximum soil and surface water concentrations.
Survival, growth, and reproduction of terrestrial mammalian carnivores.	Are site-related chemical concentrations in soils and surface waters sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian species that may consume small mammals and drinking water <u>from the site?</u>	Comparison of literature-derived chronic NOAEL values for survival, growth, or reproductive effects with modeled dietary exposures based on maximum soil and surface water concentrations.
Survival, growth, and reproduction of terrestrial reptiles.	Are site-related chemical concentrations in soils and surface waters sufficient to cause adverse effects (on growth, survival, or reproduction) to terrestrial reptiles?	Qualitative examination of exposures and risks to ecological receptors occupying similar trophic levels.
Aquatic Habitat:		
Survival, growth, and reproduction of benthic invertebrate communities.	Are site-related chemical concentrations in surface water and sediment sufficient to adversely effect benthic <u>invertebrate communities?</u>	Comparison of maximum chemical concentrations in surface water and sediment with media-specific <u>screening values.</u>
Survival, growth, and reproduction of aquatic plant communities.	Are site-related chemical concentrations in surface water and sediment sufficient to adversely effect aquatic plant <u>communities?</u>	Comparison of maximum chemical concentrations in surface water and sediment with media-specific <u>screening values.</u>

TABLE 1

**PRELIMINARY ASSESSMENT ENDPOINTS, RISK HYPOTHESES, AND MEASUREMENT ENDPOINTS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Assessment Endpoint	Risk Hypothesis	Measurement Endpoint
Aquatic Habitat:		
Survival, growth, and reproduction of aquatic reptiles and amphibians.	Are site-related chemical concentrations in surface water and/or sediment sufficient to cause adverse effects (on growth, survival, or reproduction) to aquatic reptilian or amphibian species?	Qualitative examination of exposures and risks to ecological receptors occupying similar trophic levels.
Survival, growth, and reproduction of aquatic mammalian omnivores.	Are site-related chemical concentrations in surface water and sediment sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian species that may consume aquatic vegetation, prey (aquatic invertebrates, and amphibians), and drinking water from the site?	Comparison of literature-derived chronic NOAEL values for survival, growth, or reproductive effects with modeled dietary exposures based on maximum surface water and sediment concentrations.

**TABLE 2
MEDIUM-SPECIFIC SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Analyte:	CAS Number	Units	Soil Screening Value	Reference	Sediment Screening Value	Reference	Fresh Surface Water Screening Value	Reference
Explosives (mg/kg or ug/L)								
2,4-Dinitrotoluene	121-14-2	mg/kg	1.28	USEPA 2003	0.0144	USEPA 2003	230	MPCA 2006 - value for DNT
2,6-Dinitrotoluene	606-20-2	mg/kg	0.0328	USEPA 2003	0.0398	USEPA 2003	230	MPCA 2006 - value for DNT
Metals (mg/kg or ug/L)								
Arsenic	7440-38-2	mg/kg	18	USEPA 2005a	9.79	MacDonald et al. 2000	2	MPCA 2006
Barium	7440-39-3	mg/kg	330	USEPA 2005b	NA		2000	MPCA 2006; Tier 2 value for 1B waters
Cadmium	7440-43-9	mg/kg	0.36	USEPA 2005c	0.99	MacDonald et al. 2000	1.13426	MPCA 2006; hardness dependent ⁽¹⁾⁽²⁾
Chromium	7440-47-3	mg/kg	26	USEPA 2005d	43.4	MacDonald et al. 2000	100	MPCA 2006
Lead	7439-92-1	mg/kg	11	USEPA 2005e	35.8	MacDonald et al. 2000	3.1816	MPCA 2006; hardness dependent ⁽¹⁾
Mercury	7439-97-6	mg/kg	0.1	USEPA 2003 - invertebrates	0.174	MacDonald et al. 2000	0.0069	MPCA 2006
Selenium	7782-49-2	mg/kg	0.52	USEPA 2007a	NA		5	MPCA 2006
Silver	7440-22-4	mg/kg	4.2	USEPA 2006	0.5	USEPA 2003 - OMOE value	0.12	MPCA 2006
SVOCs (ug/kg or ug/L)								
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11,110	USEPA 2003	5,062	USEPA 2003	70	MPCA 2006
1,2-Dichlorobenzene	95-50-1	ug/kg	2,960	USEPA 2003	1315	USEPA 2003	14	MPCA 2006
1,2-Diphenylhydrazine	122-66-7	ug/kg	NA		NA		NA	MPCA 2006
1,3-Dichlorobenzene	541-73-1	ug/kg	37,700	USEPA 2003	1,315	USEPA 2003	71	MPCA 2006
1,4-Dichlorobenzene	106-46-7	ug/kg	546	USEPA 2003	318	USEPA 2003	15	MPCA 2006
2,4,5-Trichlorophenol	95-95-4	ug/kg	14,100	USEPA 2003	NA		64	TNRCC 2001 (USEPA Region 6)
2,4,6-Trichlorophenol	88-06-2	ug/kg	9,940	USEPA 2003	208	USEPA 2003	2.0	MPCA 2006
2,4-Dichlorophenol	120-83-2	ug/kg	87,500	USEPA 2003	81.7	USEPA 2003	11	USEPA 2003 - OH water quality standard
2,4-Dimethylphenol	105-67-9	ug/kg	10	USEPA 2003 - plant exposure	304	USEPA 2003	Use Tier 2 ⁽¹⁾	MPCA 2006
2,4-Dinitrophenol	51-28-5	ug/kg	60.9	USEPA 2003	6.21	USEPA 2003	Use Tier 2 ⁽¹⁾	MPCA 2006
2,4-Dinitrotoluene	121-14-2	ug/kg	1280	USEPA 2003	14.4	USEPA 2003	44	USEPA 2003 - OH water quality standard
2,6-Dichlorophenol	87-65-0	ug/kg	1170	USEPA 2003	NA		NA	
2,6-Dinitrotoluene	606-20-2	ug/kg	32.8	USEPA 2003	39.8	USEPA 2003	81	USEPA 2003 - OH water quality standard
2-Chloronaphthalene	91-58-7	ug/kg	12.2	USEPA 2003	417	USEPA 2003	0.396	USEPA 2003 - mink
2-Chlorophenol	95-57-8	ug/kg	243	USEPA 2003	31.9	USEPA 2003	2000	MPCA 2006
2-Methylnaphthalene	91-57-6	ug/kg	3,240	USEPA 2003	20.2	CCME 1999	330	USEPA 2003 - mink
2-Methylphenol	95-48-7	ug/kg	40,400	USEPA 2003	55.4	USEPA 2003	13	MPCA 2006
2-Nitroaniline	88-74-4	ug/kg	74,100	USEPA 2003	NA		NA	
2-Nitrophenol	88-75-5	ug/kg	1600	USEPA 2003	NA		1,920	TNRCC 2001 (USEPA Region 6)
3,3-Dichlorobenzidine	91-94-1	ug/kg	646	USEPA 2003	127	USEPA 2003	4.5	USEPA 2003 - MI water quality standard
3-Methylphenol & 4-Methylphenol	65794-96-9	ug/kg	NA		NA		NA	
3-Nitroaniline	99-09-2	ug/kg	3,160	USEPA 2003	NA		NA	
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	144	USEPA 2003	104	USEPA 2003	23	USEPA 2003 - USEPA Ambient Water Quality Criteria for Nitrophenols
4-Bromophenyl phenyl ether	101-55-3	ug/kg	NA		1550	USEPA 2003	1.5	MPCA 2006
4-Chloro-3-methylphenol	59-50-7	ug/kg	7950	USEPA 2003	388	USEPA 2003	34.8	USEPA 2003 - Interim Criteria
4-Chloroaniline	106-47-8	ug/kg	1100	USEPA 2003	146	USEPA 2003	232	USEPA 2003 - RCRA interim criteria
4-Chlorophenyl phenyl ether	7005-72-3	ug/kg	NA		NA		NA	
4-Nitroaniline	100-01-6	ug/kg	21,900	USEPA 2003	NA		NA	
4-Nitrophenol	100-02-7	ug/kg	5,120	USEPA 2003	13.3	USEPA 2003	300	MPCA 2006
Acenaphthene	83-32-9	ug/kg	682,000	USEPA 2003	6.71	CCME 1999	20	MPCA 2006

**TABLE 2
MEDIUM-SPECIFIC SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Analyte:	CAS Number	Units	Soil Screening Value	Reference	Sediment Screening Value	Reference	Fresh Surface Water Screening Value	Reference
Acenaphthylene	208-96-8	ug/kg	628,000	USEPA 2003	5.87	CCME 1999	4,840	USEPA 2003 - mink
Anthracene	120-12-7	ug/kg	1,480,000	USEPA 2003	57.2	MacDonald et al. 2000	0.035	MPCA 2006
Benizidine	92-87-5	ug/kg	NA		NA		3.9	MPCA 2006
Benzo(a)anthracene	56-55-3	ug/kg	5210	USEPA 2003	108	MacDonald et al. 2000	0.027	MPCA 2006
Benzo(a)pyrene	50-32-8	ug/kg	1520	USEPA 2003	150	MacDonald et al. 2000	0.2	MPCA 2006; Tier II value for 1B waters
Benzo(b)fluoranthene	205-99-2	ug/kg	59,800	USEPA 2003	10,400	USEPA 2003	9.07	USEPA 2003 - mink
Benzo(ghi)perylene	191-24-2	ug/kg	119,000	USEPA 2003	170	USEPA 2003 - OMOE value	7.64	USEPA 2003 - mink
Benzo(k)fluoranthene	207-08-9	ug/kg	148,000	USEPA 2003	240	USEPA 2003 - OMOE value	NA	
Benzoic acid	65-85-0	ug/kg	NA		NA		42	MPCA 2006
Benzyl alcohol	100-51-6	ug/kg	65,800	USEPA 2003	1.04	USEPA 2003	8.6	MPCA 2006
bis(2-Chloroethoxy)methane	111-91-1	ug/kg	302	USEPA 2003 - meadow vole	NA		NA	
bis(2-Chloroethyl) ether	111-44-4	ug/kg	23,700	USEPA 2003 - meadow vole	3520	USEPA 2003	19,000	USEPA 2003 - USEPA Ambient Water Quality
bis(2-Chloroisopropyl) ether	108-60-1	ug/kg	19,900	USEPA 2003	NA		NA	
bis(2-Ethylhexyl) phthalate	117-81-7	ug/kg	925	USEPA 2003	182	USEPA 2003 - Environment Canada value	1.9	MPCA 2006
Butyl benzyl phthalate	85-68-7	ug/kg	239	USEPA 2003	1,970	USEPA 2003	19	MPCA 2006
Carbazole	86-74-8	ug/kg	NA		NA		NA	
Chrysene	218-01-9	ug/kg	4,730	USEPA 2003	166	MacDonald et al. 2000	NA	
Di-n-butyl phthalate	84-74-2	ug/kg	150	USEPA 2003	1114	USEPA 2003	35	MPCA 2006
Di-n-octyl phthalate	117-84-0	ug/kg	709,000	USEPA 2003	40,600	USEPA 2003	30	MPCA 2006
Dibenz(a,h)anthracene	53-70-3	ug/kg	18,400	USEPA 2003	33	MacDonald et al. 2000, CCME 1999	NA	
Dibenzofuran	132-64-9	ug/kg	NA		449	USEPA 2003	3.7	MPCA 2006
Diethyl phthalate	84-66-2	ug/kg	24,800	USEPA 2003	295	USEPA 2003	Use Tier 2 ⁽¹⁾	MPCA 2006
Dimethyl phthalate	131-11-3	ug/kg	734,000	USEPA 2003	NA		330	TNRCC 2001 (USEPA Region 6)
Fluoranthene	206-44-0	ug/kg	122,000	USEPA 2003	423	MacDonald et al. 2000	1.9	MPCA 2006
Fluorene	86-73-7	ug/kg	122,000	USEPA 2003	77.4	MacDonald et al. 2000	3.9	MPCA 2006
Hexachlorobenzene	118-74-1	ug/kg	199	USEPA 2003	20	USEPA 2003 - OMOE value	0.000061	MPCA 2006
Hexachlorobutadiene	87-68-3	ug/kg	39.8	USEPA 2003	26.5	USEPA 2003	9.3	MPCA 2006
Hexachloroethane	67-72-1	ug/kg	596	USEPA 2003	584	USEPA 2003	12	MPCA 2006
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12,600	USEPA 2003	58.2	USEPA 2003	99	USEPA 2003 - GLQWI Tier II value
Isophorone	78-59-1	ug/kg	139,000	USEPA 2003	432	USEPA 2003	920	USEPA 2003 - OH water quality standard
N-Nitrosodi-n-propylamine	621-64-7	ug/kg	544	USEPA 2003	NA		20	TNRCC 2001 (USEPA Region 6)
N-Nitrosodimethylamine	62-75-9	ug/kg	0.0321	USEPA 2003 - meadow vole	NA		94,000	TNRCC 2001 (USEPA Region 6)
N-Nitrosodiphenylamine	86-30-6	ug/kg	545	USEPA 2003	NA		210	MPCA 2006
N-Nitrosopyrrolidine	930-55-2	ug/kg	12.6	USEPA 2003 - meadow vole	NA		NA	
Naphthalene	91-20-3	ug/kg	99.4	USEPA 2003	176	MacDonald et al. 2000	81	MPCA 2006
Nitrobenzene	98-95-3	ug/kg	1310	USEPA 2003	145	USEPA 2003	220	USEPA 2003 - MI water quality standard
Pentachlorophenol	87-86-5	ug/kg	2100	USEPA 2007b	23,000	USEPA 2003	0.93	MPCA 2006
Phenanthrene	85-01-8	ug/kg	45,700	USEPA 2003	204	MacDonald et al. 2000	3.6	MPCA 2006
Phenol	108-95-2	ug/kg	120,000	USEPA 2003	49.1	USEPA 2003	123	MPCA 2006
Pyrene	129-00-0	ug/kg	78,500	USEPA 2003	195	MacDonald et al. 2000	0.3	USEPA 2003 - Interim Criteria
Total PAHs (Low Molecular Weight)	130498-29-2	ug/kg	29	USEPA 2007c	NA	MacDonald et al. 2000	NA	
Total PAHs (High Molecular Weight)	130498-29-2	ug/kg	1.1	USEPA 2007c	NA	MacDonald et al. 2000	NA	
VOCs								
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	225,000	USEPA 2003	NA		NA	
1,1,1-Trichloroethane	71-55-6	ug/kg	29,800	USEPA 2003	5062	USEPA 2003	200	MPCA 2006
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	127	USEPA 2003	850	USEPA 2003	1.1	MPCA 2006
1,1,2-Trichloroethane	79-00-5	ug/kg	28,600	USEPA 2003	518	USEPA 2003	5	MPCA 2006; Tier II value for 1B waters

**TABLE 2
MEDIUM-SPECIFIC SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Analyte:	CAS Number	Units	Soil Screening Value	Reference	Sediment Screening Value	Reference	Fresh Surface Water Screening Value	Reference
1,1-Dichloroethane	75-34-3	ug/kg	20,100	USEPA 2003	0.575	USEPA 2003	47	MPCA 2006
1,1-Dichloroethene	75-35-4	ug/kg	8,280	USEPA 2003	19.4	USEPA 2003	7	MPCA 2006
1,1-Dichloropropene	563-58-6	ug/kg	NA		NA		NA	
1,2,3-Trichlorobenzene	87-61-6	ug/kg	NA		NA		8	Environment Canada 2002
1,2,3-Trichloropropane	96-18-4	ug/kg	3360	USEPA 2003	NA		NA	
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11,100	USEPA 2003	5062	USEPA 2003	70	MPCA 2006
1,2,4-Trimethylbenzene	95-63-6	ug/kg	NA		NA		77	TNRCC 2001 (USEPA Region 6)
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/kg	35.2	USEPA 2003	NA		0.2	MPCA 2006
1,2-Dibromoethane (EDB)	106-93-4	ug/kg	1230	USEPA 2003	NA		0.05	MPCA 2006
1,2-Dichlorobenzene	95-50-1	ug/kg	2,960	USEPA 2003	294	USEPA 2003	14	MPCA 2006
1,2-Dichloroethane	107-06-2	ug/kg	21,200	USEPA 2003	260	USEPA 2003	3.5	MPCA 2006
1,2-Dichloropropane	78-87-5	ug/kg	32,700	USEPA 2003	333	USEPA 2003	5	MPCA 2006
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA		NA		71	TNRCC 2001 (USEPA Region 6)
1,3-Dichlorobenzene	541-73-1	ug/kg	37,700	USEPA 2003	1315	USEPA 2003	71	MPCA 2006
1,3-Dichloropropane	142-28-9	ug/kg	NA		NA		NA	
1,4-Dichlorobenzene	106-46-7	ug/kg	546	USEPA 2003	318	USEPA 2003	15	MPCA 2006
2,2-Dichloropropane	594-20-7	ug/kg	9,600	USEPA 2003	NA		NA	
2-Butanone (MEK)	78-93-3	ug/kg	89,600	USEPA 2003 - meadow vole	42.4	USEPA 2003	14000	MPCA 2006
2-Chlorotoluene	95-49-8	ug/kg	NA		NA		NA	MPCA 2006
2-Hexanone	591-78-6	ug/kg	12,600	USEPA 2003	58.2	USEPA 2003	99	MPCA 2006
4-Chlorotoluene	106-43-4	ug/kg	NA		NA		NA	
4-Methyl-2-pentanone	108-10-1	ug/kg	443,000	USEPA 2003	25.1	USEPA 2003	170	MPCA 2006
Acetone	67-64-1	ug/kg	2500	USEPA 2003 - meadow vole	9.9	USEPA 2003	1500	MPCA 2006
Benzene	71-43-2	ug/kg	255	USEPA 2003	142	USEPA 2003	5	MPCA 2006
Bromobenzene	108-86-1	ug/kg	NA		NA		NA	
Bromochloromethane	74-97-5	ug/kg	NA		NA		NA	
Bromodichloromethane	75-27-4	ug/kg	540	USEPA 2003	NA		4,320	TNRCC 2001 (USEPA Region 6)
Bromoform	75-25-2	ug/kg	15,900	USEPA 2003	492	USEPA 2003	33	MPCA 2006
Bromomethane	74-83-9	ug/kg	235	USEPA 2003 - meadow vole	1.37	USEPA 2003	16	USEPA 2003 - OH water quality standard
Carbon disulfide	75-15-0	ug/kg	94.1	USEPA 2003	23.9	USEPA 2003	0.92	MPCA 2006
Carbon tetrachloride	56-23-5	ug/kg	2,980	USEPA 2003	1,450	USEPA 2003	1.9	MPCA 2006
Chlorobenzene	108-90-7	ug/kg	13,100	USEPA 2003	291	USEPA 2003	20	MPCA 2006
Chloroethane	75-00-3	ug/kg	NA		NA		NA	
Chloroform	67-66-3	ug/kg	1,190	USEPA 2003	121	USEPA 2003	53	MPCA 2006
Chloromethane	74-87-3	ug/kg	10,400	USEPA 2003 - meadow vole	NA		NA	
cis-1,2-Dichloroethene	156-59-2	ug/kg	200	Swartjes, 1999 (Dutch Target Values)	NA		70	MPCA 2006
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398	USEPA 2003	NA		0.055	Suter and Tsao 1996 (Tier II SCV)
Dibromochloromethane	124-48-1	ug/kg	2,050	USEPA 2003	NA		257	TNRCC 2001 (USEPA Region 6)
Dibromomethane	74-95-3	ug/kg	65,000	USEPA 2003 - meadow vole	NA		NA	
Dichlorodifluoromethane	75-71-8	ug/kg	39,500	USEPA 2003	NA		1,960	TNRCC 2001 (USEPA Region 6)
Ethylbenzene	100-41-4	ug/kg	5,160	USEPA 2003	175	USEPA 2003	68	MPCA 2006
Hexachlorobutadiene	87-68-3	ug/kg	39.8	USEPA 2003	26.5	USEPA 2003	9.3	MPCA 2006
Isopropylbenzene	98-82-8	ug/kg	NA		NA		NA	
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA		NA		166	MPCA 2006 - value for total xylenes
Xylenes (total)	1330-20-7	ug/kg	10,000	USEPA 2003 - plant	433	USEPA 2003	166	MPCA 2006
Methyl tert-butyl ether	1634-04-4	ug/kg	NA		NA		NA	
Methylene chloride	75-09-2	ug/kg	4,050	USEPA 2003 - meadow vole	159	USEPA 2003	5	MPCA 2006
n-Butylbenzene	104-51-8	ug/kg	NA		NA		71	TNRCC 2001 (USEPA Region 6)

**TABLE 2
MEDIUM-SPECIFIC SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Analyte:	CAS Number	Units	Soil Screening Value	Reference	Sediment Screening Value	Reference	Fresh Surface Water Screening Value	Reference
n-Propylbenzene	103-65-1	ug/kg	NA		NA		128	TNRCC 2001 (USEPA Region 6)
Naphthalene	91-20-3	ug/kg	99.4	USEPA 2003	176	USEPA 2003 - consensus based TEC	81	MPCA 2006
o-Xylene	95-47-6	ug/kg	NA		NA		166	MPCA 2006 - value for total xylenes
p-Isopropyltoluene	99-87-6	ug/kg	NA		NA		NA	
sec-Butylbenzene	135-98-8	ug/kg	NA		NA		82	TNRCC 2001 (USEPA Region 6)
Styrene	100-42-5	ug/kg	4,690	USEPA 2003	254	USEPA 2003	100	MPCA 2006; Tier II value for 1B waters
tert-Butylbenzene	98-06-6	ug/kg	NA		NA		48	TNRCC 2001 (USEPA Region 6)
Tetrachloroethene	127-18-4	ug/kg	9,920	USEPA 2003	990	USEPA 2003	3.8	MPCA 2006
Toluene	108-88-3	ug/kg	5,450	USEPA 2003	1,220	USEPA 2003	253	MPCA 2006
trans-1,2-Dichloroethene	156-60-5	ug/kg	784	USEPA 2003	654	USEPA 2003	100	MPCA 2006
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398	USEPA 2003	NA		0.055	Suter and Tsao 1996 (Tier II SCV)
Trichloroethene	79-01-6	ug/kg	12,400	USEPA 2003	112	USEPA 2003	5	MPCA 2006
Trichlorofluoromethane	75-69-4	ug/kg	16,400	USEPA 2003	NA		1,740	TNRCC 2001 (USEPA Region 6)
Vinyl chloride	75-01-4	ug/kg	646	USEPA 2003	202	USEPA 2003	0.17	MPCA 2006
Other								
Nitrocellulose (mg/kg or ug/L)	9004-70-0	mg/kg	NA		NA		NA	
Diphenylamine (ug/kg or ug/L)	122-39-4	ug/kg	1010	USEPA 2003	34.6	USEPA 2003	412	USEPA 2003 - mink
Pesticides (ug/kg or ug/L)								
4,4-DDD	72-54-8	ug/kg	21	USEPA 2007d	4.88	MacDonald et al. 2000	0.01	MPCA 2006
4,4-DDE	72-55-9	ug/kg	21	USEPA 2007d	3.16	MacDonald et al. 2000	4.51E-09	USEPA 2003 - belted kingfisher
4,4-DDT	50-29-3	ug/kg	21	USEPA 2007d	4.16	MacDonald et al. 2000	0.000011	MPCA 2006
Aldrin	309-00-2	ug/kg	3.32	USEPA 2003 - plant	2	USEPA 2003 - OMOE value	0.017	USEPA 2003 - MI water quality standard
alpha-BHC	319-84-6	ug/kg	99.4	USEPA 2003	6	USEPA 2003 - OMOE value	12.4	USEPA 2003 - mink
alpha-Chlordane	5103-71-9	ug/kg	224	USEPA 2003 - plant, value for chlordane	3.24	MacDonald et al. 2000 - value for chlordane	0.0043	USEPA 2003 - value for chlordane
beta-BHC	319-85-7	ug/kg	3.98	USEPA 2003 - plant	5	USEPA 2003 - OMOE value	0.495	USEPA 2003 - mink
delta-BHC	319-86-8	ug/kg	9,940	USEPA 2003	71,500	USEPA 2003	667	USEPA 2003 - Region 5 RCRA Interim criteria
Dieldrin	60-57-1	ug/kg	4.9	USEPA 2007e	1.9	MacDonald et al. 2000	0.0000065	MPCA 2006
Endosulfan I	959-98-8	ug/kg	119	USEPA 2003	3.26	USEPA 2003	0.0076	MPCA 2006 - value for Endosulfan
Endosulfan II	33213-65-9	ug/kg	119	USEPA 2003	1.94	USEPA 2003	0.0076	MPCA 2006 - value for Endosulfan
Endosulfan sulfate	1031-07-8	ug/kg	35.8	USEPA 2003	34.6	USEPA 2003	2.22	USEPA 2003 - mink
Endrin	72-20-8	ug/kg	10.1	USEPA 2003	2.22	MacDonald et al. 2000	0.0039	MPCA 2006
Endrin aldehyde	7421-93-4	ug/kg	10.5	USEPA 2003	480	USEPA 2003	0.036	USEPA 2003 - MI water quality standard
Endrin ketone	53494-70-5	ug/kg	NA		NA		NA	
gamma-BHC (Lindane)	58-89-9	ug/kg	5	USEPA 2003 - plant	2.37	MacDonald et al. 2000	0.0087	MPCA 2006
gamma-Chlordane	5103-74-2	ug/kg	224	USEPA 2003 - plant, value for chlordane	3.24	MacDonald et al. 2000 - value for chlordane	0.0043	USEPA 2003 - value for chlordane
Heptachlor	76-44-8	ug/kg	5.98	USEPA 2003	0.6	USEPA 2003 - Environment Canada value	0.00010	MPCA 2006
Heptachlor epoxide	1024-57-3	ug/kg	152	USEPA 2003	2.47	MacDonald et al. 2000	0.00012	MPCA 2006
Methoxychlor	72-43-5	ug/kg	19.9	USEPA 2003	13.6	USEPA 2003	0.03	MPCA 2006
Toxaphene	8001-35-2	ug/kg	119	USEPA 2003	0.077	NYSDEC 1999	0.00031	MPCA 2006
PCBs (ug/kg or ug/L)								
Aroclor 1016	12674-11-2	ug/kg	NA		59.8	MacDonald et al. 2000	0.000014	MPCA 2006 - value for total PCBs
Aroclor 1221	11104-28-2	ug/kg	NA		59.8	MacDonald et al. 2000	0.000014	MPCA 2006 - value for total PCBs
Aroclor 1232	11141-16-5	ug/kg	NA		59.8	MacDonald et al. 2000	0.000014	MPCA 2006 - value for total PCBs

TABLE 2
MEDIUM-SPECIFIC SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

Analyte:	CAS Number	Units	Soil Screening Value	Reference	Sediment Screening Value	Reference	Fresh Surface Water Screening Value	Reference
Aroclor 1242	53469-21-9	ug/kg	NA		59.8	MacDonald et al. 2000	0.000014	MPCA 2006 - value for total PCBs
Aroclor 1248	12672-29-6	ug/kg	NA		59.8	MacDonald et al. 2000	0.000014	MPCA 2006 - value for total PCBs
Aroclor 1254	11097-69-1	ug/kg	NA		59.8	MacDonald et al. 2000	0.000014	MPCA 2006 - value for total PCBs
Aroclor 1260	11096-82-5	ug/kg	NA		59.8	MacDonald et al. 2000	0.000014	MPCA 2006 - value for total PCBs
PCBs (total)	1336363	ug/kg			59.8	MacDonald et al. 2000	0.000014	MPCA 2006

Notes:

⁽¹⁾ Screening value is hardness dependent. Calculated assuming a hardness of 100 mg CaCO₃/L

Cadmium EXP(0.7852*(LN(hardness))-3.49)

Lead EXP(1.273*(LN(hardness))-4.705)

⁽²⁾ Screening value is the minimum of 5 and the value calculated with hardness data for the water body being evaluated.

⁽³⁾ MPCA calculates site-specific value. No value was calculated because this chemical was not evaluated in AOC surface waters.

TABLE 3

**INGESTION-BASED SCREENING VALUES FOR BIRDS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
Inorganics								
Arsenic	brown-headed cowbird	0.049	7 months	oral in diet	mortality	7.38	2.46	Sample et al. 1996
Arsenic	mallard	1	128 days	oral in diet	mortality	12.84	5.14	Sample et al. 1996
Cadmium	mallard	1.153	90 days	oral in diet	reproduction	20	1.45	Sample et al. 1996
Chromium	American black duck	1.25	10 months	oral in diet	reproduction	5	1	Sample et al. 1996
Lead	Japanese quail	0.15	12 weeks	oral in diet	reproduction	11.3	1.13	Sample et al. 1996
Lead	American kestrel	0.13	7 months	oral in diet	reproduction	38.5	3.85	Sample et al. 1996
Mercury	Japanese quail	0.15	1 year	oral in diet	reproduction	0.9	0.45	Sample et al. 1996
Mercury	mallard	1	3 generations	oral in diet	reproduction	0.064	0.0064	Sample et al. 1996
Selenium	mallard	1	100 days	oral in diet	reproduction	0.8	0.4	Sample et al. 1996
Selenium	screech owl	0.2	13.7 weeks	oral in diet	reproduction	1.5	0.44	Sample et al. 1996
Silver	--	--	--	--	--	NA	NA	--
Pesticides/PCBs								
4,4'-DDD	mallard	1.134	chronic	oral	reproduction	5.2	0.52	Stickel 1973
4,4'-DDD	American kestrel	0.115	2 years	oral	reproduction	0.5	0.05	McLane and Hall 1972
4,4'-DDE	brown pelican	3.5	chronic	oral	reproduction	1.31	0.131	Beyer et al. 1996
4,4'-DDE	American kestrel	0.115	2 years	oral	reproduction	0.5	0.05	McLane and Hall 1972
4,4'-DDT	mallard	1.134	chronic	oral	reproduction	1.04	0.104	Davison and Sell 1974
4,4'-DDT	American kestrel	0.115	2 years	oral	reproduction	0.5	0.05	McLane and Hall 1972
Aldrin	mallard	1.134	chronic	oral	mortality	5	0.5	Tucker and Crabtree 1970
alpha-BHC	Japanese quail	0.15	90 days	oral in diet	reproduction	2.25	0.56	Sample et al. 1996
alpha-Chlordane	red-winged blackbird	0.064	84 days	oral in diet	mortality	10.7	2.14	Sample et al. 1996
beta-BHC	Japanese quail	0.15	90 days	oral in diet	reproduction	2.25	0.56	Sample et al. 1996
delta-BHC	Japanese quail	0.15	90 days	oral in diet	reproduction	2.25	0.56	Sample et al. 1996
Dieldrin	barn owl	0.466	2 years	oral in diet	reproduction	0.77	0.077	Sample et al. 1996
Endosulfan I	gray partridge	0.4	4 weeks	oral in diet	reproduction	100	10	Sample et al. 1996
Endosulfan II	gray partridge	0.4	4 weeks	oral in diet	reproduction	100	10	Sample et al. 1996
Endrin	mallard	1.15	>200 days	oral in diet	reproduction	3	0.3	Sample et al. 1996
Endrin	screech owl	0.181	>83 days	oral in diet	reproduction	0.1	0.01	Sample et al. 1996
Gamma-BHC (Lindane)	mallard	1	8 weeks	oral (intubation)	reproduction	20	2	Sample et al. 1996

TABLE 3

**INGESTION-BASED SCREENING VALUES FOR BIRDS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
Pesticides/PCBs								
Gamma-Chlordane	red-winged blackbird	0.064	84 days	oral in diet	mortality	10.7	2.14	Sample et al. 1996
Heptachlor	quail	0.191	5 days	oral in diet	mortality	4.05	0.405	Hill et al. 1975
Heptachlor Epoxide	quail	0.191	5 days	oral in diet	mortality	4.05	0.405	Hill et al. 1975
Methoxychlor	quail	0.191	5 days	oral in diet	mortality	4050	405	Hill and Camardese 1986
Toxaphene	mallard	1.043	5 days	oral in diet	mortality	3.07	0.307	Hill and Camardese 1986
Aroclor-1016	screech owl	0.181	2 generations	oral in diet	reproduction	4.1	0.41	Sample et al. 1996
Aroclor-1221	screech owl	0.181	2 generations	oral in diet	reproduction	4.1	0.41	Sample et al. 1996
Aroclor-1232	screech owl	0.181	2 generations	oral in diet	reproduction	4.1	0.41	Sample et al. 1996
Aroclor-1242	screech owl	0.181	2 generations	oral in diet	reproduction	4.1	0.41	Sample et al. 1996
Aroclor-1248	ring-necked pheasant	1	17 weeks	oral	reproduction	1.8	0.18	Sample et al. 1996
Aroclor-1254	ring-necked pheasant	1	17 weeks	oral	reproduction	1.8	0.18	Sample et al. 1996
Aroclor-1260	ring-necked pheasant	1	17 weeks	oral	reproduction	1.8	0.18	Sample et al. 1996
Semivolatiles								
1,2,4-Trichlorobenzene	--	--	--	--	--	NA	NA	--
1,2-Dichlorobenzene	northern bobwhite	0.157	14 days	oral (gavage)	growth/mortality	2500	250	Grimes and Jaber 1989
1,3-Dichlorobenzene	northern bobwhite	0.157	14 days	oral (gavage)	growth/mortality	2500	250	Grimes and Jaber 1989
1,4-Dichlorobenzene	northern bobwhite	0.157	14 days	oral (gavage)	growth/mortality	2500	250	Grimes and Jaber 1989
4-Bromophenyl-Phenylether	--	--	--	--	--	NA	NA	--
4-Chlorophenyl-Phenylether	--	--	--	--	--	NA	NA	--
Acenaphthene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Acenaphthylene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Anthracene	mallard	1.043	7 months	oral in diet	hepatic	228	22.8	Patton and Dieter 1980
Benzo(a)anthracene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Benzo(a)pyrene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Benzo(b)fluoranthene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Benzo(g,h,i)perylene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Benzo(k)fluoranthene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Chrysene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Dibenz(a,h)anthracene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Fluoranthene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Fluorene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963

TABLE 3

**INGESTION-BASED SCREENING VALUES FOR BIRDS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
Semivolatiles								
Hexachloro-1,3-butadiene	Japanese quail	0.19	90 days	oral	reproduction	8	2.5	Coulston and Kolbye 1994; IPCS 1994
Hexachlorobenzene	Japanese quail	0.19	?	oral	reproduction	0.8	0.08	Coulston and Kolbye 1994
Hexachlorocyclopentadiene	--	--	--	--	--	NA	NA	--
Hexachloroethane	--	--	--	--	--	NA	NA	--
Indeno(1,2,3-cd)pyrene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Pentachlorophenol	chicken	1.5	8 weeks	oral	growth	200	100	Eisler 1989
Phenanthrene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963
Pyrene	chicken	1.5	34 days	oral in diet	reproduction	395	39.5	Rigdon and Neal 1963

Notes:

NOAEL = No Observed Adverse Effect Level

LOAEL = Lowest Observed Adverse Effect Level

kg = kilograms

mg/kg/d = milligrams per kilogram per day

TABLE 4

**INGESTION-BASED SCREENING VALUES FOR MAMMALS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
Inorganics								
Arsenic	mouse	0.03	3 generations	oral in water	reproduction	1.26	0.126	Sample et al. 1996
Cadmium	rat	0.303	6 weeks	oral (gavage)	reproduction	10	1	Sample et al. 1996
Cadmium	dog	10	3 months	oral	reproduction	7.5	0.75	ATSDR 1993
Chromium	rat	0.35	3 months	oral in water	mortality	131.4	13.14	Sample et al. 1996
Lead	rat	0.35	3 generations	oral in diet	reproduction	80	8	Sample et al. 1996
Mercury	rat	0.35	3 generations	oral in diet	reproduction	0.16	0.032	Sample et al. 1996
Mercury	mink	1	93 days	oral in diet	mortality/weight loss	0.25	0.15	Sample et al. 1996
Selenium	rat	0.35	1 year	oral in water	reproduction	0.33	0.2	Sample et al. 1996
Silver	rat	0.35	2 weeks	oral in water	mortality	181	18.1	ATSDR 1990
Zinc	rat	0.35	GD 1-16	oral in diet	reproduction	320	160	Sample et al. 1996
Pesticides/PCBs								
4,4'-DDD	rat	0.35	2 years	oral in diet	reproduction	4	0.8	Sample et al. 1996
4,4'-DDD	dog	10	2 generations	oral	reproduction	5	1	ATSDR 1994
4,4'-DDE	rat	0.35	2 years	oral in diet	reproduction	4	0.8	Sample et al. 1996
4,4'-DDE	dog	10	2 generations	oral	reproduction	5	1	ATSDR 1994
4,4'-DDT	rat	0.35	2 years	oral in diet	reproduction	4	0.8	Sample et al. 1996
4,4'-DDT	dog	10	2 generations	oral	reproduction	5	1	ATSDR 1994
Aldrin	rat	0.35	3 generations	oral in diet	reproduction	1	0.2	Sample et al. 1996
alpha-BHC	rat	0.35	4 generations	oral in diet	reproduction	3.2	1.6	Sample et al. 1996
alpha-Chlordane	mouse	0.03	6 generations	oral in diet	reproduction	9.16	4.58	Sample et al. 1996
beta-BHC	rat	0.35	13 weeks	oral in diet	growth/systemic	20	4	Sample et al. 1996
delta-BHC	rat	0.35	4 generations	oral in diet	reproduction	3.2	1.6	Sample et al. 1996
Dieldrin	rat	0.35	3 generations	oral in diet	reproduction	0.2	0.02	Sample et al. 1996
Endosulfan I	rat	0.35	30 days	oral (intubation)	reproduction	15	1.5	Sample et al. 1996
Endosulfan II	rat	0.35	30 days	oral (intubation)	reproduction	15	1.5	Sample et al. 1996
Endrin	mouse	0.03	120 days	oral in diet	reproduction	0.92	0.092	Sample et al. 1996
Gamma-BHC (Lindane)	rat	0.35	3 generations	oral in diet	reproduction	80	8	Sample et al. 1996
Gamma-Chlordane	mouse	0.03	6 generations	oral in diet	reproduction	9.16	4.58	Sample et al. 1996
Heptachlor	mink	1	181 days	oral in diet	reproduction	1	0.1	Sample et al. 1996

TABLE 4

**INGESTION-BASED SCREENING VALUES FOR MAMMALS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
Pesticides/PCBs								
Heptachlor Epoxide	mink	1	181 days	oral in diet	reproduction	1	0.1	Sample et al. 1996
Methoxychlor	rat	0.35	11 months	oral in diet	reproduction	8	4	Sample et al. 1996
Toxaphene	rat	0.35	3 generations	oral in diet	reproduction	80	8	Sample et al. 1996
Aroclor-1016	mink	1	18 months	oral in diet	reproduction	3.43	1.37	Sample et al. 1996
Aroclor-1221	mink	1	7 months	oral in diet	reproduction	0.69	0.069	Sample et al. 1996
Aroclor-1232	mink	1	7 months	oral in diet	reproduction	0.69	0.069	Sample et al. 1996
Aroclor-1242	mink	1	7 months	oral in diet	reproduction	0.69	0.069	Sample et al. 1996
Aroclor-1248	mouse	0.03	5 weeks	oral in diet	immunological	13	1.3	ATSDR 1995a
Aroclor-1248	rhesus monkey	5	14 months	oral in diet	reproduction	0.1	0.01	Sample et al. 1996
Aroclor-1254	oldfield mouse	0.014	12 months	oral in diet	reproduction	0.68	0.068	Sample et al. 1996
Aroclor-1254	mink	1	4.5 months	oral in diet	reproduction	0.69	0.14	Sample et al. 1996
Aroclor-1260	oldfield mouse	0.014	12 months	oral in diet	reproduction	0.68	0.068	Sample et al. 1996
Aroclor-1260	mink	1	4.5 months	oral in diet	reproduction	0.69	0.14	Sample et al. 1996
Semivolatile Organics								
1,2,4-Trichlorobenzene	rat	0.35	3 generations	oral in water	reproduction	106	53	Coulston and Kolbye 1994
1,2-Dichlorobenzene	rat	0.35	chronic	oral (gavage)	liver/kidney	857	85.7	Coulston and Kolbye 1994
1,3-Dichlorobenzene	rat	0.35	chronic	oral (gavage)	liver/kidney	857	85.7	Coulston and Kolbye 1994
1,4-Dichlorobenzene	rat	0.35	GD 6-15	oral (gavage)	reproduction	500	250	Coulston and Kolbye 1994
4-Bromophenyl-Phenylether	--	--	--	--	--	NA	NA	--
4-Chlorophenyl-Phenylether	--	--	--	--	--	NA	NA	--
Acenaphthene	mouse	0.03	13 weeks	oral (gavage)	reproduction	3500	350	ATSDR 1995b
Acenaphthylene	mouse	0.03	13 weeks	oral (gavage)	reproduction	3500	350	ATSDR 1995b
Anthracene	mouse	0.03	13 weeks	oral (gavage)	reproduction	10000	1000	ATSDR 1995b
Benzo(a)anthracene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Benzo(a)pyrene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Benzo(b)fluoranthene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Benzo(g,h,i)perylene	mouse	0.03	19 to 29 days	oral in diet	reproduction	1330	133	ATSDR 1995b
Benzo(k)fluoranthene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Chrysene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Dibenz(a,h)anthracene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Fluoranthene	mouse	0.03	13 weeks	oral (gavage)	hepatic	1250	125	ATSDR 1995b

TABLE 4

INGESTION-BASED SCREENING VALUES FOR MAMMALS
 FORMER GOPHER ORDNANCE WORKS
 ROSEMOUNT, MINNESOTA

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
Semivolatile Organics								
Fluorene	mouse	0.03	13 weeks	oral (gavage)	hematological	1250	125	ATSDR 1995b
Hexachloro-1,3-butadiene	rat	0.35	90 days +	oral	reproduction	20	2	IPCS 1994
Hexachlorobenzene	rat	0.35	2 years	oral	reproduction	16	1.6	ATSDR 1989
Hexachlorocyclopentadiene	rat	0.35	GD 6-15	oral	reproduction	30	10	USEPA 1984
Hexachloroethane	--	--	--	--	--	NA	NA	--
Indeno(1,2,3-cd)pyrene	mouse	0.03	GD 7-16	oral (intubation)	reproduction	10	1	Sample et al. 1996
Pentachlorophenol	rat	0.35	up to 24 months	oral in diet	reproduction	30	3	Coulston and Kolbye 1994
Phenanthrene	mouse	0.03	19 to 29 days	oral in diet	reproduction	1330	133	ATSDR 1995b
Pyrene	mouse	0.03	19 to 29 days	oral in diet	reproduction	1330	133	ATSDR 1995b

Notes:

NOAEL = No Observed Adverse Effect Level

LOAEL = Lowest Observed Adverse Effect Level

kg = kilograms

mg/kg/d = milligrams per kilogram per day

TABLE 5

**IDENTIFICATION OF POTENTIAL BIOACCUMULATIVE CHEMICALS
AND LOG K_{ow} VALUES FOR BIOACCUMULATIVE ORGANIC CHEMICALS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Compound ¹	Log K _{ow} Range	Recommended Log K _{ow}	Reference
Inorganics			
arsenic	NA	NA	NA
cadmium	NA	NA	NA
chromium	NA	NA	NA
lead	NA	NA	NA
methylmercury	NA	NA	NA
selenium	NA	NA	NA
silver	NA	NA	NA
Semivolatiles			
1,2,4-trichlorobenzene (TCB)	3.89 to 4.23	4.01	USEPA 1995
1,2-dichlorobenzene	3.20 to 3.61	3.43	USEPA 1995
1,3-dichlorobenzene	Not Reported	3.6	USEPA 1996
1,4-dichlorobenzene	3.26 to 3.78	3.42	USEPA 1995
4-bromophenyl phenyl ether	4.89 to 5.24	5	USEPA 1995
4-chlorophenyl phenyl ether	4.08 to 5.09	4.95	USEPA 1995
acenaphthene	3.77 to 4.49	3.92	USEPA 1995
acenaphthylene	Not Reported	4.1	USEPA 1996
anthracene	3.45 to 4.80	4.55	USEPA 1995
benzo(a)anthracene	4.00 to 5.79	5.7	USEPA 1995
benzo(a)pyrene	5.98 to 6.42	6.11	USEPA 1995
benzo(b)fluoranthene	5.79 to 6.40	6.2	USEPA 1995
benzo(g,h,i)perylene	6.63 to 7.05	6.7	USEPA 1995
benzo(k)fluoranthene	6.12 to 6.27	6.2	USEPA 1995
chrysene	5.41 to 5.79	5.7	USEPA 1995
dibenzo(a,h)anthracene	6.50 to 6.88	6.69	USEPA 1995

TABLE 5

**IDENTIFICATION OF POTENTIAL BIOACCUMULATIVE CHEMICALS
AND LOG K_{ow} VALUES FOR BIOACCUMULATIVE ORGANIC CHEMICALS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Compound ¹	Log K _{ow} Range	Recommended Log K _{ow}	Reference
Semivolatiles			
fluoranthene	4.31 to 5.39	5.12	USEPA 1995
fluorene	4.04 to 4.40	4.21	USEPA 1995
hexachlorobenzene (HCB)	5.00 to 7.42	5.89	USEPA 1995
hexachlorobutadiene	4.74 to 5.16	4.81	USEPA 1995
hexachlorocyclopentadiene	5.04 to 5.51	5.39	USEPA 1995
hexachloroethane	3.82 to 4.14	4	USEPA 1995
indeno(1,2,3-c,d)pyrene	6.58 to 6.72	6.65	USEPA 1995
pentachlorobenzene	4.88 to 6.12	5.26	USEPA 1995
pentachlorophenol	3.29 to 5.24	5.09	USEPA 1995
phenanthrene	4.28 to 4.57	4.55	USEPA 1995
pyrene	4.76 to 5.52	5.11	USEPA 1995
tetrachloroethane	Not Reported	2.39	SRC 1998
Pesticides			
4,4'-DDD	4.73 to 6.65	6.10	USEPA 1995
4,4'-DDE	5.69 to 6.96	6.76	USEPA 1995
4,4'-DDT	3.98 to 7.01	6.53	USEPA 1995
aldrin	5.11 to 7.50	6.5	USEPA 1995
chlordane	5.80 to 6.32	6.32	USEPA 1995
Chlordane, alpha-	Not Reported	6.10	SRC 1998
Chlordane, gamma-	Not Reported	6.22	SRC 1998
dieldrin	3.63 to 6.20	5.37	USEPA 1995
endrin	2.92 to 5.20	5.06	USEPA 1995
heptachlor	4.93 to 6.26	6.26	USEPA 1995
heptachlor epoxide	3.5 to 5.4	5	USEPA 1995
alpha-BHC	Not Reported	3.8	USEPA 1996
beta-BHC	Not Reported	3.78	USEPA 1996
delta-BHC	Not Reported	4.14	USEPA 1996

TABLE 5

**IDENTIFICATION OF POTENTIAL BIOACCUMULATIVE CHEMICALS
AND LOG K_{ow} VALUES FOR BIOACCUMULATIVE ORGANIC CHEMICALS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Compound¹	Log K_{ow} Range	Recommended Log K_{ow}	Reference
PCBs			
Aroclor 1016	Not Reported	5.62	SRC 1998
Aroclor 1221	Not Reported	4.53	SRC 1998
Aroclor 1232	Not Reported	4.53	SRC 1998
Aroclor 1242	Not Reported	6.29	SRC 1998
Aroclor 1248	Not Reported	6.34	SRC 1998
Aroclor 1254	Not Reported	6.79	SRC 1998
Aroclor 1260	Not Reported	8.27	SRC 1998

Notes:

⁽¹⁾ Chemicals listed are those that are identified by the USEPA (2000) as important bioaccumulative compounds.

TABLE 6

SOIL BIOCONCENTRATION FACTORS USED FOR PLANTS AND SOIL BIOACCUMULATION FACTORS USED FOR INVERTEBRATES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

Chemical	Soil-Plant BCF (dry weight)		Soil-Invertebrate BAF (dry weight)	
	Value	Reference	Value	Reference
Inorganics				
Arsenic	1.103	Bechtel Jacobs 1998a	0.523	Sample et al. 1998a
Cadmium	3.25	Bechtel Jacobs 1998a	40.69	Sample et al. 1998a
Chromium	0.0075	Baes et al. 1984	3.162	Sample et al. 1998a
Lead	0.468	Bechtel Jacobs 1998a	1.522	Sample et al. 1998a
Mercury	5	Bechtel Jacobs 1998a	20.63	Sample et al. 1998a
Selenium	3.012	Bechtel Jacobs 1998a	1.34	Sample et al. 1998a
Silver	0.4	Baes et al. 1984	1	--
Pesticides/PCBs				
4,4'-DDD	0.20	USEPA 2005f	2	Menzie et al. 1992
4,4'-DDE	0.11	USEPA 2005f	10.6	Menzie et al. 1992
4,4'-DDT	0.14	USEPA 2005f	0.7	Menzie et al. 1992
Aldrin	0.14	USEPA 2005f	1	--
alpha-BHC	1.74	USEPA 2005f	1	--
alpha-Chlordane	0.20	USEPA 2005f	3	Menzie et al. 1992
beta-BHC	1.77	USEPA 2005f	1	--
delta-BHC	1.26	USEPA 2005f	1	--
Dieldrin	0.40	USEPA 2005f	8	Beyer and Gish 1980
Endosulfan I	1.31	USEPA 2005f	1	--
Endosulfan II	1.31	USEPA 2005f	1	--
Endrin	0.53	USEPA 2005f	1	--
Gamma-BHC (Lindane)	2.07	USEPA 2005f	1	--
Gamma-Chlordane	0.18	USEPA 2005f	3	Menzie et al. 1992
Heptachlor	0.17	USEPA 2005f	10	Roberts and Dorough 1985
Heptachlor Epoxide	0.57	USEPA 2005f	10	Roberts and Dorough 1985
Methoxychlor	0.52	USEPA 2005f	1	--

TABLE 6

**SOIL BIOCONCENTRATION FACTORS USED FOR PLANTS AND SOIL BIOACCUMULATION FACTORS USED FOR INVERTEBRATES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Soil-Plant BCF (dry weight)		Soil-Invertebrate BAF (dry weight)	
	Value	Reference	Value	Reference
Pesticides/PCBs				
Toxaphene	0.35	USEPA 2005f	1	--
Aroclor-1016	0.32	USEPA 2005f	15.91	Sample et al. 1998a
Aroclor-1221	0.88	USEPA 2005f	15.91	Sample et al. 1998a
Aroclor-1232	0.88	USEPA 2005f	15.91	Sample et al. 1998a
Aroclor-1242	0.17	USEPA 2005f	15.91	Sample et al. 1998a
Aroclor-1248	0.16	USEPA 2005f	15.91	Sample et al. 1998a
Aroclor-1254	0.11	USEPA 2005f	15.91	Sample et al. 1998a
Aroclor-1260	0.03	USEPA 2005f	15.91	Sample et al. 1998a
Semivolatile Organics				
1,2,4-Trichlorobenzene	1.4	USEPA 2005f	0.56	Beyer 1996
1,2-Dichlorobenzene	2.5	USEPA 2005f	1	--
1,3-Dichlorobenzene	2.1	USEPA 2005f	1	--
1,4-Dichlorobenzene	2.5	USEPA 2005f	1	--
4-Bromophenyl-Phenylether	0.57	USEPA 2005f	1	--
4-Chlorophenyl-Phenylether	0.59	USEPA 2005f	1	--
Acenaphthene	1.55	USEPA 2005f	0.3	Beyer and Stafford 1993
Acenaphthylene	1.31	USEPA 2005f	0.22	Beyer and Stafford 1993
Anthracene	0.86	USEPA 2005f	0.32	Beyer and Stafford 1993
Benzo(a)anthracene	0.29	USEPA 2005f	0.27	Beyer and Stafford 1993
Benzo(a)pyrene	0.20	USEPA 2005f	0.34	Beyer and Stafford 1993
Benzo(b)fluoranthene	0.18	USEPA 2005f	0.21	Beyer and Stafford 1993
Benzo(g,h,i)perylene	0.12	USEPA 2005f	0.15	Beyer and Stafford 1993
Benzo(k)fluoranthene	0.18	USEPA 2005f	0.21	Beyer and Stafford 1993
Chrysene	0.29	USEPA 2005f	0.44	Beyer and Stafford 1993
Dibenz(a,h)anthracene	0.12	USEPA 2005f	0.49	Beyer and Stafford 1993
Fluoranthene	0.51	USEPA 2005f	0.37	Beyer and Stafford 1993
Fluorene	1.18	USEPA 2005f	0.2	Beyer and Stafford 1993
Hexachloro-1,3-butadiene	0.68	USEPA 2005f	1	--

TABLE 6

**SOIL BIOCONCENTRATION FACTORS USED FOR PLANTS AND SOIL BIOACCUMULATION FACTORS USED FOR INVERTEBRATES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Soil-Plant BCF (dry weight)		Soil-Invertebrate BAF (dry weight)	
	Value	Reference	Value	Reference
Semivolatile Organics				
Hexachlorobenzene	0.25	USEPA 2005f	1.69	Beyer 1996
Hexachlorocyclopentadiene	0.39	USEPA 2005f	1	--
Hexachloroethane	1.44	USEPA 2005f	1	--
Indeno(1,2,3-cd)pyrene	0.12	USEPA 2005f	0.41	Beyer and Stafford 1993
Pentachlorophenol	0.52	USEPA 2005f	8	van Gestel and Ma 1988
Phenanthrene	0.86	USEPA 2005f	0.28	Beyer and Stafford 1993
Pyrene	0.51	USEPA 2005f	0.39	Beyer and Stafford 1993

Notes:

BAF = Bioaccumulation Factor

BCF = Bioconcentration Factor

TABLE 7

SOIL BIOACCUMULTION FACTORS USED FOR SMALL MAMMALS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

Chemical	Soil-Mouse BAF (dry weight)		Soil-Vole BAF (dry weight)		Soil-Shrew BAF (dry weight)	
	Value	Reference	Value	Reference	Value	Reference
Inorganics						
Arsenic	0.014	Sample et al. 1998b	0.016	Sample et al. 1998b	0.0149	Sample et al. 1998b
Cadmium	0.462	Sample et al. 1998b	0.448	Sample et al. 1998b	7.017	Sample et al. 1998b
Chromium	0.349	Sample et al. 1998b	0.309	Sample et al. 1998b	0.3333	Sample et al. 1998b
Lead	0.286	Sample et al. 1998b	0.187	Sample et al. 1998b	0.339	Sample et al. 1998b
Mercury	0.13	Sample et al. 1998b	0.192	Sample et al. 1998b	0.192	Sample et al. 1998b
Selenium	1.263	Sample et al. 1998b	0.155	Sample et al. 1998b	1.1867	Sample et al. 1998b
Silver	--	see text	--	see text	--	see text
Pesticides/PCBs						
4,4'-DDD	--	see text	--	see text	--	see text
4,4'-DDE	--	see text	--	see text	--	see text
4,4'-DDT	--	see text	--	see text	--	see text
Aldrin	--	see text	--	see text	--	see text
alpha-BHC	--	see text	--	see text	--	see text
alpha-Chlordane	--	see text	--	see text	--	see text
beta-BHC	--	see text	--	see text	--	see text
delta-BHC	--	see text	--	see text	--	see text
Dieldrin	--	see text	--	see text	--	see text
Endosulfan I	--	see text	--	see text	--	see text
Endosulfan II	--	see text	--	see text	--	see text
Endrin	--	see text	--	see text	--	see text
Gamma-BHC (Lindane)	--	see text	--	see text	--	see text
Gamma-Chlordane	--	see text	--	see text	--	see text
Heptachlor	--	see text	--	see text	--	see text
Heptachlor Epoxide	--	see text	--	see text	--	see text
Methoxychlor	--	see text	--	see text	--	see text

TABLE 7

**SOIL BIOACCUMULTION FACTORS USED FOR SMALL MAMMALS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Soil-Mouse BAF (dry weight)		Soil-Vole BAF (dry weight)		Soil-Shrew BAF (dry weight)	
	Value	Reference	Value	Reference	Value	Reference
Pesticides/PCBs						
Toxaphene	--	see text	--	see text	--	see text
Aroclor-1016	--	see text	--	see text	--	see text
Aroclor-1221	--	see text	--	see text	--	see text
Aroclor-1232	--	see text	--	see text	--	see text
Aroclor-1242	--	see text	--	see text	--	see text
Aroclor-1248	--	see text	--	see text	--	see text
Aroclor-1254	--	see text	--	see text	--	see text
Aroclor-1260	--	see text	--	see text	--	see text
PCBs (total)	--	see text	--	see text	--	see text
Semivolatiles						
1,2,4-Trichlorobenzene	--	see text	--	see text	--	see text
1,2-Dichlorobenzene	--	see text	--	see text	--	see text
1,3-Dichlorobenzene	--	see text	--	see text	--	see text
1,4-Dichlorobenzene	--	see text	--	see text	--	see text
4-Chlorophenyl-Phenylether	--	see text	--	see text	--	see text
Acenaphthene	--	see text	--	see text	--	see text
Acenaphthylene	--	see text	--	see text	--	see text
Anthracene	--	see text	--	see text	--	see text
Benzo(a)anthracene	--	see text	--	see text	--	see text
Benzo(a)pyrene	--	see text	--	see text	--	see text
Benzo(b)fluoranthene	--	see text	--	see text	--	see text
Benzo(g,h,i)perylene	--	see text	--	see text	--	see text
Benzo(k)fluoranthene	--	see text	--	see text	--	see text
Chrysene	--	see text	--	see text	--	see text
Dibenz(a,h)anthracene	--	see text	--	see text	--	see text
Fluoranthene	--	see text	--	see text	--	see text
Fluorene	--	see text	--	see text	--	see text
Hexachloro-1,3-butadiene	--	see text	--	see text	--	see text

TABLE 7

**SOIL BIOACCUMULTION FACTORS USED FOR SMALL MAMMALS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Soil-Mouse BAF (dry weight)		Soil-Vole BAF (dry weight)		Soil-Shrew BAF (dry weight)	
	Value	Reference	Value	Reference	Value	Reference
Semivolatiles						
Hexachlorobenzene	--	see text	--	see text	--	see text
Hexachlorocyclopentadiene	--	see text	--	see text	--	see text
Hexachloroethane	--	see text	--	see text	--	see text
Indeno(1,2,3-cd)pyrene	--	see text	--	see text	--	see text
Pentachlorophenol	--	see text	--	see text	--	see text
Phenanthrene	--	see text	--	see text	--	see text
Pyrene	--	see text	--	see text	--	see text

Notes:

BAF = Bioaccumulation Factor

TABLE 8

**SEDIMENT BIOCONCENTRATION FACTORS USED FOR AQUATIC PLANTS AND BIOACCUMULATION FACTORS FOR FROGS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Sediment-Plant BCF (dry weight)		Sediment-Frog BAF (dry weight)	
	Value	Reference	Value	Reference
Inorganics				
Arsenic	1.103	Bechtel Jacobs 1998a	0.126	Pascoe et al. 1996
Cadmium	3.25	Bechtel Jacobs 1998a	0.164	Pascoe et al. 1996
Chromium	0.0075	Baes et al. 1984	0.038	Krantzberg and Boyd 1992
Lead	0.468	Bechtel Jacobs 1998a	0.07	Krantzberg and Boyd 1992
Mercury	5	Bechtel Jacobs 1998a	4.58	Cope et al. 1990
Selenium	3.012	Bechtel Jacobs 1998a	1	--
Silver	0.4	Baes et al. 1984	1	--
Pesticides/PCBs				
4,4'-DDD	0.20	USEPA 2005f	2.61	Oliver and Niimi 1988
4,4'-DDE	0.11	USEPA 2005f	20.39	Oliver and Niimi 1988
4,4'-DDT	0.14	USEPA 2005f	9.11	Oliver and Niimi 1988
Aldrin	0.14	USEPA 2005f	1	--
alpha-BHC	1.74	USEPA 2005f	1	--
alpha-Chlordane	0.20	USEPA 2005f	1	--
beta-BHC	1.77	USEPA 2005f	1	--
delta-BHC	1.26	USEPA 2005f	1	--
Dieldrin	0.40	USEPA 2005f	1	--
Endosulfan I	1.31	USEPA 2005f	1	--
Endosulfan II	1.31	USEPA 2005f	1	--
Endrin	0.53	USEPA 2005f	1	--
Gamma-BHC (Lindane)	2.07	USEPA 2005f	1	--
Gamma-Chlordane	0.18	USEPA 2005f	1	--
Heptachlor	0.17	USEPA 2005f	1	--
Heptachlor Epoxide	0.57	USEPA 2005f	1	--
Methoxychlor	0.52	USEPA 2005f	1	--

TABLE 8

**SEDIMENT BIOCONCENTRATION FACTORS USED FOR AQUATIC PLANTS AND BIOACCUMULATION FACTORS FOR FROGS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Sediment-Plant BCF (dry weight)		Sediment-Frog BAF (dry weight)	
	Value	Reference	Value	Reference
Pesticides/PCBs				
Toxaphene	0.35	USEPA 2005f	1	--
Aroclor-1016	0.32	USEPA 2005f	11.24	Oliver and Niimi 1988
Aroclor-1221	0.32	USEPA 2005f	11.24	Oliver and Niimi 1988
Aroclor-1232	0.88	USEPA 2005f	11.24	Oliver and Niimi 1988
Aroclor-1242	0.88	USEPA 2005f	11.24	Oliver and Niimi 1988
Aroclor-1248	0.17	USEPA 2005f	11.24	Oliver and Niimi 1988
Aroclor-1254	0.16	USEPA 2005f	11.24	Oliver and Niimi 1988
Aroclor-1260	0.11	USEPA 2005f	11.24	Oliver and Niimi 1988
Semivolatile Organics				
1,2,4-Trichlorobenzene	1.4	USEPA 2005f	1	--
1,2-Dichlorobenzene	2.5	USEPA 2005f	1	--
1,3-Dichlorobenzene	2.1	USEPA 2005f	1	--
1,4-Dichlorobenzene	2.5	USEPA 2005f	1	--
4-Bromophenyl-Phenylether	0.57	USEPA 2005f	1	--
4-Chlorophenyl-Phenylether	0.59	USEPA 2005f	1	--
Acenaphthene	1.55	USEPA 2005f	1	--
Acenaphthylene	1.31	USEPA 2005f	1	--
Anthracene	0.86	USEPA 2005f	1	--
Benzo(a)anthracene	0.29	USEPA 2005f	1	--
Benzo(a)pyrene	0.20	USEPA 2005f	1	--
Benzo(b)fluoranthene	0.18	USEPA 2005f	1	--
Benzo(g,h,i)perylene	0.12	USEPA 2005f	1	--
Benzo(k)fluoranthene	0.18	USEPA 2005f	1	--
Chrysene	0.29	USEPA 2005f	1	--
Dibenz(a,h)anthracene	0.12	USEPA 2005f	1	--
Fluoranthene	0.51	USEPA 2005f	1	--
Fluorene	1.18	USEPA 2005f	1	--
Hexachloro-1,3-butadiene	0.68	USEPA 2005f	1	--

TABLE 8

**SEDIMENT BIOCONCENTRATION FACTORS USED FOR AQUATIC PLANTS AND BIOACCUMULATION FACTORS FOR FROGS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Sediment-Plant BCF (dry weight)		Sediment-Frog BAF (dry weight)	
	Value	Reference	Value	Reference
Semivolatile Organics				
Hexachlorobenzene	0.25	USEPA 2005f	1	--
Hexachlorocyclopentadiene	0.39	USEPA 2005f	1	--
Hexachloroethane	1.44	USEPA 2005f	1	--
Indeno(1,2,3-cd)pyrene	0.12	USEPA 2005f	1	--
Pentachlorophenol	0.52	USEPA 2005f	1	--
Phenanthrene	0.86	USEPA 2005f	1	--
Pyrene	0.51	USEPA 2005f	1	--

Notes:

BCF = Bioconcentration Factor

BAF = Bioaccumulation Factor

TABLE 9

**SEDIMENT BIOACCUMULATION FACTORS USED FOR AQUATIC INVERTEBRATES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Sediment-Invertebrate BAF (dry weight)	
	Value	Reference
Inorganics		
Arsenic	0.675	Bechtel Jacobs 1998b
Cadmium	3.073	Bechtel Jacobs 1998b
Chromium	0.186	Bechtel Jacobs 1998b
Lead	0.326	Bechtel Jacobs 1998b
Mercury	1.735	Bechtel Jacobs 1998b
Selenium	1	--
Silver	0.18	Hirsch 1998
Pesticides/PCBs		
4,4'-DDD	0.5	Oliver 1987
4,4'-DDE	4.3	Oliver 1987
4,4'-DDT	0.5	Oliver 1987
Aldrin	1	--
alpha-BHC	1	--
alpha-Chlordane	1	--
Dieldrin	1	--
Endosulfan I	1	--
Endosulfan II	1	--
Endrin	1	--
Gamma-BHC (Lindane)	1	--
Gamma-Chlordane	1	--
Heptachlor	1	--
Heptachlor Epoxide	1	--

TABLE 9

**SEDIMENT BIOACCUMULATION FACTORS USED FOR AQUATIC INVERTEBRATES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Sediment-Invertebrate BAF (dry weight)	
	Value	Reference
Pesticides/PCBs		
Methoxychlor	1	--
Toxaphene	1	--
Aroclor-1016	21.89	Bechtel Jacobs 1998b
Aroclor-1221	21.89	Bechtel Jacobs 1998b
Aroclor-1232	21.89	Bechtel Jacobs 1998b
Aroclor-1242	21.89	Bechtel Jacobs 1998b
Aroclor-1248	21.89	Bechtel Jacobs 1998b
Aroclor-1254	21.89	Bechtel Jacobs 1998b
Aroclor-1260	21.89	Bechtel Jacobs 1998b
Semivolatile Organics		
1,2,4-Trichlorobenzene	1	--
1,2-Dichlorobenzene	1	--
1,3-Dichlorobenzene	1	--
1,4-Dichlorobenzene	1	--
4-Bromophenyl-Phenylether	1	--
4-Chlorophenyl-Phenylether	1	--
Acenaphthene	2.04	Maruya et al. 1997
Acenaphthylene	1	--
Anthracene	0.271	Maruya et al. 1997
Benzo(a)anthracene	1.4	Maruya et al. 1997
Benzo(a)pyrene	0.191	Maruya et al. 1997
Benzo(b)fluoranthene	0.16	Maruya et al. 1997
Benzo(g,h,i)perylene	0.295	Maruya et al. 1997
Benzo(k)fluoranthene	0.421	Maruya et al. 1997
Chrysene	0.335	Maruya et al. 1997
Dibenz(a,h)anthracene	1	--

TABLE 9

**SEDIMENT BIOACCUMULATION FACTORS USED FOR AQUATIC INVERTEBRATES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Chemical	Sediment-Invertebrate BAF (dry weight)	
	Value	Reference
Semivolatile Organics		
Fluoranthene	0.312	Maruya et al. 1997
Fluorene	1.13	Maruya et al. 1997
Hexachloro-1,3-butadiene	1	--
Hexachlorobenzene	1	--
Hexachlorocyclopentadiene	1	--
Hexachloroethane	1	--
Indeno(1,2,3-cd)pyrene	0.355	Maruya et al. 1997
Pentachlorophenol	1	--
Phenanthrene	0.652	Maruya et al. 1997
Pyrene	0.803	Maruya et al. 1997

Notes:

BAF = Bioaccumulation Factor

TABLE 10

**EXPOSURE PARAMETERS FOR UPPER TROPHIC LEVEL RECEPTORS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Receptor	Body Weight (kg)		Water Ingestion Rate (L/day)		Food Ingestion Rate (kg/day - dry)	
	Value	Reference	Value	Reference	Value	Reference
Birds						
American robin	0.0635	USEPA 1993	0.01287	allometric equation	0.00735	Levey and Karasov 1989
Mourning dove	0.105	Tomlinson et al. 1994	0.01750	allometric equation	0.01787	allometric equation
Red-tailed hawk	0.957	USEPA 1993	0.06796	allometric equation	0.03952	Sample and Suter 1994
Mammals						
Meadow vole	0.03	Silva and Downing 1995	0.01334	USEPA 1993	0.00310	USEPA 1993
Raccoon	4.23	Silva and Downing 1995	0.60919	allometric equation	0.12526	Conover 1989
Red fox	3.17	Silva and Downing 1995	0.41154	allometric equation	0.14763	Sample and Suter 1994
Short-tailed shrew	0.01331	USEPA 1993	0.00475	USEPA 1993	0.00189	USEPA 1993
White-footed mouse	0.0141	Silva and Downing 1995	0.00915	Sample and Suter 1994	0.00073	Sample and Suter 1994

Notes:

kg = kilograms

L/day = liters per day

kg/day-dry = kilograms per day (dry weight)

TABLE 11

**DIETARY COMPOSITION FOR UPPER TROPHIC LEVEL RECEPTORS
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

Receptor	Dietary Composition (percent)						Soil/ Sediment Ingestion (percent)		
	Terr. Plants	Soil Invert.	Small Mammals	Frogs	Aquatic Plants	Aquatic Invert.	Reference	Value	Reference
Birds									
American robin	51.9	43.5	0	0	0	0	Martin et al. 1951	4.6	Sample and Suter 1994
Mourning dove	95	0	0	0	0	0	Tomlinson et al. 1994	5	Assumed based on diet
Red-tailed hawk	0	0	100	0	0	0	USEPA 1993; Sample and Suter 1994	0	Sample and Suter 1994
Mammals									
Meadow vole	95.6	2	0	0	0	0	USEPA 1993	2.4	Beyer et al. 1994
Raccoon	0	0	0	7	40	43.6	USEPA 1993	9.4	Beyer et al. 1994
Red fox	7	2.8	87.4	0	0	0	USEPA 1993	2.8	Beyer et al. 1994
Short-tailed shrew	4.7	82.3	0	0	0	0	USEPA 1993; Sample and Suter 1994	13	Sample and Suter 1994
White-footed mouse	51	47	0	0	0	0	Martin et al. 1951; Sample and Suter 1994	2	Beyer et al. 1994

TABLE 12
AOC 1 NORTHERN SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1N-SS-GP1(0-6INCHES)	FGOW-AOC1N-SS-SS1(0-6INCHES)	FGOW-AOC1N-SS-SS2(0-6INCHES)	Comments	Exceeds Screening Value?
Analyte:								
Explosives								
2,4-Dinitrotoluene	121-14-2	mg/kg	1.28	0.25 U	0.55	0.4		No
2,6-Dinitrotoluene	606-20-2	mg/kg	0.0328	0.25 U	0.12 JJ	0.25 U	Max>SV (HQ=3.66), DL>SV	Yes
Metals								
Arsenic	7440-38-2	mg/kg	18	8.3	3.7	2.7 J		No
Barium	7440-39-3	mg/kg	330	190	58	50		No
Cadmium	7440-43-9	mg/kg	0.36	0.67 U	0.14 J	0.11 J	DL>SV; Detections < SV	No
Chromium	7440-47-3	mg/kg	26	25	19	19		No
Lead	7439-92-1	mg/kg	11	27	78	67	Max>SV (HQ=7.09)	Yes
Mercury	7439-97-6	mg/kg	0.1	0.52	11 J	4.2	Max>SV (HQ=110)	Yes
Selenium	7782-49-2	mg/kg	0.52	4 U	4.2 U	3.7 U	DL>SV	Yes
Silver	7440-22-4	mg/kg	4.2	2 U	2.1 U	1.8 U		No
SVOCs								
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110	440 U	550000 U	460000 U	DL>SV	Yes
1,2-Dichlorobenzene	95-50-1	ug/kg	2960	440 U	550000 U	460000 U	DL>SV	Yes
1,2-Diphenylhydrazine	122-66-7	ug/kg	NA	440 U	550000 U	460000 U	No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	37700	440 U	550000 U	460000 U	DL>SV	Yes
1,4-Dichlorobenzene	106-46-7	ug/kg	546	440 U	550000 U	460000 U	DL>SV	Yes
2,4,5-Trichlorophenol	95-95-4	ug/kg	14100	440 U	550000 U	460000 U	DL>SV	Yes
2,4,6-Trichlorophenol	88-06-2	ug/kg	9940	440 U	550000 U	460000 U	DL>SV	Yes
2,4-Dichlorophenol	120-83-2	ug/kg	87500	440 U	550000 U	460000 U	DL>SV	Yes
2,4-Dimethylphenol	105-67-9	ug/kg	10	440 U	550000 U	460000 U	DL>SV	Yes
2,4-Dinitrophenol	51-28-5	ug/kg	60.9	2200 U	2700000 U	2200000 U	DL>SV	Yes
2,4-Dinitrotoluene	121-14-2	ug/kg	1.28	440 U	550000 U	460000 U	See explosives analysis	
2,6-Dichlorophenol	87-65-0	ug/kg	1170	440 U	550000 U	460000 U	DL>SV	Yes
2,6-Dinitrotoluene	606-20-2	ug/kg	0.0328	440 U	550000 U	460000 U	See explosives analysis	
2-Chloronaphthalene	91-58-7	ug/kg	12.2	440 U	550000 U	460000 U	DL>SV	Yes
2-Chlorophenol	95-57-8	ug/kg	243	440 U	550000 U	460000 U	DL>SV	Yes
2-Methylnaphthalene	91-57-6	ug/kg	3240	440 U	550000 U	460000 U	DL>SV	Yes
2-Methylphenol	95-48-7	ug/kg	40400	440 U	550000 U	460000 U	DL>SV	Yes
2-Nitroaniline	88-74-4	ug/kg	74100	2200 U	2700000 U	2200000 U	DL>SV	Yes
2-Nitrophenol	88-75-5	ug/kg	1600	440 U	550000 U	460000 U	DL>SV	Yes
3,3-Dichlorobenzidine	91-94-1	ug/kg	646	2200 U	2700000 U	2200000 U	DL>SV	Yes
3-Methylphenol & 4-Methylphenol	65794-96-9	ug/kg	NA	440 U	550000 U	460000 U	DL>SV	Yes
3-Nitroaniline	99-09-2	ug/kg	3160	2200 U	2700000 U	2200000 U	DL>SV	Yes
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	144	2200 U	2700000 U	2200000 U	DL>SV	Yes
4-Bromophenyl phenyl ether	101-55-3	ug/kg	NA	440 U	550000 U	460000 U	No SV	No SV
4-Chloro-3-methylphenol	59-50-7	ug/kg	7950	440 U	550000 U	460000 U	DL>SV	Yes
4-Chloroaniline	106-47-8	ug/kg	1100	440 U	550000 U	460000 U	DL>SV	Yes
4-Chlorophenyl phenyl ether	7005-72-3	ug/kg	NA	440 U	550000 U	460000 U	No SV	No SV
4-Nitroaniline	100-01-6	ug/kg	21900	2200 U	2700000 U	2200000 U	DL>SV	Yes

TABLE 12
AOC 1 NORTHERN SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1N-SS-GP1(0-6INCHES)		FGOW-AOC1N-SS-SS1(0-6INCHES)		FGOW-AOC1N-SS-SS2(0-6INCHES)		Comments	Exceeds Screening Value?
4-Nitrophenol	100-02-7	ug/kg	5120	2200	U	2700000	U	2200000	U	DL>SV	Yes
Acenaphthene	83-32-9	ug/kg	682000	440	U	550000	U	460000	U		No
Acenaphthylene	208-96-8	ug/kg	628000	440	U	550000	U	460000	U		No
Anthracene	120-12-7	ug/kg	1480000	440	U	550000	U	460000	U		No
Benzidine	92-87-5	ug/kg	NA	5400	U	6600000	U	5500000	U	No SV	No SV
Benzo(a)anthracene	56-55-3	ug/kg	5210	440	U	550000	U	460000	U	DL>SV	Yes
Benzo(a)pyrene	50-32-8	ug/kg	1520	440	U	550000	U	460000	U	DL>SV	Yes
Benzo(b)fluoranthene	205-99-2	ug/kg	59800	440	U	550000	U	460000	U	DL>SV	Yes
Benzo(ghi)perylene	191-24-2	ug/kg	119000	440	U	550000	U	460000	U	DL>SV	Yes
Benzo(k)fluoranthene	207-08-9	ug/kg	148000	440	U	550000	U	460000	U	DL>SV	Yes
Benzoic acid	65-85-0	ug/kg	NA	2200	U	2700000	U	2200000	U	No SV	No SV
Benzyl alcohol	100-51-6	ug/kg	65800	440	U	550000	U	460000	U	DL>SV	Yes
bis(2-Chloroethoxy)methane	111-91-1	ug/kg	302	440	U	550000	U	460000	U	DL>SV	Yes
bis(2-Chloroethyl) ether	111-44-4	ug/kg	23700	440	U	550000	U	460000	U	DL>SV	Yes
bis(2-Chloroisopropyl) ether	108-60-1	ug/kg	19900	440	U	550000	U	460000	U	DL>SV	Yes
bis(2-Ethylhexyl) phthalate	117-81-7	ug/kg	925	94	J	550000	U	460000	U	DL>SV; Detections < SV	Yes
Butyl benzyl phthalate	85-68-7	ug/kg	239	440	U	550000	U	460000	U	DL>SV	Yes
Carbazole	86-74-8	ug/kg	NA	440	U	550000	U	460000	U	No SV	No SV
Chrysene	218-01-9	ug/kg	4730	440	U	550000	U	460000	U	DL>SV	Yes
Di-n-butyl phthalate	84-74-2	ug/kg	150	460		550000	U	460000	U	Max>SV (HQ=3.07); DL>SV	Yes
Di-n-octyl phthalate	117-84-0	ug/kg	709000	440	U	550000	U	460000	U		No
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400	440	U	550000	U	460000	U	DL>SV	Yes
Dibenzofuran	132-64-9	ug/kg	NA	440	U	550000	U	460000	U	No SV	No SV
Diethyl phthalate	84-66-2	ug/kg	24800	890	U	1100000	U	920000	U	DL>SV	Yes
Dimethyl phthalate	131-11-3	ug/kg	734000	440	U	550000	U	460000	U		No
Fluoranthene	206-44-0	ug/kg	122000	440	U	550000	U	460000	U	DL>SV	Yes
Fluorene	86-73-7	ug/kg	122000	440	U	550000	U	460000	U	DL>SV	Yes
Hexachlorobenzene	118-74-1	ug/kg	199	440	U	550000	U	460000	U	DL>SV	Yes
Hexachlorobutadiene	87-68-3	ug/kg	39.8	440	U	550000	U	460000	U	DL>SV	Yes
Hexachloroethane	67-72-1	ug/kg	596	440	U	550000	U	460000	U	DL>SV	Yes
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12600	440	U	550000	U	460000	U	DL>SV	Yes
Isophorone	78-59-1	ug/kg	139000	440	U	550000	U	460000	U	DL>SV	Yes
N-Nitrosodi-n-propylamine	621-64-7	ug/kg	544	440	U	550000	U	460000	U	DL>SV	Yes
N-Nitrosodimethylamine	62-75-9	ug/kg	0.0321	700	U	860000	U	720000	U	DL>SV	Yes
N-Nitrosodiphenylamine	86-30-6	ug/kg	545	440	U	550000	U	460000	U	DL>SV	Yes
N-Nitrosopyrrolidine	930-55-2	ug/kg	12.6	440	U	550000	U	460000	U	DL>SV	Yes
Naphthalene	91-20-3	ug/kg	99.4	440	U	550000	U	460000	U	DL>SV	Yes
Nitrobenzene	98-95-3	ug/kg	1310	440	U	550000	U	460000	U	DL>SV	Yes
Pentachlorophenol	87-86-5	ug/kg	2100	2200	U	2700000	U	2200000	U	DL>SV	Yes
Phenanthrene	85-01-8	ug/kg	45700	440	U	550000	U	460000	U	DL>SV	Yes
Phenol	108-95-2	ug/kg	120000	440	U	550000	U	460000	U	DL>SV	Yes
Pyrene	129-00-0	ug/kg	78500	540	U	660000	U	550000	U	DL>SV	Yes
VOCS											

TABLE 12
AOC 1 NORTHERN SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1N-SS-GP1(0-6INCHES)	FGOW-AOC1N-SS-SS1(0-6INCHES)	FGOW-AOC1N-SS-SS2(0-6INCHES)	Comments	Exceeds Screening Value?
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	225000	8.9 U	7.3 U	7.1 U		No
1,1,1-Trichloroethane	71-55-6	ug/kg	29800	8.9 U	7.3 U	7.1 U		No
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	127	8.9 U	7.3 U	7.1 U		No
1,1,2-Trichloroethane	79-00-5	ug/kg	28600	8.9 U	7.3 U	7.1 U		No
1,1-Dichloroethane	75-34-3	ug/kg	20100	8.9 U	7.3 U	7.1 U		No
1,1-Dichloroethene	75-35-4	ug/kg	8280	8.9 U	7.3 U	7.1 U		No
1,1-Dichloropropene	563-58-6	ug/kg	NA	8.9 U	7.3 U	7.1 U	No SV	No SV
1,2,3-Trichlorobenzene	87-61-6	ug/kg	NA	8.9 U	3.2 JQJ	7.1 U	Detect; No SV	No SV
1,2,3-Trichloropropane	96-18-4	ug/kg	3360	8.9 U	7.3 U	7.1 U		No
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110	8.9 U	2.4 JQJ	7.1 U		No
1,2,4-Trimethylbenzene	95-63-6	ug/kg	NA	1.3 J	1.1 JQJ	7.1 U	Detect; No SV	No SV
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/kg	35.2	18 U	15 U	14 U		No
1,2-Dibromoethane (EDB)	106-93-4	ug/kg	1230	8.9 U	7.3 U	7.1 U		No
1,2-Dichlorobenzene	95-50-1	ug/kg	2960	8.9 U	0.82 JQJ	7.1 U		No
1,2-Dichloroethane	107-06-2	ug/kg	21200	8.9 U	7.3 U	7.1 U		No
1,2-Dichloropropane	78-87-5	ug/kg	32700	8.9 U	7.3 U	7.1 U		No
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	8.9 U	7.3 U	7.1 U	No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	37700	8.9 U	7.3 U	7.1 U		No
1,3-Dichloropropane	142-28-9	ug/kg	NA	8.9 U	7.3 U	7.1 U	No SV	No SV
1,4-Dichlorobenzene	106-46-7	ug/kg	546	8.9 U	7.3 U	7.1 U		No
2,2-Dichloropropane	594-20-7	ug/kg	9600	8.9 U	7.3 U	7.1 U		No
2-Butanone (MEK)	78-93-3	ug/kg	89600	36 U	4.4 JQJ	29 U		No
2-Chlorotoluene	95-49-8	ug/kg	NA	8.9 U	7.3 U	7.1 U	No SV	No SV
2-Hexanone	591-78-6	ug/kg	12600	36 U	29 U	29 U		No
4-Chlorotoluene	106-43-4	ug/kg	NA	8.9 U	7.3 U	7.1 U		No
4-Methyl-2-pentanone	108-10-1	ug/kg	443000	36 U	29 U	29 U		No
Acetone	67-64-1	ug/kg	2500	36 U	9.1 JQJ	29 U		No
Benzene	71-43-2	ug/kg	255	8.9 U	7.3 U	7.1 U		No
Bromobenzene	108-86-1	ug/kg	NA	8.9 U	7.3 U	7.1 U	No SV	No SV
Bromochloromethane	74-97-5	ug/kg	NA	8.9 U	7.3 U	7.1 U	No SV	No SV
Bromodichloromethane	75-27-4	ug/kg	540	8.9 U	7.3 U	7.1 U		No
Bromoform	75-25-2	ug/kg	15900	8.9 U	7.3 U	7.1 U		No
Bromomethane	74-83-9	ug/kg	235	18 U	15 U	14 U		No
Carbon disulfide	75-15-0	ug/kg	94.1	8.9 U	7.3 U	7.1 U		No
Carbon tetrachloride	56-23-5	ug/kg	2980	8.9 U	7.3 U	7.1 U		No
Chlorobenzene	108-90-7	ug/kg	13100	8.9 U	7.3 U	7.1 U		No
Chloroethane	75-00-3	ug/kg	NA	18 U	15 U	14 U	No SV	No SV
Chloroform	67-66-3	ug/kg	1190	18 U	15 U	14 U		No
Chloromethane	74-87-3	ug/kg	10400	18 U	15 U	14 U		No
cis-1,2-Dichloroethene	156-59-2	ug/kg	200	4.4 U	3.7 U	3.6 U		No
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398	8.9 U	7.3 U	7.1 U		No
Dibromochloromethane	124-48-1	ug/kg	2050	8.9 U	7.3 U	7.1 U		No
Dibromomethane	74-95-3	ug/kg	65000	8.9 U	7.3 U	7.1 U		No
Dichlorodifluoromethane	75-71-8	ug/kg	39500	18 U	15 U	14 U		No

TABLE 12
AOC 1 NORTHERN SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1N-SS-GP1(0-6INCHES)	FGOW-AOC1N-SS-SS1(0-6INCHES)	FGOW-AOC1N-SS-SS2(0-6INCHES)	Comments	Exceeds Screening Value?
Ethylbenzene	100-41-4	ug/kg	5160	8.9 U	7.3 U	7.1 U		No
Hexachlorobutadiene	87-68-3	ug/kg	39.8	8.9 U	7.3 U	7.1 U		No
Isopropylbenzene	98-82-8	ug/kg	NA	8.9 U	7.3 U	7.1 U	No SV	No SV
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	4.4 U	3.7 U	3.6 U	No SV	No SV
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	36 U	29 U	29 U	No SV	No SV
Methylene chloride	75-09-2	ug/kg	4050	1.6 JB	1.7 JBQJ	1.7 JBQJ		No
n-Butylbenzene	104-51-8	ug/kg	NA	8.9 U	7.3 U	7.1 U	No SV	No SV
n-Propylbenzene	103-65-1	ug/kg	NA	8.9 U	7.3 U	7.1 U	No SV	No SV
Naphthalene	91-20-3	ug/kg	99.4	4 JB	5.6 JQJ	2.3 JQJ		No
o-Xylene	95-47-6	ug/kg	NA	4.4 U	3.7 U	3.6 U	No SV	No SV
p-Isopropyltoluene	99-87-6	ug/kg	NA	3.2 J	7.3 U	7.1 U	No SV	No SV
sec-Butylbenzene	135-98-8	ug/kg	NA	8.9 U	7.3 U	7.1 U	No SV	No SV
Styrene	100-42-5	ug/kg	4690	8.9 U	7.3 U	7.1 U		No
tert-Butylbenzene	98-06-6	ug/kg	NA	8.9 U	7.3 U	7.1 U	No SV	No SV
Tetrachloroethene	127-18-4	ug/kg	9920	8.9 U	7.3 U	7.1 U		No
Toluene	108-88-3	ug/kg	5450	8.9 U	1 JQJ	7.1 U		No
trans-1,2-Dichloroethene	156-60-5	ug/kg	784	4.4 U	3.7 U	3.6 U		No
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398	8.9 U	7.3 U	7.1 U		No
Trichloroethene	79-01-6	ug/kg	12400	8.9 U	7.3 U	7.1 U		No
Trichlorofluoromethane	75-69-4	ug/kg	16400	18 U	15 U	14 U		No
Vinyl chloride	75-01-4	ug/kg	646	8.9 U	7.3 U	7.1 U		No
Other								
Nitrocellulose	9004-70-0	mg/kg	NA	2500 q	18000 Jq	16000 Jq	Detect; No SV	No SV

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranthene and benzo(k)fluoranthene

Q - One or more quality control criteria failed

U - undetected at the limit of detection

u - Undetected due to presence of analyte in method blank - concentrations in samples not significantly different from background

TABLE 13
AOC 1 MIDDLE SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1M-SS-GP1(0-6INCHES)	FGOW-AOC1M-SS-GP2(0-6INCHES)	FGOW-AOC1M-SS-GP3(0-6INCHES)	FGOW-AOC1M-SS-SS1(0-6INCHES)
Analyte:							
Explosives							
2,4-Dinitrotoluene	121-14-2	mg/kg	1.28	0.16 J	0.25 U	0.25 U	0.25 U
2,6-Dinitrotoluene	606-20-2	mg/kg	0.0328	0.25 U	0.25 U	0.25 U	0.25 U
Metals							
Arsenic	7440-38-2	mg/kg	18	7.6	5	5.4	3.8
Barium	7440-39-3	mg/kg	330	190	120	160	81
Cadmium	7440-43-9	mg/kg	0.36	0.11 J	0.19 J	0.13 J	0.6 U
Chromium	7440-47-3	mg/kg	26	29	16	19	13
Lead	7439-92-1	mg/kg	11	38	13	22	6.9 J
Mercury	7439-97-6	mg/kg	0.1	1.9	0.34	0.86	0.025 J
Selenium	7782-49-2	mg/kg	0.52	4.1 U	4.3 U	3.8 U	3.6 U
Silver	7440-22-4	mg/kg	4.2	2 U	2.2 U	1.9 U	1.8 U
SVOCs							
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110	450 U	470 U	420 U	390 U
1,2-Dichlorobenzene	95-50-1	ug/kg	2960	450 U	470 U	420 U	390 U
1,2-Diphenylhydrazine	122-66-7	ug/kg	NA	450 U	470 U	420 U	390 U
1,3-Dichlorobenzene	541-73-1	ug/kg	37700	450 U	470 U	420 U	390 U
1,4-Dichlorobenzene	106-46-7	ug/kg	546	450 U	470 U	420 U	390 U
2,4,5-Trichlorophenol	95-95-4	ug/kg	14100	450 U	470 U	420 U	390 U
2,4,6-Trichlorophenol	88-06-2	ug/kg	9940	450 U	470 U	420 U	390 U
2,4-Dichlorophenol	120-83-2	ug/kg	87500	450 U	470 U	420 U	390 U
2,4-Dimethylphenol	105-67-9	ug/kg	10	450 U	470 U	420 U	390 U
2,4-Dinitrophenol	51-28-5	ug/kg	60.9	2200 U	2300 U	2000 U	1900 U
2,4-Dinitrotoluene	121-14-2	ug/kg	1280	450 U	470 U	420 U	390 U
2,6-Dichlorophenol	87-65-0	ug/kg	1170	450 U	470 U	420 U	390 U
2,6-Dinitrotoluene	606-20-2	ug/kg	0.0328	450 U	470 U	420 U	390 U
2-Chloronaphthalene	91-58-7	ug/kg	12.2	450 U	470 U	420 U	390 U
2-Chlorophenol	95-57-8	ug/kg	243	450 U	470 U	420 U	390 U
2-Methylnaphthalene	91-57-6	ug/kg	3240	450 U	470 U	420 U	390 U
2-Methylphenol	95-48-7	ug/kg	40400	450 U	470 U	420 U	390 U
2-Nitroaniline	88-74-4	ug/kg	74100	2200 U	2300 U	2000 U	1900 U
2-Nitrophenol	88-75-5	ug/kg	1600	450 U	470 U	420 U	390 U
3,3-Dichlorobenzidine	91-94-1	ug/kg	646	2200 U	2300 U	2000 U	1900 U
3-Methylphenol & 4-Methylphenol	65794-96-9	ug/kg	NA	450 U	470 U	420 U	390 U
3-Nitroaniline	99-09-2	ug/kg	3160	2200 U	2300 U	2000 U	1900 U
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	144	2200 U	2300 U	2000 U	1900 U
4-Bromophenyl phenyl ether	101-55-3	ug/kg	NA	450 U	470 U	420 U	390 U
4-Chloro-3-methylphenol	59-50-7	ug/kg	7950	450 U	470 U	420 U	390 U
4-Chloroaniline	106-47-8	ug/kg	1100	450 U	470 U	420 U	390 U
4-Chlorophenyl phenyl ether	7005-72-3	ug/kg	NA	450 U	470 U	420 U	390 U

TABLE 13
AOC 1 MIDDLE SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1M-SS-GP1(0-6INCHES)	FGOW-AOC1M-SS-GP2(0-6INCHES)	FGOW-AOC1M-SS-GP3(0-6INCHES)	FGOW-AOC1M-SS-SS1(0-6INCHES)
4-Nitroaniline	100-01-6	ug/kg	21900	2200 U	2300 U	2000 U	1900 U
4-Nitrophenol	100-02-7	ug/kg	5120	2200 U	2300 U	2000 U	1900 U
Acenaphthene	83-32-9	ug/kg	682000	450 U	470 U	420 U	390 U
Acenaphthylene	208-96-8	ug/kg	628000	450 U	470 U	420 U	390 U
Anthracene	120-12-7	ug/kg	1480000	450 U	470 U	420 U	390 U
Benzidine	92-87-5	ug/kg	NA	5500 U	5800 U	5100 U	4800 U
Benzo(a)anthracene	56-55-3	ug/kg	5210	450 U	470 U	420 U	390 U
Benzo(a)pyrene	50-32-8	ug/kg	1520	450 U	470 U	420 U	390 U
Benzo(b)fluoranthene	205-99-2	ug/kg	59800	87 JJ	470 U	420 U	390 U
Benzo(ghi)perylene	191-24-2	ug/kg	119000	450 U	470 U	420 U	390 U
Benzo(k)fluoranthene	207-08-9	ug/kg	148000	450 U	260 J	420 U	390 U
Benzoic acid	65-85-0	ug/kg	NA	550 JJ	550 J	460 J	420 JJ
Benzyl alcohol	100-51-6	ug/kg	65800	450 U	470 U	420 U	390 U
bis(2-Chloroethoxy)methane	111-91-1	ug/kg	302	450 U	470 U	420 U	390 U
bis(2-Chloroethyl) ether	111-44-4	ug/kg	23700	450 U	470 U	420 U	390 U
bis(2-Chloroisopropyl) ether	108-60-1	ug/kg	19900	450 U	470 U	420 U	390 U
bis(2-Ethylhexyl) phthalate	117-81-7	ug/kg	925	440 JJ	100 J	90 J	390 U
Butyl benzyl phthalate	85-68-7	ug/kg	239	450 U	470 U	420 U	390 U
Carbazole	86-74-8	ug/kg	NA	450 U	470 U	420 U	390 U
Chrysene	218-01-9	ug/kg	4730	450 U	470 U	420 U	390 U
Di-n-butyl phthalate	84-74-2	ug/kg	150	300 JJ	290 J	110 J	390 U
Di-n-octyl phthalate	117-84-0	ug/kg	709000	450 U	470 U	420 U	390 U
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400	450 U	470 U	420 U	390 U
Dibenzofuran	132-64-9	ug/kg	NA	450 U	470 U	420 U	390 U
Diethyl phthalate	84-66-2	ug/kg	24800	900 U	950 U	840 U	790 U
Dimethyl phthalate	131-11-3	ug/kg	734000	450 U	470 U	420 U	390 U
Fluoranthene	206-44-0	ug/kg	122000	450 U	470 U	420 U	390 U
Fluorene	86-73-7	ug/kg	122000	450 U	470 U	420 U	390 U
Hexachlorobenzene	118-74-1	ug/kg	199	450 U	470 U	420 U	390 U
Hexachlorobutadiene	87-68-3	ug/kg	39.8	450 U	470 U	420 U	390 U
Hexachloroethane	67-72-1	ug/kg	596	450 U	470 U	420 U	390 U
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12600	450 U	470 U	420 U	390 U
Isophorone	78-59-1	ug/kg	139000	450 U	470 U	420 U	390 U
N-Nitrosodi-n-propylamine	621-64-7	ug/kg	544	450 U	470 U	420 U	390 U
N-Nitrosodimethylamine	62-75-9	ug/kg	0.0321	710 U	750 U	660 U	620 U
N-Nitrosodiphenylamine	86-30-6	ug/kg	545	450 U	470 U	420 U	390 U
N-Nitrosopyrrolidine	930-55-2	ug/kg	12.6	450 U	470 U	420 U	390 U
Naphthalene	91-20-3	ug/kg	99.4	450 U	470 U	420 U	390 U
Nitrobenzene	98-95-3	ug/kg	1310	450 U	470 U	420 U	390 U
Pentachlorophenol	87-86-5	ug/kg	2100	2200 U	2300 U	2000 U	1900 U
Phenanthrene	85-01-8	ug/kg	45700	110 JJ	110 J	97 J	96 JJ
Phenol	108-95-2	ug/kg	120000	450 U	470 U	420 U	390 U
Pyrene	129-00-0	ug/kg	78500	550 U	580 U	510 U	480 U

TABLE 13
AOC 1 MIDDLE SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1M-SS-GP1(0-6INCHES)	FGOW-AOC1M-SS-GP2(0-6INCHES)	FGOW-AOC1M-SS-GP3(0-6INCHES)	FGOW-AOC1M-SS-SS1(0-6INCHES)
VOCs							
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	225000	7.2 U	6.5 U	5.9 U	6.3 U
1,1,1-Trichloroethane	71-55-6	ug/kg	29800	7.2 U	6.5 U	5.9 U	6.3 U
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	127	7.2 U	6.5 U	5.9 U	6.3 U
1,1,2-Trichloroethane	79-00-5	ug/kg	28600	7.2 U	6.5 U	5.9 U	6.3 U
1,1-Dichloroethane	75-34-3	ug/kg	20100	7.2 U	6.5 U	5.9 U	6.3 U
1,1-Dichloroethene	75-35-4	ug/kg	8280	7.2 U	6.5 U	5.9 U	6.3 U
1,1-Dichloropropene	563-58-6	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
1,2,3-Trichlorobenzene	87-61-6	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
1,2,3-Trichloropropane	96-18-4	ug/kg	3360	7.2 U	6.5 U	5.9 U	6.3 U
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110	7.2 U	6.5 U	5.9 U	6.3 U
1,2,4-Trimethylbenzene	95-63-6	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/kg	35.2	14 U	13 U	12 U	13 U
1,2-Dibromoethane (EDB)	106-93-4	ug/kg	1230	7.2 U	6.5 U	5.9 U	6.3 U
1,2-Dichlorobenzene	95-50-1	ug/kg	2960	7.2 U	6.5 U	5.9 U	6.3 U
1,2-Dichloroethane	107-06-2	ug/kg	21200	7.2 U	6.5 U	5.9 U	6.3 U
1,2-Dichloropropane	78-87-5	ug/kg	32700	7.2 U	6.5 U	5.9 U	6.3 U
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
1,3-Dichlorobenzene	541-73-1	ug/kg	37700	7.2 U	6.5 U	5.9 U	6.3 U
1,3-Dichloropropane	142-28-9	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
1,4-Dichlorobenzene	106-46-7	ug/kg	546	7.2 U	6.5 U	5.9 U	6.3 U
2,2-Dichloropropane	594-20-7	ug/kg	9600	7.2 U	6.5 U	5.9 U	6.3 U
2-Butanone (MEK)	78-93-3	ug/kg	89600	29 U	26 U	24 U	25 U
2-Chlorotoluene	95-49-8	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
2-Hexanone	591-78-6	ug/kg	12600	29 U	26 U	24 U	25 U
4-Chlorotoluene	106-43-4	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
4-Methyl-2-pentanone	108-10-1	ug/kg	443000	29 U	26 U	24 U	25 U
Acetone	67-64-1	ug/kg	2500	29 U	26 U	24 U	25 U
Benzene	71-43-2	ug/kg	255	7.2 U	6.5 U	5.9 U	6.3 U
Bromobenzene	108-86-1	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
Bromochloromethane	74-97-5	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
Bromodichloromethane	75-27-4	ug/kg	540	7.2 U	6.5 U	5.9 U	6.3 U
Bromoform	75-25-2	ug/kg	15900	7.2 U	6.5 U	5.9 U	6.3 U
Bromomethane	74-83-9	ug/kg	235	14 U	13 U	12 U	13 U
Carbon disulfide	75-15-0	ug/kg	94.1	7.2 U	6.5 U	5.9 U	6.3 U
Carbon tetrachloride	56-23-5	ug/kg	2980	7.2 U	6.5 U	5.9 U	6.3 U
Chlorobenzene	108-90-7	ug/kg	13100	7.2 U	6.5 U	5.9 U	6.3 U
Chloroethane	75-00-3	ug/kg	NA	14 U	13 U	12 U	13 U
Chloroform	67-66-3	ug/kg	1190	14 U	13 U	12 U	13 U
Chloromethane	74-87-3	ug/kg	10400	14 U	13 U	12 U	13 U
cis-1,2-Dichloroethene	156-59-2	ug/kg	200	3.6 U	3.2 U	2.9 U	3.1 U
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398	7.2 U	6.5 U	5.9 U	6.3 U
Dibromochloromethane	124-48-1	ug/kg	2050	7.2 U	6.5 U	5.9 U	6.3 U

TABLE 13
AOC 1 MIDDLE SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1M-SS-GP1(0-6INCHES)	FGOW-AOC1M-SS-GP2(0-6INCHES)	FGOW-AOC1M-SS-GP3(0-6INCHES)	FGOW-AOC1M-SS-SS1(0-6INCHES)
Dibromomethane	74-95-3	ug/kg	65000	7.2 U	6.5 U	5.9 U	6.3 U
Dichlorodifluoromethane	75-71-8	ug/kg	39500	14 U	13 U	12 U	13 U
Ethylbenzene	100-41-4	ug/kg	5160	7.2 U	6.5 U	5.9 U	6.3 U
Hexachlorobutadiene	87-68-3	ug/kg	39.8	7.2 U	6.5 U	5.9 U	6.3 U
Isopropylbenzene	98-82-8	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	3.6 U	3.2 U	2.9 U	3.1 U
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	29 U	26 U	24 U	25 U
Methylene chloride	75-09-2	ug/kg	4050	1.8 JBQJ	1.6 JBJ	1.3 JB	1.4 JBJ
n-Butylbenzene	104-51-8	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
n-Propylbenzene	103-65-1	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
Naphthalene	91-20-3	ug/kg	99.4	7.2 U	6.5 U	5.9 U	1.2 JJ
o-Xylene	95-47-6	ug/kg	NA	3.6 U	3.2 U	2.9 U	3.1 U
p-Isopropyltoluene	99-87-6	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
sec-Butylbenzene	135-98-8	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
Styrene	100-42-5	ug/kg	4690	7.2 U	6.5 U	5.9 U	6.3 U
tert-Butylbenzene	98-06-6	ug/kg	NA	7.2 U	6.5 U	5.9 U	6.3 U
Tetrachloroethene	127-18-4	ug/kg	9920	7.2 U	6.5 U	5.9 U	6.3 U
Toluene	108-88-3	ug/kg	5450	7.2 U	6.5 U	5.9 U	6.3 U
trans-1,2-Dichloroethene	156-60-5	ug/kg	784	3.6 U	3.2 U	2.9 U	3.1 U
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398	7.2 U	6.5 U	5.9 U	6.3 U
Trichloroethene	79-01-6	ug/kg	12400	7.2 U	6.5 U	5.9 U	6.3 U
Trichlorofluoromethane	75-69-4	ug/kg	16400	14 U	13 U	12 U	13 U
Vinyl chloride	75-01-4	ug/kg	646	7.2 U	6.5 U	5.9 U	6.3 U
Other							
Nitrocellulose	9004-70-0	mg/kg	NA	11000 Jq	350 Jq	430 Jq	6.3 J

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranthene and benzo(k)fluoranthene

Q - One or more quality control criteria failed

U - undetected at the limit of detection

u - Undetected due to presence of analyte in method blank - concentrations in samples not significantly different from background

TABLE 13
AOC 1 MIDDLE SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1M-SS-SS2(0-6INCHES)	FGOW-AOC1M-SS-SS3(0-6INCHES)	Comments	Exceeds Screening Value?
Analyte:							
Explosives							
2,4-Dinitrotoluene	121-14-2	mg/kg	1.28	0.46	0.25 U		No
2,6-Dinitrotoluene	606-20-2	mg/kg	0.0328	0.25 U	0.25 U	DL>SV	Yes
Metals							
Arsenic	7440-38-2	mg/kg	18	4.7	4.5		No
Barium	7440-39-3	mg/kg	330	85	89		No
Cadmium	7440-43-9	mg/kg	0.36	0.06 J	0.62 U	DL>SV; detects < SV	No
Chromium	7440-47-3	mg/kg	26	20	13	Max>SV (HQ=1.12)	Yes
Lead	7439-92-1	mg/kg	11	39	7.6 J	Max>SV (HQ=3.55)	Yes
Mercury	7439-97-6	mg/kg	0.1	4.9	0.021 J	Max>SV (HQ=49.00)	Yes
Selenium	7782-49-2	mg/kg	0.52	4.1 U	3.8 U	DL>SV	Yes
Silver	7440-22-4	mg/kg	4.2	2.1 U	1.9 U		No
SVOCs							
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110	1800 U	410 U		No
1,2-Dichlorobenzene	95-50-1	ug/kg	2960	1800 U	410 U		No
1,2-Diphenylhydrazine	122-66-7	ug/kg	NA	1800 U	410 U	No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	37700	1800 U	410 U		No
1,4-Dichlorobenzene	106-46-7	ug/kg	546	1800 U	410 U	DL>SV	Yes
2,4,5-Trichlorophenol	95-95-4	ug/kg	14100	1800 U	410 U		No
2,4,6-Trichlorophenol	88-06-2	ug/kg	9940	1800 U	410 U		No
2,4-Dichlorophenol	120-83-2	ug/kg	87500	1800 U	410 U		No
2,4-Dimethylphenol	105-67-9	ug/kg	10	1800 U	410 U	DL>SV	Yes
2,4-Dinitrophenol	51-28-5	ug/kg	60.9	8800 U	2000 U	DL>SV	Yes
2,4-Dinitrotoluene	121-14-2	ug/kg	1280	190 J	410 U		No
2,6-Dichlorophenol	87-65-0	ug/kg	1170	1800 U	410 U	DL>SV	Yes
2,6-Dinitrotoluene	606-20-2	ug/kg	0.0328	1800 U	410 U	See explosives results	
2-Chloronaphthalene	91-58-7	ug/kg	12.2	1800 U	410 U	DL>SV	Yes
2-Chlorophenol	95-57-8	ug/kg	243	1800 U	410 U	DL>SV	Yes
2-Methylnaphthalene	91-57-6	ug/kg	3240	1800 U	410 U		No
2-Methylphenol	95-48-7	ug/kg	40400	1800 U	410 U		No
2-Nitroaniline	88-74-4	ug/kg	74100	8800 U	2000 U		No
2-Nitrophenol	88-75-5	ug/kg	1600	1800 U	410 U	DL>SV	Yes
3,3-Dichlorobenzidine	91-94-1	ug/kg	646	8800 U	2000 U	DL>SV	Yes
3-Methylphenol & 4-Methylphenol	65794-96-9	ug/kg	NA	1800 U	410 U	No SV	No SV
3-Nitroaniline	99-09-2	ug/kg	3160	8800 U	2000 U	DL>SV	Yes
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	144	8800 U	2000 U	DL>SV	Yes
4-Bromophenyl phenyl ether	101-55-3	ug/kg	NA	1800 U	410 U	No SV	No SV
4-Chloro-3-methylphenol	59-50-7	ug/kg	7950	1800 U	410 U		No
4-Chloroaniline	106-47-8	ug/kg	1100	1800 U	410 U	DL>SV	Yes
4-Chlorophenyl phenyl ether	7005-72-3	ug/kg	NA	1800 U	410 U	No SV	No SV

TABLE 13
AOC 1 MIDDLE SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1M-SS-SS2(0-6INCHES)		FGOW-AOC1M-SS-SS3(0-6INCHES)		Comments	Exceeds Screening Value?
4-Nitroaniline	100-01-6	ug/kg	21900	8800	U	2000	U		No
4-Nitrophenol	100-02-7	ug/kg	5120	8800	U	2000	U	DL>SV	Yes
Acenaphthene	83-32-9	ug/kg	682000	1800	U	410	U		No
Acenaphthylene	208-96-8	ug/kg	628000	1800	U	410	U		No
Anthracene	120-12-7	ug/kg	1480000	1800	U	410	U		No
Benzidine	92-87-5	ug/kg	NA	22000	U	5000	U	No SV	No SV
Benzo(a)anthracene	56-55-3	ug/kg	5210	1800	U	410	U		No
Benzo(a)pyrene	50-32-8	ug/kg	1520	1800	U	410	U	DL>SV	Yes
Benzo(b)fluoranthene	205-99-2	ug/kg	59800	1800	U	410	U		No
Benzo(ghi)perylene	191-24-2	ug/kg	119000	1800	U	410	U		No
Benzo(k)fluoranthene	207-08-9	ug/kg	148000	1800	U	230	JJ		No
Benzoic acid	65-85-0	ug/kg	NA	8800	U	560	JJ	Detected; No SV	No SV
Benzyl alcohol	100-51-6	ug/kg	65800	1800	U	410	U		No
bis(2-Chloroethoxy)methane	111-91-1	ug/kg	302	1800	U	410	U	DL>SV	Yes
bis(2-Chloroethyl) ether	111-44-4	ug/kg	23700	1800	U	410	U		No
bis(2-Chloroisopropyl) ether	108-60-1	ug/kg	19900	1800	U	410	U		No
bis(2-Ethylhexyl) phthalate	117-81-7	ug/kg	925	360	J	85	JJ		No
Butyl benzyl phthalate	85-68-7	ug/kg	239	1800	U	410	U	DL>SV	Yes
Carbazole	86-74-8	ug/kg	NA	1800	U	410	U	No SV	No SV
Chrysene	218-01-9	ug/kg	4730	1800	U	410	U		No
Di-n-butyl phthalate	84-74-2	ug/kg	150	2900		410	U	Max>SV (HQ=19.33); DL>SV	Yes
Di-n-octyl phthalate	117-84-0	ug/kg	709000	1800	U	410	U		No
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400	1800	U	410	U		No
Dibenzofuran	132-64-9	ug/kg	NA	1800	U	410	U	No SV	No SV
Diethyl phthalate	84-66-2	ug/kg	24800	3600	U	820	U		No
Dimethyl phthalate	131-11-3	ug/kg	734000	1800	U	410	U		No
Fluoranthene	206-44-0	ug/kg	122000	1800	U	410	U		No
Fluorene	86-73-7	ug/kg	122000	1800	U	410	U		No
Hexachlorobenzene	118-74-1	ug/kg	199	1800	U	410	U	DL>SV	Yes
Hexachlorobutadiene	87-68-3	ug/kg	39.8	1800	U	410	U	DL>SV	Yes
Hexachloroethane	67-72-1	ug/kg	596	1800	U	410	U	DL>SV	Yes
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12600	1800	U	410	U		No
Isophorone	78-59-1	ug/kg	139000	1800	U	410	U		No
N-Nitrosodi-n-propylamine	621-64-7	ug/kg	544	1800	U	410	U	DL>SV	Yes
N-Nitrosodimethylamine	62-75-9	ug/kg	0.0321	2900	U	650	U	DL>SV	Yes
N-Nitrosodiphenylamine	86-30-6	ug/kg	545	1800	U	410	U	DL>SV	Yes
N-Nitrosopyrrolidine	930-55-2	ug/kg	12.6	1800	U	410	U	DL>SV	Yes
Naphthalene	91-20-3	ug/kg	99.4	1800	U	410	U	DL>SV	Yes
Nitrobenzene	98-95-3	ug/kg	1310	1800	U	410	U	DL>SV	Yes
Pentachlorophenol	87-86-5	ug/kg	2100	8800	U	2000	U	DL>SV	Yes
Phenanthrene	85-01-8	ug/kg	45700	430	J	100	JJ		No
Phenol	108-95-2	ug/kg	120000	1800	U	410	U		No
Pyrene	129-00-0	ug/kg	78500	2200	U	500	U		No

TABLE 13
AOC 1 MIDDLE SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1M-SS-SS2(0-6INCHES)		FGOW-AOC1M-SS-SS3(0-6INCHES)		Comments	Exceeds Screening Value?
VOCs									No
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	225000	6.8	U	5.5	U		No
1,1,1-Trichloroethane	71-55-6	ug/kg	29800	6.8	U	5.5	U		No
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	127	6.8	U	5.5	U		No
1,1,2-Trichloroethane	79-00-5	ug/kg	28600	6.8	U	5.5	U		No
1,1-Dichloroethane	75-34-3	ug/kg	20100	6.8	U	5.5	U		No
1,1-Dichloroethene	75-35-4	ug/kg	8280	6.8	U	5.5	U		No
1,1-Dichloropropene	563-58-6	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
1,2,3-Trichlorobenzene	87-61-6	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
1,2,3-Trichloropropane	96-18-4	ug/kg	3360	6.8	U	5.5	U		No
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110	6.8	U	5.5	U		No
1,2,4-Trimethylbenzene	95-63-6	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/kg	35.2	14	U	11	U		No
1,2-Dibromoethane (EDB)	106-93-4	ug/kg	1230	6.8	U	5.5	U		No
1,2-Dichlorobenzene	95-50-1	ug/kg	2960	6.8	U	5.5	U		No
1,2-Dichloroethane	107-06-2	ug/kg	21200	6.8	U	5.5	U		No
1,2-Dichloropropane	78-87-5	ug/kg	32700	6.8	U	5.5	U		No
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	37700	6.8	U	5.5	U		No
1,3-Dichloropropane	142-28-9	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
1,4-Dichlorobenzene	106-46-7	ug/kg	546	6.8	U	5.5	U		No
2,2-Dichloropropane	594-20-7	ug/kg	9600	6.8	U	5.5	U		No
2-Butanone (MEK)	78-93-3	ug/kg	89600	27	U	22	U		No
2-Chlorotoluene	95-49-8	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
2-Hexanone	591-78-6	ug/kg	12600	27	U	22	U		No
4-Chlorotoluene	106-43-4	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
4-Methyl-2-pentanone	108-10-1	ug/kg	443000	27	U	22	U		No
Acetone	67-64-1	ug/kg	2500	27	U	22	U		No
Benzene	71-43-2	ug/kg	255	6.8	U	5.5	U		No
Bromobenzene	108-86-1	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
Bromochloromethane	74-97-5	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
Bromodichloromethane	75-27-4	ug/kg	540	6.8	U	5.5	U		No
Bromoform	75-25-2	ug/kg	15900	6.8	U	5.5	U		No
Bromomethane	74-83-9	ug/kg	235	14	U	11	U		No
Carbon disulfide	75-15-0	ug/kg	94.1	6.8	U	5.5	U		No
Carbon tetrachloride	56-23-5	ug/kg	2980	6.8	U	5.5	U		No
Chlorobenzene	108-90-7	ug/kg	13100	6.8	U	5.5	U		No
Chloroethane	75-00-3	ug/kg	NA	14	U	11	U	No SV	No SV
Chloroform	67-66-3	ug/kg	1190	14	U	11	U		No
Chloromethane	74-87-3	ug/kg	10400	14	U	11	U		No
cis-1,2-Dichloroethene	156-59-2	ug/kg	200	3.4	U	2.8	U		No
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398	6.8	U	5.5	U		No
Dibromochloromethane	124-48-1	ug/kg	2050	6.8	U	5.5	U		No

TABLE 13
AOC 1 MIDDLE SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1M-SS-SS2(0-6INCHES)		FGOW-AOC1M-SS-SS3(0-6INCHES)		Comments	Exceeds Screening Value?
Dibromomethane	74-95-3	ug/kg	65000	6.8	U	5.5	U		No
Dichlorodifluoromethane	75-71-8	ug/kg	39500	14	U	11	U		No
Ethylbenzene	100-41-4	ug/kg	5160	6.8	U	5.5	U		No
Hexachlorobutadiene	87-68-3	ug/kg	39.8	6.8	U	5.5	U		No
Isopropylbenzene	98-82-8	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	3.4	U	2.8	U	No SV	No SV
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	27	U	22	U	No SV	No SV
Methylene chloride	75-09-2	ug/kg	4050	1.6	JBQJ	1.1	JBj		No
n-Butylbenzene	104-51-8	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
n-Propylbenzene	103-65-1	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
Naphthalene	91-20-3	ug/kg	99.4	1.4	JQJ	0.8	JJ		No
o-Xylene	95-47-6	ug/kg	NA	3.4	U	2.8	U	No SV	No SV
p-Isopropyltoluene	99-87-6	ug/kg	NA	2.2	JQJ	5.5	U	Detected; No SV	No SV
sec-Butylbenzene	135-98-8	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
Styrene	100-42-5	ug/kg	4690	6.8	U	5.5	U		No
tert-Butylbenzene	98-06-6	ug/kg	NA	6.8	U	5.5	U	No SV	No SV
Tetrachloroethene	127-18-4	ug/kg	9920	6.8	U	5.5	U		No
Toluene	108-88-3	ug/kg	5450	6.8	U	5.5	U		No
trans-1,2-Dichloroethene	156-60-5	ug/kg	784	3.4	U	2.8	U		No
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398	6.8	U	5.5	U		No
Trichloroethene	79-01-6	ug/kg	12400	6.8	U	5.5	U		No
Trichlorofluoromethane	75-69-4	ug/kg	16400	14	U	11	U		No
Vinyl chloride	75-01-4	ug/kg	646	6.8	U	5.5	U		No
Other									
Nitrocellulose	9004-70-0	mg/kg	NA	4600	Jq	5.2	BJu	Detected; No SV	No SV

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranthene

Q - One or more quality control criteria failed

U - undetected at the limit of detection

u - Undetected due to presence of analyte in method blank - concentrations in s:

TABLE 14
AOC 1 SOUTHERN SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1S-SS- GP1(0-6INCHES)		FGOW-AOC1S-SS- GP2(0-6INCHES)		FGOW-AOC1S-SS- SS1(0-6INCHES)		FGOW-AOC1S-SS- SS2(0-6INCHES)	
Analyte:											
Explosives											
2,4-Dinitrotoluene	121-14-2	mg/kg	1.28	0.25	U	0.25	U	0.25	U	0.25	U
2,6-Dinitrotoluene	606-20-2	mg/kg	0.0328	0.25	U	0.25	U	0.25	U	0.25	U
Metals											
Arsenic	7440-38-2	mg/kg	18	9		9.3		4.7		2.6	J
Barium	7440-39-3	mg/kg	330	260		240		120		89	
Cadmium	7440-43-9	mg/kg	0.36	0.18	J	0.18	J	0.68	U	0.63	U
Chromium	7440-47-3	mg/kg	26	27		23		15		22	
Lead	7439-92-1	mg/kg	11	21		24		14		320	
Mercury	7439-97-6	mg/kg	0.1	0.38		0.1		0.021	J	0.018	J
Selenium	7782-49-2	mg/kg	0.52	6	U	4.4	U	4.1	U	3.8	U
Silver	7440-22-4	mg/kg	4.2	3	U	2.2	U	2.1	U	1.9	U
SVOCs											
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110	660	U	490	U	450	U	4200	U
1,2-Dichlorobenzene	95-50-1	ug/kg	2960	660	U	490	U	450	U	4200	U
1,2-Diphenylhydrazine	122-66-7	ug/kg	NA	660	U	490	U	450	U	4200	U
1,3-Dichlorobenzene	541-73-1	ug/kg	37700	660	U	490	U	450	U	4200	U
1,4-Dichlorobenzene	106-46-7	ug/kg	546	660	U	490	U	450	U	4200	U
2,4,5-Trichlorophenol	95-95-4	ug/kg	14100	660	U	490	U	450	U	4200	U
2,4,6-Trichlorophenol	88-06-2	ug/kg	9940	660	U	490	U	450	U	4200	U
2,4-Dichlorophenol	120-83-2	ug/kg	87500	660	U	490	U	450	U	4200	U
2,4-Dimethylphenol	105-67-9	ug/kg	10	660	U	490	U	450	U	4200	U
2,4-Dinitrophenol	51-28-5	ug/kg	60.9	3200	U	2400	U	2200	U	20000	U
2,4-Dinitrotoluene	121-14-2	ug/kg	1.28	660	U	490	U	450	U	4200	U
2,6-Dichlorophenol	87-65-0	ug/kg	1170	660	U	490	U	450	U	4200	U
2,6-Dinitrotoluene	606-20-2	ug/kg	0.0328	660	U	490	U	450	U	4200	U
2-Chloronaphthalene	91-58-7	ug/kg	12.2	660	U	490	U	450	U	4200	U
2-Chlorophenol	95-57-8	ug/kg	243	660	U	490	U	450	U	4200	U
2-Methylnaphthalene	91-57-6	ug/kg	3240	660	U	490	U	450	U	4200	U
2-Methylphenol	95-48-7	ug/kg	40400	660	U	490	U	450	U	4200	U
2-Nitroaniline	88-74-4	ug/kg	74100	3200	U	2400	U	2200	U	20000	U
2-Nitrophenol	88-75-5	ug/kg	1600	660	U	490	U	450	U	4200	U
3,3-Dichlorobenzidine	91-94-1	ug/kg	646	3200	U	2400	U	2200	U	20000	U
3-Methylphenol & 4-Methylphenol	65794-96-9	ug/kg	NA	660	U	490	U	450	U	4200	U
3-Nitroaniline	99-09-2	ug/kg	3160	3200	U	2400	U	2200	U	20000	U
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	144	3200	U	2400	U	2200	U	20000	U
4-Bromophenyl phenyl ether	101-55-3	ug/kg	NA	660	U	490	U	450	U	4200	U
4-Chloro-3-methylphenol	59-50-7	ug/kg	7950	660	U	490	U	450	U	4200	U
4-Chloroaniline	106-47-8	ug/kg	1100	660	U	490	U	450	U	4200	U
4-Chlorophenyl phenyl ether	7005-72-3	ug/kg	NA	660	U	490	U	450	U	4200	U

TABLE 14
AOC 1 SOUTHERN SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1S-SS-GP1(0-6INCHES)		FGOW-AOC1S-SS-GP2(0-6INCHES)		FGOW-AOC1S-SS-SS1(0-6INCHES)		FGOW-AOC1S-SS-SS2(0-6INCHES)	
4-Nitroaniline	100-01-6	ug/kg	21900	3200	U	2400	U	2200	U	20000	U
4-Nitrophenol	100-02-7	ug/kg	5120	3200	U	2400	U	2200	U	20000	U
Acenaphthene	83-32-9	ug/kg	682000	660	U	490	U	450	U	580	J
Acenaphthylene	208-96-8	ug/kg	628000	660	U	490	U	450	U	4200	U
Anthracene	120-12-7	ug/kg	1480000	660	U	490	U	450	U	2000	J
Benzidine	92-87-5	ug/kg	NA	8000	U	5900	U	5500	U	50000	U
Benzo(a)anthracene	56-55-3	ug/kg	5210	660	U	490	U	450	U	14000	
Benzo(a)pyrene	50-32-8	ug/kg	1520	660	U	490	U	450	U	15000	
Benzo(b)fluoranthene	205-99-2	ug/kg	59800	660	U	490	U	450	U	31000	K
Benzo(ghi)perylene	191-24-2	ug/kg	119000	660	U	490	U	450	U	11000	
Benzo(k)fluoranthene	207-08-9	ug/kg	148000	660	U	260	J	450	U	4200	U
Benzoic acid	65-85-0	ug/kg	NA	730	J	520	J	2200	Q	20000	U
Benzyl alcohol	100-51-6	ug/kg	65800	660	U	490	U	450	U	4200	U
bis(2-Chloroethoxy)methane	111-91-1	ug/kg	302	660	U	490	U	450	U	4200	U
bis(2-Chloroethyl) ether	111-44-4	ug/kg	23700	660	U	490	U	450	U	4200	U
bis(2-Chloroisopropyl) ether	108-60-1	ug/kg	19900	660	U	490	U	450	U	4200	U
bis(2-Ethylhexyl) phthalate	117-81-7	ug/kg	925	660	U	100	J	450	U	4200	U
Butyl benzyl phthalate	85-68-7	ug/kg	239	660	U	490	U	450	U	4200	U
Carbazole	86-74-8	ug/kg	NA	660	U	490	U	450	U	2000	J
Chrysene	218-01-9	ug/kg	4730	660	U	490	U	450	U	18000	
Di-n-butyl phthalate	84-74-2	ug/kg	150	660	U	490	U	450	U	4200	U
Di-n-octyl phthalate	117-84-0	ug/kg	709000	660	U	490	U	450	U	4200	U
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400	660	U	490	U	450	U	2300	J
Dibenzofuran	132-64-9	ug/kg	NA	660	U	490	U	450	U	4200	U
Diethyl phthalate	84-66-2	ug/kg	24800	1300	U	970	U	900	U	8300	U
Dimethyl phthalate	131-11-3	ug/kg	734000	660	U	490	U	450	U	4200	U
Fluoranthene	206-44-0	ug/kg	122000	660	U	490	U	450	U	32000	
Fluorene	86-73-7	ug/kg	122000	660	U	490	U	450	U	580	J
Hexachlorobenzene	118-74-1	ug/kg	199	660	U	490	U	450	U	4200	U
Hexachlorobutadiene	87-68-3	ug/kg	39.8	660	U	490	U	450	U	4200	U
Hexachloroethane	67-72-1	ug/kg	596	660	U	490	U	450	U	4200	U
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12600	660	U	490	U	450	U	9800	
Isophorone	78-59-1	ug/kg	139000	660	U	490	U	450	U	4200	U
N-Nitrosodi-n-propylamine	621-64-7	ug/kg	544	660	U	490	U	450	U	4200	U
N-Nitrosodimethylamine	62-75-9	ug/kg	0.0321	1000	U	760	U	710	U	6500	U
N-Nitrosodiphenylamine	86-30-6	ug/kg	545	660	U	490	U	450	U	4200	U
N-Nitrosopyrrolidine	930-55-2	ug/kg	12.6	660	U	490	U	450	U	4200	U
Naphthalene	91-20-3	ug/kg	99.4	660	U	490	U	450	U	4200	U
Nitrobenzene	98-95-3	ug/kg	1310	660	U	490	U	450	U	4200	U
Pentachlorophenol	87-86-5	ug/kg	2100	3200	U	2400	U	2200	U	20000	U
Phenanthrene	85-01-8	ug/kg	45700	120	JJ	110	J	450	U	12000	
Phenol	108-95-2	ug/kg	120000	660	U	490	U	450	U	4200	U
Pyrene	129-00-0	ug/kg	78500	800	U	590	U	550	U	26000	

TABLE 14
AOC 1 SOUTHERN SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1S-SS-GP1(0-6INCHES)		FGOW-AOC1S-SS-GP2(0-6INCHES)		FGOW-AOC1S-SS-SS1(0-6INCHES)		FGOW-AOC1S-SS-SS2(0-6INCHES)	
VOCs											
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	225000	9.6	U	7.8	U	6.4	U	6.6	U
1,1,1-Trichloroethane	71-55-6	ug/kg	29800	9.6	U	7.8	U	6.4	U	6.6	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	127	9.6	U	7.8	U	6.4	U	6.6	U
1,1,2-Trichloroethane	79-00-5	ug/kg	28600	9.6	U	7.8	U	6.4	U	6.6	U
1,1-Dichloroethane	75-34-3	ug/kg	20100	9.6	U	7.8	U	6.4	U	6.6	U
1,1-Dichloroethene	75-35-4	ug/kg	8280	9.6	U	7.8	U	6.4	U	6.6	U
1,1-Dichloropropene	563-58-6	ug/kg	NA	9.6	U	7.8	U	6.4	U	6.6	U
1,2,3-Trichlorobenzene	87-61-6	ug/kg	NA	9.6	U	7.8	U	6.4	U	6.6	U
1,2,3-Trichloropropane	96-18-4	ug/kg	3360	9.6	U	7.8	U	6.4	U	6.6	U
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110	9.6	U	7.8	U	6.4	U	6.6	U
1,2,4-Trimethylbenzene	95-63-6	ug/kg	NA	9.6	U	7.8	U	1	J	0.88	JQJ
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/kg	35.2	19	U	16	U	13	U	13	U
1,2-Dibromoethane (EDB)	106-93-4	ug/kg	1230	9.6	U	7.8	U	6.4	U	6.6	U
1,2-Dichlorobenzene	95-50-1	ug/kg	2960	9.6	U	7.8	U	6.4	U	6.6	U
1,2-Dichloroethane	107-06-2	ug/kg	21200	9.6	U	7.8	U	6.4	U	6.6	U
1,2-Dichloropropane	78-87-5	ug/kg	32700	9.6	U	7.8	U	6.4	U	6.6	U
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	9.6	U	7.8	U	6.4	U	6.6	U
1,3-Dichlorobenzene	541-73-1	ug/kg	37700	9.6	U	7.8	U	6.4	U	6.6	U
1,3-Dichloropropane	142-28-9	ug/kg	NA	9.6	U	7.8	U	6.4	U	6.6	U
1,4-Dichlorobenzene	106-46-7	ug/kg	546	9.6	U	7.8	U	6.4	U	6.6	U
2,2-Dichloropropane	594-20-7	ug/kg	9600	9.6	U	7.8	U	6.4	U	6.6	U
2-Butanone (MEK)	78-93-3	ug/kg	89600	38	U	31	U	17	J	13	JQJ
2-Chlorotoluene	95-49-8	ug/kg	NA	9.6	U	7.8	U	6.4	U	6.6	U
2-Hexanone	591-78-6	ug/kg	12600	38	U	31	U	26	U	26	U
4-Chlorotoluene	106-43-4	ug/kg	NA	9.6	U	7.8	U	6.4	U	6.6	U
4-Methyl-2-pentanone	108-10-1	ug/kg	443000	38	U	31	U	26	U	26	U
Acetone	67-64-1	ug/kg	2500	38	U	31	U	170		60	QJ
Benzene	71-43-2	ug/kg	255	9.6	U	7.8	U	6.4	U	6.6	U
Bromobenzene	108-86-1	ug/kg	NA	9.6	U	7.8	U	6.4	U	6.6	U
Bromochloromethane	74-97-5	ug/kg	NA	9.6	U	7.8	U	6.4	U	6.6	U
Bromodichloromethane	75-27-4	ug/kg	540	9.6	U	7.8	U	6.4	U	6.6	U
Bromoform	75-25-2	ug/kg	15900	9.6	U	7.8	U	6.4	U	6.6	U
Bromomethane	74-83-9	ug/kg	235	19	U	16	U	13	U	13	U
Carbon disulfide	75-15-0	ug/kg	94.1	9.6	U	7.8	U	6.4	U	6.6	U
Carbon tetrachloride	56-23-5	ug/kg	2980	9.6	U	7.8	U	6.4	U	6.6	U
Chlorobenzene	108-90-7	ug/kg	13100	9.6	U	7.8	U	6.4	U	6.6	U
Chloroethane	75-00-3	ug/kg	NA	19	U	16	U	13	U	13	U
Chloroform	67-66-3	ug/kg	1190	19	U	16	U	13	U	13	U
Chloromethane	74-87-3	ug/kg	10400	19	U	16	U	13	U	13	U
cis-1,2-Dichloroethene	156-59-2	ug/kg	200	4.8	U	3.9	U	3.2	U	3.3	U
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398	9.6	U	7.8	U	6.4	U	6.6	U
Dibromochloromethane	124-48-1	ug/kg	2050	9.6	U	7.8	U	6.4	U	6.6	U

TABLE 14
AOC 1 SOUTHERN SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1S-SS-GP1(0-6INCHES)	FGOW-AOC1S-SS-GP2(0-6INCHES)	FGOW-AOC1S-SS-SS1(0-6INCHES)	FGOW-AOC1S-SS-SS2(0-6INCHES)
Dibromomethane	74-95-3	ug/kg	65000	9.6 U	7.8 U	6.4 U	6.6 U
Dichlorodifluoromethane	75-71-8	ug/kg	39500	19 U	16 U	13 U	13 U
Ethylbenzene	100-41-4	ug/kg	5160	9.6 U	7.8 U	6.4 U	6.6 U
Hexachlorobutadiene	87-68-3	ug/kg	39.8	9.6 U	7.8 U	6.4 U	6.6 U
Isopropylbenzene	98-82-8	ug/kg	NA	9.6 U	7.8 U	6.4 U	6.6 U
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	4.8 U	3.9 U	3.2 U	3.3 U
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	38 U	31 U	26 U	26 U
Methylene chloride	75-09-2	ug/kg	4050	2.1 JB	1.9 JBQJ	1.6 JB	1.7 JBQJ
n-Butylbenzene	104-51-8	ug/kg	NA	9.6 U	7.8 U	6.4 U	6.6 U
n-Propylbenzene	103-65-1	ug/kg	NA	9.6 U	7.8 U	6.4 U	6.6 U
Naphthalene	91-20-3	ug/kg	99.4	9.6 U	1.6 JQJ	2.3 J	2.4 JQJ
o-Xylene	95-47-6	ug/kg	NA	4.8 U	3.9 U	3.2 U	3.3 U
p-Isopropyltoluene	99-87-6	ug/kg	NA	9.6 U	7.8 U	6.4 U	6.6 U
sec-Butylbenzene	135-98-8	ug/kg	NA	9.6 U	7.8 U	6.4 U	6.6 U
Styrene	100-42-5	ug/kg	4690	9.6 U	7.8 U	6.4 U	6.6 U
tert-Butylbenzene	98-06-6	ug/kg	NA	9.6 U	7.8 U	6.4 U	6.6 U
Tetrachloroethene	127-18-4	ug/kg	9920	9.6 U	7.8 U	6.4 U	6.6 U
Toluene	108-88-3	ug/kg	5450	9.6 U	7.8 U	1.2 J	6.6 U
trans-1,2-Dichloroethene	156-60-5	ug/kg	784	4.8 U	3.9 U	3.2 U	3.3 U
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398	9.6 U	7.8 U	6.4 U	6.6 U
Trichloroethene	79-01-6	ug/kg	12400	9.6 U	7.8 U	6.4 U	6.6 U
Trichlorofluoromethane	75-69-4	ug/kg	16400	19 U	16 U	13 U	13 U
Vinyl chloride	75-01-4	ug/kg	646	9.6 U	7.8 U	6.4 U	6.6 U
Other							
Nitrocellulose	9004-70-0	mg/kg	NA	74 J	13 J	12 J	1.7 BJu

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranthene and benzo(k)fluoranthene

Q - One or more quality control criteria failed

U - undetected at the limit of detection

u - Undetected due to presence of analyte in method blank - concentrations in samples not significantly different from background

TABLE 14
AOC 1 SOUTHERN SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1S-SS-SS3(0-6INCHES)		Comments	Exceeds Screening Value?
Analyte:							
Explosives							
2,4-Dinitrotoluene	121-14-2	mg/kg	1.28	0.25	U		No
2,6-Dinitrotoluene	606-20-2	mg/kg	0.0328	0.25	U	DL>SV	Yes
Metals							
Arsenic	7440-38-2	mg/kg	18	1.1	J		No
Barium	7440-39-3	mg/kg	330	32			No
Cadmium	7440-43-9	mg/kg	0.36	0.66	U	DL>SV; Detections < SV	No
Chromium	7440-47-3	mg/kg	26	12		Max>SV; max HQ = 1.04	Yes
Lead	7439-92-1	mg/kg	11	14		Max>SV; max HQ = 29.09	Yes
Mercury	7439-97-6	mg/kg	0.1	0.091		Max>SV; max HQ = 3.80	Yes
Selenium	7782-49-2	mg/kg	0.52	4	U	DL>SV	Yes
Silver	7440-22-4	mg/kg	4.2	2	U		No
SVOCs							
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110	440	U		No
1,2-Dichlorobenzene	95-50-1	ug/kg	2960	440	U	DL>SV	Yes
1,2-Diphenylhydrazine	122-66-7	ug/kg	NA	440	U	No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	37700	440	U		No
1,4-Dichlorobenzene	106-46-7	ug/kg	546	440	U	DL>SV	Yes
2,4,5-Trichlorophenol	95-95-4	ug/kg	14100	440	U		No
2,4,6-Trichlorophenol	88-06-2	ug/kg	9940	440	U		No
2,4-Dichlorophenol	120-83-2	ug/kg	87500	440	U		No
2,4-Dimethylphenol	105-67-9	ug/kg	10	440	U	DL>SV	Yes
2,4-Dinitrophenol	51-28-5	ug/kg	60.9	2100	U	DL>SV	Yes
2,4-Dinitrotoluene	121-14-2	ug/kg	1.28	440	U	See explosives analysis	
2,6-Dichlorophenol	87-65-0	ug/kg	1170	440	U	DL>SV	Yes
2,6-Dinitrotoluene	606-20-2	ug/kg	0.0328	440	U	See explosives analysis	
2-Chloronaphthalene	91-58-7	ug/kg	12.2	440	U	DL>SV	Yes
2-Chlorophenol	95-57-8	ug/kg	243	440	U	DL>SV	Yes
2-Methylnaphthalene	91-57-6	ug/kg	3240	440	U	DL>SV	Yes
2-Methylphenol	95-48-7	ug/kg	40400	440	U		No
2-Nitroaniline	88-74-4	ug/kg	74100	2100	U		No
2-Nitrophenol	88-75-5	ug/kg	1600	440	U	DL>SV	Yes
3,3-Dichlorobenzidine	91-94-1	ug/kg	646	2100	U	DL>SV	Yes
3-Methylphenol & 4-Methylphenol	65794-96-9	ug/kg	NA	440	U	No SV	No SV
3-Nitroaniline	99-09-2	ug/kg	3160	2100	U	DL>SV	Yes
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	144	2100	U	DL>SV	Yes
4-Bromophenyl phenyl ether	101-55-3	ug/kg	NA	440	U	No SV	No SV
4-Chloro-3-methylphenol	59-50-7	ug/kg	7950	440	U		No
4-Chloroaniline	106-47-8	ug/kg	1100	440	U	DL>SV	Yes
4-Chlorophenyl phenyl ether	7005-72-3	ug/kg	NA	440	U	No SV	No SV

TABLE 14
AOC 1 SOUTHERN SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1S-SS-SS3(0-6INCHES)		Comments	Exceeds Screening Value?
4-Nitroaniline	100-01-6	ug/kg	21900	2100	U		No
4-Nitrophenol	100-02-7	ug/kg	5120	2100	U	DL>SV	Yes
Acenaphthene	83-32-9	ug/kg	682000	440	U		No
Acenaphthylene	208-96-8	ug/kg	628000	440	U		No
Anthracene	120-12-7	ug/kg	1480000	440	U		No
Benidine	92-87-5	ug/kg	NA	5300	U	No SV	No SV
Benzo(a)anthracene	56-55-3	ug/kg	5210	50	J	Max>SV; Max HQ = 2.69	Yes
Benzo(a)pyrene	50-32-8	ug/kg	1520	48	J	Max>SV; Max HQ = 9.87	Yes
Benzo(b)fluoranthene	205-99-2	ug/kg	59800	81	JK		No
Benzo(ghi)perylene	191-24-2	ug/kg	119000	440	U		No
Benzo(k)fluoranthene	207-08-9	ug/kg	148000	440	U		No
Benzoic acid	65-85-0	ug/kg	NA	2300	Q	Detected; No SV	No SV
Benzyl alcohol	100-51-6	ug/kg	65800	440	U		No
bis(2-Chloroethoxy)methane	111-91-1	ug/kg	302	440	U	DL>SV	Yes
bis(2-Chloroethyl) ether	111-44-4	ug/kg	23700	440	U		No
bis(2-Chloroisopropyl) ether	108-60-1	ug/kg	19900	440	U		No
bis(2-Ethylhexyl) phthalate	117-81-7	ug/kg	925	64	J	DL>SV	Yes
Butyl benzyl phthalate	85-68-7	ug/kg	239	440	U	DL>SV	Yes
Carbazole	86-74-8	ug/kg	NA	440	U	Detected; No SV	No SV
Chrysene	218-01-9	ug/kg	4730	54	J	Max>SV; Max HQ = 3.81	Yes
Di-n-butyl phthalate	84-74-2	ug/kg	150	440	U	DL>SV	Yes
Di-n-octyl phthalate	117-84-0	ug/kg	709000	440	U		No
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400	440	U		No
Dibenzofuran	132-64-9	ug/kg	NA	440	U	No SV	No SV
Diethyl phthalate	84-66-2	ug/kg	24800	870	U		No
Dimethyl phthalate	131-11-3	ug/kg	734000	440	U		No
Fluoranthene	206-44-0	ug/kg	122000	69	J		No
Fluorene	86-73-7	ug/kg	122000	440	U		No
Hexachlorobenzene	118-74-1	ug/kg	199	440	U	DL>SV	Yes
Hexachlorobutadiene	87-68-3	ug/kg	39.8	440	U	DL>SV	Yes
Hexachloroethane	67-72-1	ug/kg	596	440	U	DL>SV	Yes
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12600	440	U		No
Isophorone	78-59-1	ug/kg	139000	440	U		No
N-Nitrosodi-n-propylamine	621-64-7	ug/kg	544	440	U	DL>SV	Yes
N-Nitrosodimethylamine	62-75-9	ug/kg	0.0321	690	U	DL>SV	Yes
N-Nitrosodiphenylamine	86-30-6	ug/kg	545	440	U	DL>SV	Yes
N-Nitrosopyrrolidine	930-55-2	ug/kg	12.6	440	U	DL>SV	Yes
Naphthalene	91-20-3	ug/kg	99.4	440	U	DL>SV	Yes
Nitrobenzene	98-95-3	ug/kg	1310	440	U	DL>SV	Yes
Pentachlorophenol	87-86-5	ug/kg	2100	2100	U	DL>SV	Yes
Phenanthrene	85-01-8	ug/kg	45700	440	U		No
Phenol	108-95-2	ug/kg	120000	440	U		No
Pyrene	129-00-0	ug/kg	78500	64	J		No

TABLE 14
AOC 1 SOUTHERN SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1S-SS-SS3(0-6INCHES)		Comments	Exceeds Screening Value?
VOCs							
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	225000	7	U		No
1,1,1-Trichloroethane	71-55-6	ug/kg	29800	7	U		No
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	127	7	U		No
1,1,2-Trichloroethane	79-00-5	ug/kg	28600	7	U		No
1,1-Dichloroethane	75-34-3	ug/kg	20100	7	U		No
1,1-Dichloroethene	75-35-4	ug/kg	8280	7	U		No
1,1-Dichloropropene	563-58-6	ug/kg	NA	7	U	No SV	No SV
1,2,3-Trichlorobenzene	87-61-6	ug/kg	NA	7	U	No SV	No SV
1,2,3-Trichloropropane	96-18-4	ug/kg	3360	7	U		No
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110	7	U		No
1,2,4-Trimethylbenzene	95-63-6	ug/kg	NA	1.1	JQJ	Detected; No SV	No SV
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/kg	35.2	14	U		No
1,2-Dibromoethane (EDB)	106-93-4	ug/kg	1230	7	U		No
1,2-Dichlorobenzene	95-50-1	ug/kg	2960	7	U		No
1,2-Dichloroethane	107-06-2	ug/kg	21200	7	U		No
1,2-Dichloropropane	78-87-5	ug/kg	32700	7	U		No
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	7	U	No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	37700	7	U		No
1,3-Dichloropropane	142-28-9	ug/kg	NA	7	U	No SV	No SV
1,4-Dichlorobenzene	106-46-7	ug/kg	546	7	U		No
2,2-Dichloropropane	594-20-7	ug/kg	9600	7	U		No
2-Butanone (MEK)	78-93-3	ug/kg	89600	28	U		No
2-Chlorotoluene	95-49-8	ug/kg	NA	7	U	No SV	No SV
2-Hexanone	591-78-6	ug/kg	12600	28	U		No
4-Chlorotoluene	106-43-4	ug/kg	NA	7	U	No SV	No SV
4-Methyl-2-pentanone	108-10-1	ug/kg	443000	28	U		No
Acetone	67-64-1	ug/kg	2500	8.4	JQJ		No
Benzene	71-43-2	ug/kg	255	7	U		No
Bromobenzene	108-86-1	ug/kg	NA	7	U	No SV	No SV
Bromochloromethane	74-97-5	ug/kg	NA	7	U	No SV	No SV
Bromodichloromethane	75-27-4	ug/kg	540	7	U		No
Bromoform	75-25-2	ug/kg	15900	7	U		No
Bromomethane	74-83-9	ug/kg	235	14	U		No
Carbon disulfide	75-15-0	ug/kg	94.1	7	U		No
Carbon tetrachloride	56-23-5	ug/kg	2980	7	U		No
Chlorobenzene	108-90-7	ug/kg	13100	7	U		No
Chloroethane	75-00-3	ug/kg	NA	14	U	No SV	No SV
Chloroform	67-66-3	ug/kg	1190	14	U		No
Chloromethane	74-87-3	ug/kg	10400	14	U		No
cis-1,2-Dichloroethene	156-59-2	ug/kg	200	3.5	U		No
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398	7	U		No
Dibromochloromethane	124-48-1	ug/kg	2050	7	U		No

TABLE 14
AOC 1 SOUTHERN SECTION SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC1S-SS-SS3(0-6INCHES)		Comments	Exceeds Screening Value?
Dibromomethane	74-95-3	ug/kg	65000	7	U		No
Dichlorodifluoromethane	75-71-8	ug/kg	39500	14	U		No
Ethylbenzene	100-41-4	ug/kg	5160	7	U		No
Hexachlorobutadiene	87-68-3	ug/kg	39.8	7	U		No
Isopropylbenzene	98-82-8	ug/kg	NA	7	U	No SV	No SV
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	3.5	U	No SV	No SV
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	28	U	No SV	No SV
Methylene chloride	75-09-2	ug/kg	4050	1.4	JBQJ		No
n-Butylbenzene	104-51-8	ug/kg	NA	7	U	No SV	No SV
n-Propylbenzene	103-65-1	ug/kg	NA	7	U	No SV	No SV
Naphthalene	91-20-3	ug/kg	99.4	1.8	JQJ		No
o-Xylene	95-47-6	ug/kg	NA	3.5	U	No SV	No SV
p-Isopropyltoluene	99-87-6	ug/kg	NA	1	JQJ	Detected; No SV	No SV
sec-Butylbenzene	135-98-8	ug/kg	NA	7	U	No SV	No SV
Styrene	100-42-5	ug/kg	4690	7	U		No
tert-Butylbenzene	98-06-6	ug/kg	NA	7	U	No SV	No SV
Tetrachloroethene	127-18-4	ug/kg	9920	7	U		No
Toluene	108-88-3	ug/kg	5450	7	U		No
trans-1,2-Dichloroethene	156-60-5	ug/kg	784	3.5	U		No
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398	7	U		No
Trichloroethene	79-01-6	ug/kg	12400	7	U		No
Trichlorofluoromethane	75-69-4	ug/kg	16400	14	U		No
Vinyl chloride	75-01-4	ug/kg	646	7	U		No
Other							
Nitrocellulose	9004-70-0	mg/kg	NA	3.7	BJu	Detected; No SV	No SV

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoracene and benzo(b)fluoranthene

Q - One or more quality control criteria failed

U - undetected at the limit of detection

u - Undetected due to presence of analyte in method blank - concentration

TABLE 15
AOC 1 SOUTHERN SECTION SURFACE WATER DATA COMPARED TO FRESH SURFACE WATER SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Fresh Surface Water Screening Value	FGOW-AOC1S-W-S1		FGOW-AOC1S-W-S2		Comments	Exceeds Screening Value?
Analyte:									
Explosives									
2,4-Dinitrotoluene	121-14-2	ug/L	230	0.4	U	0.4	U		No
2,6-Dinitrotoluene	606-20-2	ug/L	230	0.4	U	0.4	U		No
Metals									
Arsenic	7440-38-2	ug/L	2	8		1	J	Max>SV; Max HQ = 4.00	Yes
Barium	7440-39-3	ug/L	2000	110		56			No
Cadmium	7440-43-9	ug/L	1.13	1	U	1	U		No
Chromium	7440-47-3	ug/L	100	10	U	0.57	J		No
Lead	7439-92-1	ug/L	3.18	0.19	J	3	U		No
Mercury	7439-97-6	ug/L	0.0069	0.2	U	0.2	U	DL>SV	Yes
Selenium	7782-49-2	ug/L	5	5	U	1.8	J		No
Silver	7440-22-4	ug/L	0.12	5	U	5	U	DL>SV	Yes
PAHs									
2-Methylnaphthalene	91-57-6	ug/L	330	0.033	J	0.1	U		No
Acenaphthene	83-32-9	ug/L	20	0.14		0.1	U		No
Acenaphthylene	208-96-8	ug/L	4840	0.0056	J	0.1	U		No
Anthracene	120-12-7	ug/L	0.035	0.019	J	0.1	U	DL>SV; Det<SV	No
Benzo(a)anthracene	56-55-3	ug/L	0.027	0.0057	J	0.1	U	DL>SV; Det<SV	No
Benzo(a)pyrene	50-32-8	ug/L	0.2	0.1	U	0.1	U		No
Benzo(b)fluoranthene	205-99-2	ug/L	9.07	0.1	U	0.1	U		No
Benzo(ghi)perylene	191-24-2	ug/L	7.64	0.1	U	0.1	U		No
Benzo(k)fluoranthene	207-08-9	ug/L	NA	0.1	U	0.1	U	No SV	No SV
Chrysene	218-01-9	ug/L	NA	0.1	U	0.1	U	No SV	No SV
Dibenzo(a,h)anthracene	53-70-3	ug/L	NA	0.1	U	0.1	U	No SV	No SV
Fluoranthene	206-44-0	ug/L	1.9	0.033	J	0.0052	J		No
Fluorene	86-73-7	ug/L	3.9	0.081	J	0.1	U		No
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	99	0.1	U	0.1	U		No
Naphthalene	91-20-3	ug/L	81	0.41		0.1	U		No
Phenanthrene	85-01-8	ug/L	3.6	0.048	J	0.1	U		No
Pyrene	129-00-0	ug/L	0.3	0.019	J	0.1	U		No
VOCs									
1,1,1,2-Tetrachloroethane	630-20-6	ug/L	NA	1	U	1	U	No SV	No SV
1,1,1-Trichloroethane	71-55-6	ug/L	200	1	U	1	U		No
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	1.1	1	U	1	U		No
1,1,2-Trichloroethane	79-00-5	ug/L	5	1	U	1	U		No
1,1-Dichloroethane	75-34-3	ug/L	47	1	U	1	U		No
1,1-Dichloroethene	75-35-4	ug/L	7	1	U	1	U		No
1,1-Dichloropropene	563-58-6	ug/L	NA	1	U	1	U	No SV	No SV
1,2,3-Trichlorobenzene	87-61-6	ug/L	8	1	U	1	U		No

TABLE 15
AOC 1 SOUTHERN SECTION SURFACE WATER DATA COMPARED TO FRESH SURFACE WATER SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Fresh Surface Water Screening Value	FGOW-AOC1S-W-S1	FGOW-AOC1S-W-S2	Comments	Exceeds Screening Value?
1,2,3-Trichloropropane	96-18-4	ug/L	NA	2 U	2 U	No SV	No SV
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	1 U	1 U		No
1,2,4-Trimethylbenzene	95-63-6	ug/L	77	1 U	1 U		No
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/L	0.2	5 U	5 U	DL>SV	Yes
1,2-Dibromoethane (EDB)	106-93-4	ug/L	0.05	1 U	1 U	DL>SV	Yes
1,2-Dichlorobenzene	95-50-1	ug/L	14	1 U	1 U		No
1,2-Dichloroethane	107-06-2	ug/L	3.5	1 U	1 U		No
1,2-Dichloropropane	78-87-5	ug/L	5	1 U	1 U		No
1,3,5-Trimethylbenzene	108-67-8	ug/L	71	1 U	1 U		No
1,3-Dichlorobenzene	541-73-1	ug/L	71	1 U	1 U		No
1,3-Dichloropropane	142-28-9	ug/L	NA	1 U	1 U	No SV	No SV
1,4-Dichlorobenzene	106-46-7	ug/L	15	1 U	1 U		No
2,2-Dichloropropane	594-20-7	ug/L	NA	1 U	1 U	No SV	No SV
2-Butanone (MEK)	78-93-3	ug/L	14000	6 U	6 U		No
2-Chlorotoluene	95-49-8	ug/L	NA	1 U	1 U	No SV	No SV
2-Hexanone	591-78-6	ug/L	99	5 U	5 U		No
4-Chlorotoluene	106-43-4	ug/L	NA	1 U	1 U	No SV	No SV
4-Methyl-2-pentanone	108-10-1	ug/L	170	5 U	5 U		No
Acetone	67-64-1	ug/L	1500	10 U	10 U		No
Benzene	71-43-2	ug/L	5	1 U	1 U		No
Bromobenzene	108-86-1	ug/L	NA	1 U	1 U	No SV	No SV
Bromochloromethane	74-97-5	ug/L	NA	1 U	1 U	No SV	No SV
Bromodichloromethane	75-27-4	ug/L	4320	1 U	1 U		No
Bromoform	75-25-2	ug/L	33	1 U	1 U		No
Bromomethane	74-83-9	ug/L	16	2 U	2 U		No
Carbon disulfide	75-15-0	ug/L	0.92	2 U	2 U	DL>SV	Yes
Carbon tetrachloride	56-23-5	ug/L	1.9	2 U	2 U	DL>SV	Yes
Chlorobenzene	108-90-7	ug/L	20	1 U	1 U		No
Chloroethane	75-00-3	ug/L	NA	2 U	2 U	No SV	No SV
Chloroform	67-66-3	ug/L	53	1 U	1 U		No
Chloromethane	74-87-3	ug/L	NA	2 U	2 U	No SV	No SV
cis-1,2-Dichloroethene	156-59-2	ug/L	70	1 U	1 U		No
cis-1,3-Dichloropropene	10061-01-5	ug/L	0.055	1 U	1 U	DL>SV	Yes
Dibromochloromethane	124-48-1	ug/L	257	1 U	1 U		No
Dibromomethane	74-95-3	ug/L	NA	1 U	1 U	No SV	No SV
Dichlorodifluoromethane	75-71-8	ug/L	1960	2 U	2 U		No
Ethylbenzene	100-41-4	ug/L	68	1 U	1 U		No
Hexachlorobutadiene	87-68-3	ug/L	9.3	1 U	1 U		No
Isopropylbenzene	98-82-8	ug/L	NA	1 U	1 U	No SV	No SV
m-Xylene & p-Xylene	136777-61-2	ug/L	166	2 U	2 U		No
Methyl tert-butyl ether	1634-04-4	ug/L	NA	5 U	5 U	No SV	No SV
Methylene chloride	75-09-2	ug/L	5	5 U	5 U		No
n-Butylbenzene	104-51-8	ug/L	71	1 U	1 U		No

TABLE 15
AOC 1 SOUTHERN SECTION SURFACE WATER DATA COMPARED TO FRESH SURFACE WATER SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Fresh Surface Water Screening Value	FGOW-AOC1S-W-S1		FGOW-AOC1S-W-S2		Comments	Exceeds Screening Value?
n-Propylbenzene	103-65-1	ug/L	128	1	U	1	U		No
Naphthalene	91-20-3	ug/L	81	0.69	J	1	U		No
o-Xylene	95-47-6	ug/L	166	1	U	1	U		No
p-Isopropyltoluene	99-87-6	ug/L	NA	1	U	1	U	No SV	No SV
sec-Butylbenzene	135-98-8	ug/L	82	1	U	1	U		No
Styrene	100-42-5	ug/L	100	1	U	1	U		No
tert-Butylbenzene	98-06-6	ug/L	48	1	U	1	U		No
Tetrachloroethene	127-18-4	ug/L	3.8	1	U	1	U		No
Toluene	108-88-3	ug/L	253	1	U	1	U		No
trans-1,2-Dichloroethene	156-60-5	ug/L	100	1	U	1	U		No
trans-1,3-Dichloropropene	10061-02-6	ug/L	0.055	1	U	1	U	DL>SV	Yes
Trichloroethene	79-01-6	ug/L	5	1	U	1	U		No
Trichlorofluoromethane	75-69-4	ug/L	1740	2	U	2	U		No
Vinyl chloride	75-01-4	ug/L	0.17	1	U	1	U	DL>SV	Yes
Other									
Nitrocellulose	9004-70-0	mg/L	NA	0.19	B	0.23	B	Detected; No SV	No SV

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranthene and benzo(k)fluoranthene

Q - One or more quality control criteria failed

U - undetected at the limit of detection

u - Undetected due to presence of analyte in method blank - concentrations in samples not significantly different from background

TABLE 16
AOC 1 SOUTHERN SECTION SEDIMENT DATA COMPARED TO SEDIMENT SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Sediment Screening Value	FGOW-AOC1S-SED-SED1(0-4INCHES)		FGOW-AOC1S-SED-SED2(0-4INCHES)		Comments	Exceeds Screening Value?
Analyte:									
Explosives									
2,4-Dinitrotoluene	121-14-2	mg/kg	0.0144	0.25	U	0.25	U	DL>SV	Yes
2,6-Dinitrotoluene	606-20-2	mg/kg	0.0398	0.25	U	0.25	U	DL>SV	Yes
Metals									
Arsenic	7440-38-2	mg/kg	9.79	4.4	J	6.5			No
Barium	7440-39-3	mg/kg	NA	87	J	160		Detected; No SV	No SV
Cadmium	7440-43-9	mg/kg	0.99	0.17		0.39			No
Chromium	7440-47-3	mg/kg	43.4	10	J	15			No
Lead	7439-92-1	mg/kg	35.8	9	J	19			No
Mercury	7439-97-6	mg/kg	0.174	0.035	J	0.037	J		No
Selenium	7782-49-2	mg/kg	NA	0.54	J	2.5		Detected; No SV	No SV
Silver	7440-22-4	mg/kg	0.5	0.038	JJ	0.065	J		No
PAHs									
2-Methylnaphthalene	91-57-6	ug/kg	20.2	2.8	J	0.69	J		No
Acenaphthene	83-32-9	ug/kg	6.71	11		0.69	J	Max > SV; Max HQ = 1.64	Yes
Acenaphthylene	208-96-8	ug/kg	5.87	3.8	J	1.2	J		No
Anthracene	120-12-7	ug/kg	57.2	19		3.4	J		No
Benzo(a)anthracene	56-55-3	ug/kg	108	62	J	11	J		No
Benzo(a)pyrene	50-32-8	ug/kg	150	120	QJ	17	JQ		No
Benzo(b)fluoranthene	205-99-2	ug/kg	10400	230	K	31	JK		No
Benzo(ghi)perylene	191-24-2	ug/kg	170	140	J	19			No
Benzo(k)fluoranthene	207-08-9	ug/kg	240	7.5	U	46	U		No
Chrysene	218-01-9	ug/kg	166	84	J	19	J		No
Dibenzo(a,h)anthracene	53-70-3	ug/kg	33	42	J	4.8	J	Max > SV; Max HQ = 1.27	Yes
Fluoranthene	206-44-0	ug/kg	423	110	J	26	J		No
Fluorene	86-73-7	ug/kg	77.4	12		7.9	J		No
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	58.2	120	J	15	J	Max > SV; Max HQ = 2.06	Yes
Naphthalene	91-20-3	ug/kg	176	5.7	J	1.3	J		No
Phenanthrene	85-01-8	ug/kg	204	38	J	10	J		No
Pyrene	129-00-0	ug/kg	195	98	J	20	J		No
VOCs									
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	NA	7.5	U	10	U	No SV	No SV
1,1,1-Trichloroethane	71-55-6	ug/kg	5062	7.5	U	10	U		No
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	850	7.5	U	10	U		No
1,1,2-Trichloroethane	79-00-5	ug/kg	518	7.5	U	10	U		No
1,1-Dichloroethane	75-34-3	ug/kg	0.575	7.5	U	10	U	DL>SV	Yes
1,1-Dichloroethene	75-35-4	ug/kg	19.4	7.5	U	10	U		No
1,1-Dichloropropene	563-58-6	ug/kg	NA	7.5	U	10	U	No SV	No SV
1,2,3-Trichlorobenzene	87-61-6	ug/kg	NA	7.5	U	10	U	No SV	No SV

TABLE 16
AOC 1 SOUTHERN SECTION SEDIMENT DATA COMPARED TO SEDIMENT SCREENING VALUES
FORMER GOPHER ORDNNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Sediment Screening Value	FGOW-AOC1S-SED-SED1(0-4INCHES)		FGOW-AOC1S-SED-SED2(0-4INCHES)		Comments	Exceeds Screening Value?
1,2,3-Trichloropropane	96-18-4	ug/kg	NA	7.5	U	10	U	No SV	No SV
1,2,4-Trichlorobenzene	120-82-1	ug/kg	5062	7.5	U	10	U		No
1,2,4-Trimethylbenzene	95-63-6	ug/kg	NA	7.5	U	10	U	No SV	No SV
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/kg	NA	15	U	20	U	No SV	No SV
1,2-Dibromoethane (EDB)	106-93-4	ug/kg	NA	7.5	U	10	U	No SV	No SV
1,2-Dichlorobenzene	95-50-1	ug/kg	1315	7.5	U	10	U		No
1,2-Dichloroethane	107-06-2	ug/kg	260	7.5	U	10	U		No
1,2-Dichloropropane	78-87-5	ug/kg	333	7.5	U	10	U		No
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	1.5	JJ	10	U	Detected; No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	1315	7.5	U	10	U		No
1,3-Dichloropropane	142-28-9	ug/kg	NA	7.5	U	10	U	No SV	No SV
1,4-Dichlorobenzene	106-46-7	ug/kg	318	7.5	U	10	U		No
2,2-Dichloropropane	594-20-7	ug/kg	NA	7.5	U	10	U	No SV	No SV
2-Butanone (MEK)	78-93-3	ug/kg	42.4	36	BJ	53	BJ	Max>SV; Maximum HQ = 1.25	Yes
2-Chlorotoluene	95-49-8	ug/kg	NA	7.5	U	10	U	No SV	No SV
2-Hexanone	591-78-6	ug/kg	58.2	30	U	41	U		No
4-Chlorotoluene	106-43-4	ug/kg	NA	7.5	U	10	U	No SV	No SV
4-Methyl-2-pentanone	108-10-1	ug/kg	25.1	30	U	41	U	DL>SV	Yes
Acetone	67-64-1	ug/kg	9.9	72	J	110	J	Max>SV; Maximum HQ = 11.10	Yes
Benzene	71-43-2	ug/kg	142	7.5	U	10	U		No
Bromobenzene	108-86-1	ug/kg	NA	7.5	U	10	U	No SV	No SV
Bromochloromethane	74-97-5	ug/kg	NA	7.5	U	10	U	No SV	No SV
Bromodichloromethane	75-27-4	ug/kg	NA	7.5	U	10	U	No SV	No SV
Bromoform	75-25-2	ug/kg	492	7.5	U	10	U		No
Bromomethane	74-83-9	ug/kg	1.37	15	U	20	U	DL>SV	Yes
Carbon disulfide	75-15-0	ug/kg	23.9	0.87	JJ	10	U		No
Carbon tetrachloride	56-23-5	ug/kg	1450	7.5	U	10	U		No
Chlorobenzene	108-90-7	ug/kg	291	7.5	U	10	U		No
Chloroethane	75-00-3	ug/kg	NA	15	U	20	U	No SV	No SV
Chloroform	67-66-3	ug/kg	121	15	U	20	U		No
Chloromethane	74-87-3	ug/kg	NA	15	U	20	U	No SV	No SV
cis-1,2-Dichloroethene	156-59-2	ug/kg	NA	3.7	U	5.1	U	No SV	No SV
cis-1,3-Dichloropropene	10061-01-5	ug/kg	NA	7.5	U	10	U	No SV	No SV
Dibromochloromethane	124-48-1	ug/kg	NA	7.5	U	10	U	No SV	No SV
Dibromomethane	74-95-3	ug/kg	NA	7.5	U	10	U	No SV	No SV
Dichlorodifluoromethane	75-71-8	ug/kg	NA	15	U	20	U	No SV	No SV
Ethylbenzene	100-41-4	ug/kg	175	7.5	U	10	U		No
Hexachlorobutadiene	87-68-3	ug/kg	26.5	7.5	U	10	U		No
Isopropylbenzene	98-82-8	ug/kg	NA	7.5	U	10	U	No SV	No SV
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	3.7	U	5.1	U	No SV	No SV
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	30	U	41	U	No SV	No SV
Methylene chloride	75-09-2	ug/kg	159	7.5	U	10	U		No
n-Butylbenzene	104-51-8	ug/kg	NA	7.5	U	10	U	No SV	No SV

TABLE 16
AOC 1 SOUTHERN SECTION SEDIMENT DATA COMPARED TO SEDIMENT SCREENING VALUES
FORMER GOPHER ORDANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Sediment Screening Value	FGOW-AOC1S-SED-SED1(0-4INCHES)		FGOW-AOC1S-SED-SED2(0-4INCHES)		Comments	Exceeds Screening Value?
n-Propylbenzene	103-65-1	ug/kg	NA	7.5	U	10	U	No SV	No SV
Naphthalene	91-20-3	ug/kg	176	4.7	JJ	10	U		No
o-Xylene	95-47-6	ug/kg	NA	3.7	U	5.1	U	No SV	No SV
p-Isopropyltoluene	99-87-6	ug/kg	NA	7.5	U	10	U	No SV	No SV
sec-Butylbenzene	135-98-8	ug/kg	NA	7.5	U	10	U	No SV	No SV
Styrene	100-42-5	ug/kg	254	7.5	U	10	U		No
tert-Butylbenzene	98-06-6	ug/kg	NA	7.5	U	10	U	No SV	No SV
Tetrachloroethene	127-18-4	ug/kg	990	7.5	U	10	U		No
Toluene	108-88-3	ug/kg	1220	1.1	JJ	10	U		No
trans-1,2-Dichloroethene	156-60-5	ug/kg	654	3.7	U	5.1	U		No
trans-1,3-Dichloropropene	10061-02-6	ug/kg	NA	7.5	U	10	U	No SV	No SV
Trichloroethene	79-01-6	ug/kg	112	7.5	U	10	U		No
Trichlorofluoromethane	75-69-4	ug/kg	NA	15	U	20	U	No SV	No SV
Vinyl chloride	75-01-4	ug/kg	202	7.5	U	10	U		No
Other									
Nitrocellulose	9004-70-0	mg/kg	NA	12	J	5.1	BJu	Detected; No SV	No SV

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranthene and benzo(k)fluoranthene

Q - One or more quality control criteria failed

U - undetected at the limit of detection

u - Undetected due to presence of analyte in method blank - concentrations in samples not significantly different from background

TABLE 17
SUMMARY OF HAZARD QUOTIENTS FOR FOOD WEB EXPOSURES
AOC 1
FORMER GOPHER ORDNANCE WORKS, ROSEMOUNT, MINNESOTA

Chemical	Short-tailed shrew			White-footed mouse			Meadow vole			Raccoon		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics												
Arsenic	6.43	0.64	2.03	3.21	0.32	1.02	8.33	0.83	2.64	1.29	0.13	0.41
Cadmium	0.91	0.09	0.29	0.21	0.02	0.07	0.08	<0.01	0.02	0.04	<0.01	0.01
Chromium	0.85	0.09	0.27	0.17	0.02	0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	7.96	0.80	2.52	2.02	0.20	0.64	2.07	0.21	0.66	0.03	<0.01	<0.01
Mercury	844.75	168.95	377.79	218.84	43.77	97.87	185.29	37.06	82.87	0.02	0.01	0.02
Selenium	5.85	3.54	4.55	3.41	2.07	2.65	9.09	5.51	7.07	0.67	0.41	0.52
Silver	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Semivolatile Organic Compounds												
1,2,4-Trichlorobenzene	0.97	0.48	0.68	0.54	0.27	0.38	1.50	0.75	1.06	<0.01	<0.01	<0.01
1,2-Dichlorobenzene	0.97	0.10	0.31	0.58	0.06	0.18	1.58	0.16	0.50	<0.01	<0.01	<0.01
1,3-Dichlorobenzene	0.96	0.10	0.30	0.52	0.05	0.16	1.36	0.14	0.43	<0.01	<0.01	<0.01
1,4-Dichlorobenzene	0.33	0.17	0.24	0.20	0.10	0.14	0.55	0.27	0.39	<0.01	<0.01	<0.01
4-Bromophenyl-Phenylether	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not analyzed in surface water/ sediment		
4-Chlorophenyl-Phenylether	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not analyzed in surface water/ sediment		
Acenaphthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	0.08	0.01	0.03	0.06	<0.01	0.02	0.21	0.03	0.08	<0.01	<0.01	<0.01
Anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	0.73	0.07	0.23	0.22	0.02	0.07	0.45	0.04	0.14	<0.01	<0.01	<0.01
Benzo(a)pyrene	0.89	0.09	0.28	0.22	0.02	0.07	0.34	0.03	0.11	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	1.37	0.14	0.43	0.34	0.03	0.11	0.65	0.07	0.21	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	1.29	0.13	0.41	0.35	0.04	0.11	0.58	0.06	0.18	<0.01	<0.01	<0.01
Dibenz(a,h)anthracene	0.18	0.02	0.06	0.04	<0.01	0.01	0.03	<0.01	0.01	<0.01	<0.01	<0.01
Fluoranthene	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachlorobutadiene	38.37	3.84	12.13	11.91	1.19	3.77	19.60	1.96	6.20	<0.01	<0.01	<0.01
Hexachlorobenzene	74.64	7.46	23.60	16.77	1.68	5.30	10.42	1.04	3.29	Not analyzed in surface water/ sediment		
Hexachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	Not analyzed in surface water/ sediment		
Indeno(1,2,3-cd)pyrene	0.66	0.07	0.21	0.14	0.01	0.04	0.15	0.01	0.05	<0.01	<0.01	<0.01
Pentachlorophenol	859.31	85.93	271.74	188.95	18.90	59.75	63.34	6.33	20.03	Not analyzed in surface water/ sediment		
Phenanthrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Shaded values indicate Hazard Quotients exceeding 1.0

TABLE 17
SUMMARY OF HAZARD QUOTIENTS FOR FOOD WEB EXPOSURES
AOC 1
FORMER GOPHER ORDNANCE WORKS, ROSEMOUNT, MINNESOTA

Chemical	Red fox			American robin			Mourning dove			Red-tailed hawk		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics												
Arsenic	0.47	0.05	0.15	0.37	0.12	0.21	0.71	0.24	0.41	<0.01	<0.01	<0.01
Cadmium	0.04	<0.01	0.01	0.30	0.02	0.08	0.07	<0.01	0.02	0.01	<0.01	<0.01
Chromium	0.04	<0.01	0.01	4.79	0.96	2.14	0.28	0.06	0.13	0.40	0.08	0.18
Lead	0.63	0.06	0.20	31.21	3.12	9.87	23.83	2.38	7.54	0.93	0.09	0.29
Mercury	3.77	2.26	2.92	32.91	16.45	23.27	19.97	9.98	14.12	0.17	0.09	0.12
Selenium	1.44	0.87	1.12	3.47	1.02	1.88	7.43	3.72	5.26	0.49	0.14	0.27
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Semivolatile Organic Compounds												
1,2,4-Trichlorobenzene	0.20	0.10	0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	0.20	0.02	0.06	0.45	0.04	0.14	0.89	0.09	0.28	0.05	<0.01	0.01
1,3-Dichlorobenzene	0.18	0.02	0.06	0.40	0.04	0.13	0.76	0.08	0.24	0.04	<0.01	0.01
1,4-Dichlorobenzene	0.07	0.03	0.05	0.45	0.05	0.14	0.90	0.09	0.28	0.05	<0.01	0.01
4-Bromophenyl-Phenylether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-Phenylether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	0.02	<0.01	<0.01	1.33	0.13	0.42	3.07	0.31	0.97	0.14	0.01	0.04
Anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	0.09	<0.01	0.03	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene	0.10	<0.01	0.03	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	0.17	0.02	0.05	0.02	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	0.14	0.01	0.05	0.02	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenz(a,h)anthracene	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	<0.01	<0.01	<0.01	0.04	<0.01	0.01	0.07	<0.01	0.02	<0.01	<0.01	<0.01
Fluorene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachlorobutadiene	4.23	0.42	1.34	21.20	6.63	11.85	25.89	8.09	14.47	2.42	0.76	1.35
Hexachlorobenzene	5.65	0.56	1.79	724.33	72.43	229.05	332.23	33.22	105.06	88.65	8.87	28.03
Hexachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.06	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pentachlorophenol	57.37	5.74	18.14	11.88	5.94	8.40	2.50	1.25	1.77	1.45	0.73	1.03
Phenanthrene	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01
Pyrene	<0.01	<0.01	<0.01	0.04	<0.01	0.01	0.06	<0.01	0.02	<0.01	<0.01	<0.01

Shaded values indicate Hazard Quotients exceeding 1.0

TABLE 18
AOC 2 SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Units	Ecological Soil Screening Value	FGOW-AOC2-SS-GP1(0-6INCHES)	FGOW-AOC2-SS-GP2(0-6INCHES)	Comments	Exceeds Screening Value?
Analyte:							
Explosives							
2,4-Dinitrotoluene	121-14-2	mg/kg	1.28	0.25 U	0.25 U		No
2,6-Dinitrotoluene	606-20-2	mg/kg	0.0328	0.25 U	0.25 U	DL>SV	Yes
SVOCs							
Diphenylamine	122-39-4	ug/kg	1010	410 U	370 U		No
Other							
Nitrocellulose	9004-70-0	mg/kg	NA	6.2 U	5.7 U	No SV	No SV

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

U - undetected at the limit of detection

TABLE 19
AOC 3 - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC3-DA1-SS-GP1(0-6INCHES)	FGOW-AOC3-DA1-SS-SS1(0-6INCHES)	FGOW-AOC3-DA2-SS-GP1(0-6INCHES)	FGOW-AOC3-DA2-SS-SS1(0-6INCHES)	FGOW-AOC3-DA2-SS-SS2(0-6INCHES)	Comments	Exceeds Screening Value?
Explosives										
2,4-Dinitrotoluene	121-14-2	mg/kg	1.28	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U		No
2,6-Dinitrotoluene	606-20-2	mg/kg	0.0328	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	DL>SV	Yes
SVOCs										
Diphenylamine	122-39-4	ug/kg	1010	440 U	360 U	390 U	410 U	400 U		No
Other										
Nitrocellulose	9004-70-0	mg/kg	NA	8.2	1 B	2.1 B	1.2 B	4.1 B	Detected; No SV	No SV

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

- COPC = Chemical of Potential Concern
- DL = Detection Limit
- Max = Maximum Detected Concentration
- mg/kg = milligram per kilogram
- SV = Screening Value
- ug/kg = microgram per kilogram
- U - undetected at the limit of detection

TABLE 20
AOC 4 - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC4-SS-GP1(0-6INCHES)	FGOW-AOC4-SS-GP2(0-6INCHES)	FGOW-AOC4-SS-SS1(0-6INCHES)	FGOW-AOC4-SS-SS2(0-6INCHES)	Comments	Exceeds Screening Value?				
Metals													
Arsenic	7440-38-2	mg/kg	18	6.1	7.3	j	7.2	2.6	J	No			
Barium	7440-39-3	mg/kg	330	120	50		150	41		No			
Cadmium	7440-43-9	mg/kg	0.36	0.087	J	0.1	J	0.62	U	0.093	J	DL>SV; detections < SV	No
Chromium	7440-47-3	mg/kg	26	20		10	J	18		7.5			No
Lead	7439-92-1	mg/kg	11	15		5.9	J	13		8.7	J	Max>SV; Maximum HQ = 1.36	Yes
Mercury	7439-97-6	mg/kg	0.1	0.055		0.011	J	0.04	J	0.031	J		No
Selenium	7782-49-2	mg/kg	0.52	1.1	J	3.2	U	3.7	U	0.98	J	Max>SV and DL>SV; Max HQ = 7.12	Yes
Silver	7440-22-4	mg/kg	4.2	2	U	1.6	U	1.9	U	1.6	U		No
PAHs													
2-Methylnaphthalene	91-57-6	ug/kg	3240	440	U	350	U	410	U	38	J		No
Acenaphthene	83-32-9	ug/kg	682000	440	U	350	U	410	U	360	U		No
Acenaphthylene	208-96-8	ug/kg	628000	440	U	350	U	410	U	360	U		No
Anthracene	120-12-7	ug/kg	1480000	440	U	350	U	410	U	120	J		No
Benzo(a)anthracene	56-55-3	ug/kg	5210	440	U	350	U	410	U	360	U		No
Benzo(a)pyrene	50-32-8	ug/kg	1520	440	U	350	U	410	U	360	U		No
Benzo(b)fluoranthene	205-99-2	ug/kg	59800	440	U	350	U	410	U	65	JK		No
Benzo(ghi)perylene	191-24-2	ug/kg	119000	440	U	350	U	410	U	360	U		No
Benzo(k)fluoranthene	207-08-9	ug/kg	148000	440	U	350	U	410	U	360	U		No
Chrysene	218-01-9	ug/kg	4730	440	U	350	U	410	U	360	U		No
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400	440	U	350	U	410	U	360	U		No
Diphenylamine	206-44-0	ug/kg	122000	200	J	350	U	410	U	180	J		No
Fluoranthene	86-73-7	ug/kg	122000	440	U	350	U	410	U	360	U		No
Fluorene	193-39-5	ug/kg	12600	440	U	350	U	410	U	360	U		No
Indeno(1,2,3-cd)pyrene	91-20-3	ug/kg	99.4	440	U	350	U	410	U	360	U	DL>SV	Yes
Nitrobenzene-d5	85-01-8	ug/kg	45700	440	U	350	U	410	U	150	J		No
Phenol-d5	129-00-0	ug/kg	78500	530	U	430	U	500	U	440	U		No

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

U - undetected at the limit of detection

TABLE 21
SUMMARY OF HAZARD QUOTIENTS FOR FOOD WEB EXPOSURES
AOC 4
FORMER GOPHER ORDNANCE WORKS, ROSEMOUNT, MINNESOTA

Chemical	Short-tailed shrew			White-footed mouse			Meadow vole			Red fox		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics												
Arsenic	5.03	0.50	1.59	2.49	0.25	0.79	6.52	0.65	2.06	0.36	0.04	0.11
Cadmium	0.48	0.05	0.15	0.11	0.01	0.03	0.04	<0.01	0.01	0.02	<0.01	<0.01
Chromium	0.59	0.06	0.19	0.12	0.01	0.04	0.01	<0.01	<0.01	0.03	<0.01	<0.01
Lead	0.37	0.04	0.12	0.09	<0.01	0.03	0.10	<0.01	0.03	0.03	<0.01	<0.01
Mercury	4.22	0.84	1.89	1.09	0.22	0.49	0.93	0.19	0.41	0.02	0.01	0.01
Selenium	1.07	0.65	0.83	0.62	0.38	0.49	1.67	1.01	1.30	0.26	0.16	0.20
Silver	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Semivolatile Organic Compounds												
Acenaphthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenz(a,h)anthracene	0.03	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Shaded values indicate Hazard Quotients exceeding 1.0

TABLE 21
SUMMARY OF HAZARD QUOTIENTS FOR FOOD WEB EXPOSURES
AOC 4
FORMER GOPHER ORDNANCE WORKS, ROSEMOUNT, MINNESOTA

Chemical	American robin			Mourning dove			Red-tailed hawk		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics									
Arsenic	0.29	0.10	0.17	0.55	0.18	0.32	<0.01	<0.01	<0.01
Cadmium	0.16	0.01	0.04	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	3.30	0.66	1.48	0.19	0.04	0.09	0.27	0.05	0.12
Lead	1.46	0.15	0.46	1.12	0.11	0.35	0.04	<0.01	0.01
Mercury	0.16	0.08	0.12	0.10	0.05	0.07	<0.01	<0.01	<0.01
Selenium	0.64	0.19	0.34	1.36	0.68	0.96	0.09	0.03	0.05
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Semivolatile Organic Compounds									
Acenaphthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenz(a,h)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Shaded values indicate Hazard Quotients exceeding 1.0

TABLE 22
AOC 5 - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC5-SS-GP1(0-6INCHES)	FGOW-AOC5-SS-GP2(0-6INCHES)	FGOW-AOC5-SS-GP3(0-6INCHES)	FGOW-AOC5-SS-GP4(0-6INCHES)	FGOW-AOC5-SS-GP5(0-6INCHES)	FGOW-AOC5-SS-GP6(0-6INCHES)	FGOW-AOC5-SS-GP7(0-6INCHES)
Pesticides										
4,4-DDD	72-54-8	ug/kg	21.0	950 U	18 U	20 U	21 U	20 U	17 U	22 U
4,4-DDE	72-55-9	ug/kg	21.0	950 U	18 U	20 U	13 J	20 U	17 U	22
4,4-DDT	50-29-3	ug/kg	21.0	510 J	9.6 J	8.9 JJ	21 JJ	24 U	20 U	42
Aldrin	309-00-2	ug/kg	3.32	950 U	18 U	20 U	21 U	20 U	17 U	7.6 JJ
alpha-BHC	319-84-6	ug/kg	99.4	950 U	18 U	20 U	21 U	20 U	17 U	22 U
alpha-Chlordane	5103-71-9	ug/kg	224	950 U	18 U	20 U	21 U	20 U	17 U	22 U
beta-BHC	319-85-7	ug/kg	3.98	950 U	18 U	20 U	21 U	20 U	17 U	22 U
delta-BHC	319-86-8	ug/kg	9940	950 U	18 U	20 U	21 U	20 U	17 U	22 U
Dieldrin	60-57-1	ug/kg	4.9	17000	4.4 JJ	85	21 U	20 U	17 U	760
Endosulfan I	959-98-8	ug/kg	119	950 U	18 U	20 U	21 U	20 U	17 U	22 U
Endosulfan II	33213-65-9	ug/kg	119	950 U	18 U	20 U	21 U	20 U	17 U	22 U
Endosulfan sulfate	1031-07-8	ug/kg	35.8	950 U	18 U	20 U	21 U	20 U	17 U	22 U
Endrin	72-20-8	ug/kg	10.1	280 J	18 U	20 U	21 U	20 U	17 U	22 U
Endrin aldehyde	7421-93-4	ug/kg	10.5	950 U	18 U	20 U	8.2 JJ	20 U	17 U	22 U
Endrin ketone	53494-70-5	ug/kg	NA	950 U	18 U	20 U	21 U	20 U	17 U	22 U
gamma-BHC (Lindane)	58-89-9	ug/kg	5	950 U	18 U	20 U	21 U	20 U	17 U	22 U
gamma-Chlordane	5103-74-2	ug/kg	224	950 U	18 U	40 J	21 U	20 U	17 U	870
Heptachlor	76-44-8	ug/kg	5.98	950 U	18 U	20 U	21 U	20 U	17 U	2.9 J
Heptachlor epoxide	1024-57-3	ug/kg	152	950 U	18 U	20 U	21 U	20 U	17 U	26 J
Methoxychlor	72-43-5	ug/kg	19.9	1800 U	35 U	39 U	40 U	39 U	34 U	43 U
Toxaphene	8001-35-2	ug/kg	119	95000 U	1800 U	2000 U	2100 U	2000 U	1700 U	2200 U
Explosives										
2,4-Dinitrotoluene	121-14-2	mg/kg	1.28	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
2,6-Dinitrotoluene	606-20-2	mg/kg	0.0328	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Metals										
Arsenic	7440-38-2	mg/kg	18	3.1	7.4	7.5	6.2	6.3	1.7 J	7.5
Barium	7440-39-3	mg/kg	330	270	250	120	160	95	14	140
Cadmium	7440-43-9	mg/kg	0.36	2.6	1.2	0.34 J	0.13 J	0.12 J	0.07 J	0.89
Chromium	7440-47-3	mg/kg	26	28	25	20	16	15	6.3	24
Lead	7439-92-1	mg/kg	11	240	30	36	25	15	3.2 J	51
Mercury	7439-97-6	mg/kg	0.1	0.55	0.11	0.044	0.047	0.039	0.034 U	0.093
Selenium	7782-49-2	mg/kg	0.52	3.4 U	3.2 U	3.5 U	3.6 U	3.6 U	3 U	3.9 U
Silver	7440-22-4	mg/kg	4.2	1.7 U	1.6 U	1.8 U	1.8 U	1.8 U	1.5 U	1.9 U

TABLE 22
AOC 5 - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC5-SS-GP1(0-6INCHES)	FGOW-AOC5-SS-GP2(0-6INCHES)	FGOW-AOC5-SS-GP3(0-6INCHES)	FGOW-AOC5-SS-GP4(0-6INCHES)	FGOW-AOC5-SS-GP5(0-6INCHES)	FGOW-AOC5-SS-GP6(0-6INCHES)	FGOW-AOC5-SS-GP7(0-6INCHES)
PAHs										
2-Methylnaphthalene	91-57-6	ug/kg	3240	370 U	350 U	390 U	420	390 U	340 U	430 U
Acenaphthene	83-32-9	ug/kg	682000	37 J	89 J	390 U	2400	390 U	340 U	430 U
Acenaphthylene	208-96-8	ug/kg	628000	370 U	350 U	390 U	400 U	390 U	340 U	430 U
Anthracene	120-12-7	ug/kg	1480000	69 J	230 J	390 U	5700	390 U	340 U	430 U
Benzo(a)anthracene	56-55-3	ug/kg	5210	260 J	1200	390 U	8000	390 U	340 U	240 J
Benzo(a)pyrene	50-32-8	ug/kg	1520	220 J	890	42 J	6800	390 U	340 U	240 J
Benzo(b)fluoranthene	205-99-2	ug/kg	59800	390 K	1800 K	75 JK	9500 K	55 JK	340 U	410 JK
Benzo(ghi)perylene	191-24-2	ug/kg	119000	160 J	590	390 U	3200	390 U	340 U	180 J
Benzo(k)fluoranthene	207-08-9	ug/kg	148000	370 U	350 U	390 U	400 U	390 U	340 U	430 U
Chrysene	218-01-9	ug/kg	4730	300 J	1300	55 J	8200	390 U	340 U	280 J
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400	55 J	270 J	390 U	1500	390 U	340 U	56 J
Diphenylamine	122-39-4	ug/kg	1010	370 U	350 U	390 U	400 U	390 U	340 U	430 U
Fluoranthene	206-44-0	ug/kg	122000	600	2400	82 J	19000	67 J	340 U	480
Fluorene	86-73-7	ug/kg	122000	36 J	89 J	390 U	2600	390 U	340 U	430 U
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12600	130 J	590	390 U	3100	390 U	340 U	150 J
Naphthalene	91-20-3	ug/kg	99.4	370 U	350 U	390 U	410	390 U	340 U	430 U
Phenanthrene	85-01-8	ug/kg	45700	380	960	390 U	16000	42 J	340 U	220 J
Pyrene	129-00-0	ug/kg	78500	530	2100	82 J	16000	65 J	410 U	500 J
Other										
Nitrocellulose	9004-70-0	mg/kg	NA	2.5 B	6.4	1.6 B	2.4 B	1.9 B	5.1 U	3.9 B

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranthene and benzo(k)fluoranthene

Q - One or more quality control criteria failed

U - undetected at the limit of detection

TABLE 22
AOC 5 - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC5-SS-GP8(0-6INCHES)	FGOW-AOC5-SS-GP9(0-6INCHES)	FGOW-AOC5-SS-GP10(0-6INCHES)	FGOW-AOC5-SS-GP11(0-6INCHES)	FGOW-AOC5-SS-GP12(0-6INCHES) DUP	Comments	Exceeds Screening Value?
Pesticides										
4,4-DDD	72-54-8	ug/kg	21.0	22 U	19 U	20 U	20 U	21 U	DL>SV	Yes
4,4-DDE	72-55-9	ug/kg	21.0	10 J	15 J	20 U	20 U	4.7 J	Max>SV; max HQ=1.05	Yes
4,4-DDT	50-29-3	ug/kg	21.0	43	100	19 J	10 J	8.8 J	Max>SV; max HQ=24.29	Yes
Aldrin	309-00-2	ug/kg	3.32	8.3 J	19 U	20 U	20 U	21 U	Max>SV; max HQ=2.5	Yes
alpha-BHC	319-84-6	ug/kg	99.4	22 U	19 U	20 U	20 U	21 U	DL>SV	Yes
alpha-Chlordane	5103-71-9	ug/kg	224	22 U	7.5 J	20 U	20 U	21 U		No
beta-BHC	319-85-7	ug/kg	3.98	22 U	19 U	20 U	20 U	21 U	DL>SV	Yes
delta-BHC	319-86-8	ug/kg	9940	22 U	19 U	20 U	20 U	21 U		No
Dieldrin	60-57-1	ug/kg	4.9	61	27 J	20 U	20 U	21 U	Max>SV; max HQ=3469	Yes
Endosulfan I	959-98-8	ug/kg	119	22 U	19 U	20 U	20 U	21 U	DL>SV	Yes
Endosulfan II	33213-65-9	ug/kg	119	22 U	7.1 J	20 U	20 U	21 U		No
Endosulfan sulfate	1031-07-8	ug/kg	35.8	22 U	19 U	20 U	20 U	21 U	DL>SV	Yes
Endrin	72-20-8	ug/kg	10.1	22 U	19 U	20 U	20 U	21 U	Max>SV; max HQ=27.72	Yes
Endrin aldehyde	7421-93-4	ug/kg	10.5	22 U	19 U	20 U	20 U	21 U		No
Endrin ketone	53494-70-5	ug/kg	NA	22 U	19 U	20 U	20 U	21 U	No SV	No SV
gamma-BHC (Lindane)	58-89-9	ug/kg	5	22 U	19 U	20 U	20 U	21 U	DL>SV	Yes
gamma-Chlordane	5103-74-2	ug/kg	224	22 U	7.6 J	20 U	20 U	21 U	Max>SV; max HQ=3.88	Yes
Heptachlor	76-44-8	ug/kg	5.98	22 U	19 U	20 U	20 U	21 U		No
Heptachlor epoxide	1024-57-3	ug/kg	152	22 U	19 U	20 U	20 U	21 U		No
Methoxychlor	72-43-5	ug/kg	19.9	42 U	37 U	39 U	39 U	41 U	DL>SV	Yes
Toxaphene	8001-35-2	ug/kg	119	2200 U	1900 U	2000 U	2000 U	2100 U	DL>SV	Yes
Explosives										
2,4-Dinitrotoluene	121-14-2	mg/kg	1.28	0.25 U	0.35 J	0.25 U	0.25 U	0.25 U		No
2,6-Dinitrotoluene	606-20-2	mg/kg	0.0328	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	DL>SV	Yes
Metals										
Arsenic	7440-38-2	mg/kg	18	6.2	3.9	6.1	4.8	7.9		No
Barium	7440-39-3	mg/kg	330	160	120	100	110	160		No
Cadmium	7440-43-9	mg/kg	0.36	0.45 J	1.4	0.11 J	0.084 J	0.11 J	Max>SV; max HQ=7.22	Yes
Chromium	7440-47-3	mg/kg	26	17	15	16	15	21	Max>SV; max HQ=1.08	Yes
Lead	7439-92-1	mg/kg	11	43	330	15	9 J	18	Max>SV; max HQ=30	Yes
Mercury	7439-97-6	mg/kg	0.1	0.67	0.17	0.036 J	0.032 J	0.05	Max>SV; max HQ=6.7	Yes
Selenium	7782-49-2	mg/kg	0.52	3.8 U	3.4 U	3.5 U	3.5 U	3.8 U	DL>SV	Yes
Silver	7440-22-4	mg/kg	4.2	1.9 U	1.7 U	1.8 U	1.8 U	1.9 U		No

TABLE 22
AOC 5 - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC5-SS-GP8(0-6INCHES)	FGOW-AOC5-SS-GP9(0-6INCHES)	FGOW-AOC5-SS-GP10(0-6INCHES)	FGOW-AOC5-SS-GP11(0-6INCHES)	FGOW-AOC5-SS-GP12(0-6INCHES) DUP	Comments	Exceeds Screening Value?
PAHs										
2-Methylnaphthalene	91-57-6	ug/kg	3240	210 J	370 U	76 J	110 J	410 U		No
Acenaphthene	83-32-9	ug/kg	682000	820	150 J	420	500	410 U		No
Acenaphthylene	208-96-8	ug/kg	628000	420 U	370 U	390 U	390 U	410 U		No
Anthracene	120-12-7	ug/kg	1480000	1800	290 J	1400	1200	410 U		No
Benzo(a)anthracene	56-55-3	ug/kg	5210	3900	990	4700	2900	410 U	Max>SV; max HQ=1.54	Yes
Benzo(a)pyrene	50-32-8	ug/kg	1520	3000	830	4500	2300	410 U	Max>SV; max HQ=4.47	Yes
Benzo(b)fluoranthene	205-99-2	ug/kg	59800	4700 K	1400 K	7500 K	3600 K	410 U		No
Benzo(ghi)perylene	191-24-2	ug/kg	119000	1600	560	2600	1300	410 U		No
Benzo(k)fluoranthene	207-08-9	ug/kg	148000	420 U	370 U	390 U	390 U	410 U		No
Chrysene	218-01-9	ug/kg	4730	3600	1100	5200	2900	410 U	Max>SV; max HQ=1.73	Yes
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400	710	220 J	1100	520	410 U		No
Diphenylamine	122-39-4	ug/kg	1010	420 U	370 U	390 U	390 U	410 U		No
Fluoranthene	206-44-0	ug/kg	122000	7500	2500	8500	7100	410 U		No
Fluorene	86-73-7	ug/kg	122000	930	140 J	480	590	410 U		No
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12600	1500	490	2500	1200	410 U		No
Naphthalene	91-20-3	ug/kg	99.4	310 J	45 J	130 J	120 J	410 U	Max>SV; max HQ=4.12	Yes
Phenanthrene	85-01-8	ug/kg	45700	7500	1700	5200	6000	410 U		No
Pyrene	129-00-0	ug/kg	78500	8400	1900	8100	5900	500 U		No
Other										
Nitrocellulose	9004-70-0	mg/kg	NA	3.2 B	5 B	2.2 B	2.6 B	2.3 B	Detected; No SV	No SV

Notes:

Shaded cells indicate chemicals identified as exceeding screening v

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(l

Q - One or more quality control criteria failed

U - undetected at the limit of detection

TABLE 23
SUMMARY OF HAZARD QUOTIENTS FOR FOOD WEB EXPOSURES
AOC 5
FORMER GOPHER ORDNANCE WORKS, ROSEMOUNT, MINNESOTA

Chemical	Short-tailed shrew			White-footed mouse			Meadow vole			Red fox		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics												
Arsenic	5.44	0.54	1.72	2.70	0.27	0.85	7.05	0.71	2.23	0.39	0.04	0.12
Cadmium	12.44	1.24	3.93	2.81	0.28	0.89	1.06	0.11	0.34	0.58	0.06	0.18
Chromium	0.83	0.08	0.26	0.17	0.02	0.05	0.02	<0.01	<0.01	0.04	<0.01	0.01
Lead	8.21	0.82	2.60	2.09	0.21	0.66	2.14	0.21	0.68	0.65	0.06	0.21
Mercury	51.45	10.29	23.01	13.33	2.67	5.96	11.29	2.26	5.05	0.23	0.14	0.18
Selenium	3.80	2.30	2.96	2.21	1.34	1.72	5.90	3.58	4.60	0.93	0.57	0.73
Silver	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Semivolatile Organic Compounds												
Acenaphthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	0.41	0.04	0.13	0.12	0.01	0.04	0.26	0.03	0.08	0.05	<0.01	0.02
Benzo(a)pyrene	0.40	0.04	0.13	0.10	<0.01	0.03	0.16	0.02	0.05	0.04	<0.01	0.01
Benzo(b)fluoranthene	0.42	0.04	0.13	0.10	0.01	0.03	0.20	0.02	0.06	0.05	<0.01	0.02
Benzo(g,h,i)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	0.59	0.06	0.19	0.16	0.02	0.05	0.27	0.03	0.08	0.07	<0.01	0.02
Dibenz(a,h)anthracene	0.11	0.01	0.04	0.02	<0.01	<0.01	0.02	<0.01	<0.01	0.01	<0.01	<0.01
Fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	0.21	0.02	0.07	0.04	<0.01	0.01	0.05	<0.01	0.01	0.02	<0.01	<0.01
Phenanthrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Shaded values indicate Hazard Quotients exceeding 1.0

TABLE 23
SUMMARY OF HAZARD QUOTIENTS FOR FOOD WEB EXPOSURES
AOC 5
FORMER GOPHER ORDNANCE WORKS, ROSEMOUNT, MINNESOTA

Chemical	American robin			Mourning dove			Red-tailed hawk		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics									
Arsenic	0.31	0.10	0.18	0.60	0.20	0.35	<0.01	<0.01	<0.01
Cadmium	4.04	0.29	1.09	0.96	0.07	0.26	0.20	0.01	0.05
Chromium	4.63	0.93	2.07	0.27	0.05	0.12	0.38	0.08	0.17
Lead	32.19	3.22	10.18	24.58	2.46	7.77	0.96	0.10	0.30
Mercury	2.00	1.00	1.42	1.22	0.61	0.86	0.01	<0.01	<0.01
Selenium	2.25	0.66	1.22	4.83	2.42	3.42	0.32	0.09	0.17
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Semivolatile Organic Compounds									
Acenaphthene	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	0.02	<0.01	<0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenz(a,h)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	0.03	<0.01	<0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01
Fluorene	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.03	<0.01	<0.01	0.06	<0.01	0.02	<0.01	<0.01	<0.01
Pyrene	0.02	<0.01	<0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01

Shaded values indicate Hazard Quotients exceeding 1.0

TABLE 24
AOC 6 - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC6-SS-TP1(0-.5FT)	FGOW-AOC6-SS-TP2(0-.5FT)	FGOW-AOC6-SS-TP3(0-.5FT)	FGOW-AOC6-SS-TP4(0-.5FT)
Metals							
Arsenic	7440-38-2	mg/kg	18.0	2.5 J	5.6	4.4	3.3
Barium	7440-39-3	mg/kg	330.0	44	41	100	44
Cadmium	7440-43-9	mg/kg	0.4	0.53 U	0.066 J	0.3 J	0.23 J
Chromium	7440-47-3	mg/kg	26.0	10	9.9	15	8.9
Lead	7439-92-1	mg/kg	11.0	12	16	39	23
Mercury	7439-97-6	mg/kg	0.1	0.045	0.31	0.74	0.56
Selenium	7782-49-2	mg/kg	0.5	3.2 U	3.1 U	3.2 U	3.1 U
Silver	7440-22-4	mg/kg	4.2	1.6 U	0.22 J	0.32 J	1.6 U
PAHs							
2-Methylnaphthalene	91-57-6	ug/kg	3240.0	350 U	350 U	350 U	3400 U
Acenaphthene	83-32-9	ug/kg	682000.0	350 U	350 U	50 J	1400 J
Acenaphthylene	208-96-8	ug/kg	628000.0	350 U	350 U	350 U	3400 U
Anthracene	120-12-7	ug/kg	1480000.0	350 j	66 J	140 J	4500
Benzo(a)anthracene	56-55-3	ug/kg	5210.0	1500 j	210 J	370	9100
Benzo(a)pyrene	50-32-8	ug/kg	1520.0	1400 j	220 J	350	7300
Benzo(b)fluoranthene	205-99-2	ug/kg	59800.0	2300 K, j	370 K	610 K	12000 K
Benzo(ghi)perylene	191-24-2	ug/kg	119000.0	760 j	160 J	230 J	3700
Benzo(k)fluoranthene	207-08-9	ug/kg	148000.0	350 U	350 U	350 U	3400 U
Chrysene	218-01-9	ug/kg	4730.0	1500 j	230 J	400	8800
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400.0	250 J	39 J	54 J	420 J
Fluoranthene	206-44-0	ug/kg	122000.0	2400 j	400	800	18000
Fluorene	86-73-7	ug/kg	122000.0	43 J	350 U	52 J	1500 J
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12600.0	750 j	140 J	210 J	3600
Naphthalene	91-20-3	ug/kg	99.4	350 U	350 U	350 U	370 J
Phenanthrene	85-01-8	ug/kg	45700.0	1100 j	230 J	570	15000
Pyrene	129-00-0	ug/kg	78500.0	2200 j	360 J	680	16000

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranthene and benzo(k)fluoranthene

Q - One or more quality control criteria failed

U - undetected at the limit of detection

TABLE 24
AOC 6 - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC6-SS-TP5(0-.5FT)	FGOW-AOC6-SS-TP6(0-.5FT)	Comments	Exceeds Screening Value?
Metals							
Arsenic	7440-38-2	mg/kg	18.0	3.2	5.7		No
Barium	7440-39-3	mg/kg	330.0	73	170		No
Cadmium	7440-43-9	mg/kg	0.4	0.64	0.79	Max>SV; max HQ=2.19	Yes
Chromium	7440-47-3	mg/kg	26.0	15	43	Max>SV; max HQ=1.65	Yes
Lead	7439-92-1	mg/kg	11.0	58	170	Max>SV; max HQ=15.45	Yes
Mercury	7439-97-6	mg/kg	0.1	0.098	0.14	Max>SV; max HQ=7.40	Yes
Selenium	7782-49-2	mg/kg	0.5	3.6 U	3.6 U	DL>SV	Yes
Silver	7440-22-4	mg/kg	4.2	1.8 U	1.1 J		No
PAHs							
2-Methylnaphthalene	91-57-6	ug/kg	3240.0	4000 U	390 U	DL>SV	Yes
Acenaphthene	83-32-9	ug/kg	682000.0	4000 U	150 J		No
Acenaphthylene	208-96-8	ug/kg	628000.0	4000 U	390 U		No
Anthracene	120-12-7	ug/kg	1480000.0	640 J	750		No
Benzo(a)anthracene	56-55-3	ug/kg	5210.0	1700 J	2900	Max>SV; max HQ=1.75	Yes
Benzo(a)pyrene	50-32-8	ug/kg	1520.0	1700 J	3200	Max>SV; max HQ=4.80	Yes
Benzo(b)fluoranthene	205-99-2	ug/kg	59800.0	3200 J K	5200 K		No
Benzo(ghi)perylene	191-24-2	ug/kg	119000.0	1400 J	2300		No
Benzo(k)fluoranthene	207-08-9	ug/kg	148000.0	4000 U	390 U		No
Chrysene	218-01-9	ug/kg	4730.0	1800 J	3000	Max>SV; max HQ=1.86	Yes
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400.0	4000 U	680		No
Fluoranthene	206-44-0	ug/kg	122000.0	2900 J	3800		No
Fluorene	86-73-7	ug/kg	122000.0	4000 U	190 J		No
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12600.0	1200 J	2100		No
Naphthalene	91-20-3	ug/kg	99.4	4000 U	390 U	Max>SV; max HQ=3.72	Yes
Phenanthrene	85-01-8	ug/kg	45700.0	1900 J	2200		No
Pyrene	129-00-0	ug/kg	78500.0	2600 J	3700		No

Notes:

Shaded cells indicate chemicals identified as exceeding screening val
DL = Detection Limit
HQ = Hazard Quotient = Chemical concentration/SV
Max = Maximum Detected Concentration
mg/kg = milligram per kilogram
SV = Screening Value
ug/kg = microgram per kilogram
B - blank contamination above the method detection limit
E - estimated because value is above linear calibration range
J - estimated
j - estimated
K - the reported benzo(b)fluoranthene may consist of both benzo(b)f
Q - One or more quality control criteria failed
U - undetected at the limit of detection

TABLE 25
SUMMARY OF HAZARD QUOTIENTS FOR FOOD WEB EXPOSURES
AOC 6
FORMER GOPHER ORDNANCE WORKS, ROSEMOUNT, MINNESOTA

Chemical	Short-tailed shrew			White-footed mouse			Meadow vole			Red fox		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics												
Arsenic	3.92	0.39	1.24	1.94	0.19	0.62	5.09	0.51	1.61	0.28	0.03	0.09
Cadmium	3.78	0.38	1.20	0.85	0.09	0.27	0.32	0.03	0.10	0.18	0.02	0.06
Chromium	1.27	0.13	0.40	0.26	0.03	0.08	0.03	<0.01	0.01	0.06	<0.01	0.02
Lead	4.23	0.42	1.34	1.07	0.11	0.34	1.10	0.11	0.35	0.33	0.03	0.11
Mercury	56.83	11.37	25.41	14.72	2.94	6.58	12.46	2.49	5.57	0.25	0.15	0.20
Selenium	3.51	2.12	2.73	2.04	1.24	1.59	5.45	3.30	4.24	0.86	0.52	0.67
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Semivolatile Organic Compounds												
Acenaphthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	0.47	0.05	0.15	0.14	0.01	0.04	0.29	0.03	0.09	0.06	<0.01	0.02
Benzo(a)pyrene	0.43	0.04	0.14	0.11	0.01	0.03	0.17	0.02	0.05	0.05	<0.01	0.01
Benzo(b)fluoranthene	0.53	0.05	0.17	0.13	0.01	0.04	0.25	0.03	0.08	0.06	<0.01	0.02
Benzo(g,h,i)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	0.18	0.02	0.06	0.04	<0.01	0.01	0.08	<0.01	0.03	0.02	<0.01	<0.01
Chrysene	0.63	0.06	0.20	0.17	0.02	0.05	0.29	0.03	0.09	0.07	<0.01	0.02
Dibenz(a,h)anthracene	0.05	<0.01	0.02	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	0.24	0.02	0.08	0.05	<0.01	0.02	0.06	<0.01	0.02	0.02	<0.01	<0.01
Phenanthrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Shaded values indicate Hazard Quotients exceeding 1.0

TABLE 25
SUMMARY OF HAZARD QUOTIENTS FOR FOOD WEB EXPOSURES
AOC 6
FORMER GOPHER ORDNANCE WORKS, ROSEMOUNT, MINNESOTA

Chemical	American robin			Mourning dove			Red-tailed hawk		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics									
Arsenic	0.23	0.08	0.13	0.43	0.14	0.25	<0.01	<0.01	<0.01
Cadmium	1.23	0.09	0.33	0.29	0.02	0.08	0.06	<0.01	0.02
Chromium	7.10	1.42	3.18	0.42	0.08	0.19	0.59	0.12	0.26
Lead	16.58	1.66	5.24	12.66	1.27	4.00	0.49	0.05	0.16
Mercury	2.21	1.11	1.57	1.34	0.67	0.95	0.01	<0.01	<0.01
Selenium	2.08	0.61	1.13	4.46	2.23	3.15	0.29	0.09	0.16
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Semivolatile Organic Compounds									
Acenaphthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenz(a,h)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	0.02	<0.01	<0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01
Fluorene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.03	<0.01	<0.01	0.06	<0.01	0.02	<0.01	<0.01	<0.01
Pyrene	0.02	<0.01	<0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01

Shaded values indicate Hazard Quotients exceeding 1.0

**TABLE 26
AOC 7A - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7A-SS-GP1(0-6INCHES)		FGOW-AOC7A-SS-GP2(0-6INCHES)		FGOW-AOC7A-SS-GP3(0-6INCHES)		FGOW-AOC7A-SS-GP4(0-6INCHES)	
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	5.9	U	5.2	U	5.1	U	6.2	U
1,3-Dichlorobenzene	541-73-1	ug/kg	37700.0	5.9	U	5.2	U	5.1	U	6.2	U
1,3-Dichloropropane	142-28-9	ug/kg	NA	5.9	U	5.2	U	5.1	U	6.2	U
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0	5.9	U	5.2	U	5.1	U	6.2	U
2,2-Dichloropropane	594-20-7	ug/kg	9600.0	5.9	U	5.2	U	5.1	U	6.2	U
2-Butanone (MEK)	78-93-3	ug/kg	89600.0	23	JB	18	JB	17	JB	21	JB
2-Chlorotoluene	95-49-8	ug/kg	NA	5.9	U	5.2	U	5.1	U	6.2	U
2-Hexanone	591-78-6	ug/kg	12600.0	24	U	21	U	20	U	25	U
4-Chlorotoluene	106-43-4	ug/kg	NA	5.9	U	5.2	U	5.1	U	6.2	U
4-Methyl-2-pentanone	108-10-1	ug/kg	443000.0	24	U	21	U	20	U	25	U
Acetone	67-64-1	ug/kg	2500.0	100	J	100	J	73	J	91	J
Benzene	71-43-2	ug/kg	255.0	1.6	JJ	0.54	JJ	1.1	JJ	0.91	JJ
Bromobenzene	108-86-1	ug/kg	NA	5.9	U	5.2	U	5.1	U	6.2	U
Bromochloromethane	74-97-5	ug/kg	NA	5.9	U	5.2	U	5.1	U	6.2	U
Bromodichloromethane	75-27-4	ug/kg	540.0	5.9	U	5.2	U	5.1	U	6.2	U
Bromoform	75-25-2	ug/kg	15900.0	5.9	U	5.2	U	5.1	U	6.2	U
Bromomethane	74-83-9	ug/kg	235.0	12	U	10	U	10	U	12	U
Carbon disulfide	75-15-0	ug/kg	94.1	1.3	JJ	1.7	JJ	3.9	J	7.1	J
Carbon tetrachloride	56-23-5	ug/kg	2980.0	5.9	U	5.2	U	5.1	U	6.2	U
Chlorobenzene	108-90-7	ug/kg	13100.0	5.9	U	5.2	U	5.1	U	6.2	U
Chloroethane	75-00-3	ug/kg	NA	12	U	10	U	10	U	12	U
Chloroform	67-66-3	ug/kg	1190.0	12	U	10	U	10	U	12	U
Chloromethane	74-87-3	ug/kg	10400.0	12	U	10	U	10	U	12	U
cis-1,2-Dichloroethene	156-59-2	ug/kg	200.0	3	U	2.6	U	2.5	U	3.1	U
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398.0	5.9	U	5.2	U	5.1	U	6.2	U
Dibromochloromethane	124-48-1	ug/kg	2050.0	5.9	U	5.2	U	5.1	U	6.2	U
Dibromomethane	74-95-3	ug/kg	65000.0	5.9	U	5.2	U	5.1	U	6.2	U
Dichlorodifluoromethane	75-71-8	ug/kg	39500.0	12	U	10	U	10	U	12	U
Ethylbenzene	100-41-4	ug/kg	5160.0	0.89	JJ	5.2	U	5.1	U	6.2	U
Hexachlorobutadiene	87-68-3	ug/kg	39.8	5.9	U	5.2	U	5.1	U	6.2	U
Isopropylbenzene	98-82-8	ug/kg	NA	5.9	U	5.2	U	5.1	U	6.2	U
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	3	U	2.6	U	2.5	U	3.1	U
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	24	U	21	U	20	U	25	U
Methylene chloride	75-09-2	ug/kg	4050.0	5.9	U	5.2	U	5.1	U	6.2	U
n-Butylbenzene	104-51-8	ug/kg	NA	5.9	U	5.2	U	5.1	U	6.2	U
n-Propylbenzene	103-65-1	ug/kg	NA	5.9	U	5.2	U	5.1	U	6.2	U
Naphthalene	91-20-3	ug/kg	99.4	1.1	JJ	5.2	U	5.1	U	6.2	U
o-Xylene	95-47-6	ug/kg	NA	3	U	2.6	U	2.5	U	3.1	U
p-Isopropyltoluene	99-87-6	ug/kg	NA	5.9	U	3.9	JJ	5.1	U	6.2	U
sec-Butylbenzene	135-98-8	ug/kg	NA	5.9	U	5.2	U	5.1	U	6.2	U
Styrene	100-42-5	ug/kg	4690.0	5.9	U	5.2	U	5.1	U	6.2	U
tert-Butylbenzene	98-06-6	ug/kg	NA	5.9	U	5.2	U	5.1	U	6.2	U
Tetrachloroethene	127-18-4	ug/kg	9920.0	5.9	U	5.2	U	5.1	U	6.2	U
Toluene	108-88-3	ug/kg	5450.0	1.9	JJ	1.6	JJ	1.5	JJ	1.2	JJ
trans-1,2-Dichloroethene	156-60-5	ug/kg	784.0	3	U	2.6	U	2.5	U	3.1	U
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398.0	5.9	U	5.2	U	5.1	U	6.2	U
Trichloroethene	79-01-6	ug/kg	12400.0	5.9	U	5.2	U	5.1	U	6.2	U
Trichlorofluoromethane	75-69-4	ug/kg	16400.0	12	U	10	U	10	U	12	U
Vinyl chloride	75-01-4	ug/kg	646.0	5.9	U	5.2	U	5.1	U	6.2	U

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranthene and benzo(k)fluoranthene

Q - One or more quality control criteria failed

U - undetected at the limit of detection

TABLE 26
AOC 7A - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7A-SS-GP5(0-6INCHES)		FGOW-AOC7A-SS-GP6(0-6INCHES)		FGOW-AOC7A-SS-GP7(0-6INCHES)	
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	7.6	U	5.7	U	5.3	U
1,3-Dichlorobenzene	541-73-1	ug/kg	37700.0	7.6	U	5.7	U	5.3	U
1,3-Dichloropropane	142-28-9	ug/kg	NA	7.6	U	5.7	U	5.3	U
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0	7.6	U	5.7	U	5.3	U
2,2-Dichloropropane	594-20-7	ug/kg	9600.0	7.6	U	5.7	U	5.3	U
2-Butanone (MEK)	78-93-3	ug/kg	89600.0	72	BJ	41	BJ	17	BJJ
2-Chlorotoluene	95-49-8	ug/kg	NA	7.6	U	5.7	U	5.3	U
2-Hexanone	591-78-6	ug/kg	12600.0	30	U	23	U	21	U
4-Chlorotoluene	106-43-4	ug/kg	NA	7.6	U	5.7	U	5.3	U
4-Methyl-2-pentanone	108-10-1	ug/kg	443000.0	30	U	23	U	21	U
Acetone	67-64-1	ug/kg	2500.0	250	J	180	J	89	J
Benzene	71-43-2	ug/kg	255.0	2.2	JJ	2	JJ	5.3	U
Bromobenzene	108-86-1	ug/kg	NA	7.6	U	5.7	U	5.3	U
Bromochloromethane	74-97-5	ug/kg	NA	7.6	U	5.7	U	5.3	U
Bromodichloromethane	75-27-4	ug/kg	540.0	7.6	U	5.7	U	5.3	U
Bromoform	75-25-2	ug/kg	15900.0	7.6	U	5.7	U	5.3	U
Bromomethane	74-83-9	ug/kg	235.0	15	U	11	U	11	U
Carbon disulfide	75-15-0	ug/kg	94.1	7.6	U	5.7	U	5.3	U
Carbon tetrachloride	56-23-5	ug/kg	2980.0	7.6	U	5.7	U	5.3	U
Chlorobenzene	108-90-7	ug/kg	13100.0	7.6	U	5.7	U	5.3	U
Chloroethane	75-00-3	ug/kg	NA	15	U	11	U	11	U
Chloroform	67-66-3	ug/kg	1190.0	15	U	11	U	11	U
Chloromethane	74-87-3	ug/kg	10400.0	15	U	11	U	11	U
cis-1,2-Dichloroethene	156-59-2	ug/kg	200.0	3.8	U	2.8	U	2.7	U
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398.0	7.6	U	5.7	U	5.3	U
Dibromochloromethane	124-48-1	ug/kg	2050.0	7.6	U	5.7	U	5.3	U
Dibromomethane	74-95-3	ug/kg	65000.0	7.6	U	5.7	U	5.3	U
Dichlorodifluoromethane	75-71-8	ug/kg	39500.0	15	U	11	U	11	U
Ethylbenzene	100-41-4	ug/kg	5160.0	7.6	U	0.94	JJ	5.3	U
Hexachlorobutadiene	87-68-3	ug/kg	39.8	7.6	U	5.7	U	5.3	U
Isopropylbenzene	98-82-8	ug/kg	NA	7.6	U	5.7	U	5.3	U
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	3.8	U	2.8	U	2.7	U
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	30	U	23	U	21	U
Methylene chloride	75-09-2	ug/kg	4050.0	7.6	U	5.7	U	0.9	JJ
n-Butylbenzene	104-51-8	ug/kg	NA	7.6	U	5.7	U	5.3	U
n-Propylbenzene	103-65-1	ug/kg	NA	7.6	U	5.7	U	5.3	U
Naphthalene	91-20-3	ug/kg	99.4	0.98	JJ	5.7	U	5.3	U
o-Xylene	95-47-6	ug/kg	NA	3.8	U	2.8	U	2.7	U
p-Isopropyltoluene	99-87-6	ug/kg	NA	7.6	U	5.7	U	5.3	U
sec-Butylbenzene	135-98-8	ug/kg	NA	7.6	U	5.7	U	5.3	U
Styrene	100-42-5	ug/kg	4690.0	7.6	U	5.7	U	5.3	U
tert-Butylbenzene	98-06-6	ug/kg	NA	7.6	U	5.7	U	5.3	U
Tetrachloroethene	127-18-4	ug/kg	9920.0	7.6	U	5.7	U	5.3	U
Toluene	108-88-3	ug/kg	5450.0	2.1	JJ	2.4	JJ	1	JJ
trans-1,2-Dichloroethene	156-60-5	ug/kg	784.0	3.8	U	2.8	U	2.7	U
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398.0	7.6	U	5.7	U	5.3	U
Trichloroethene	79-01-6	ug/kg	12400.0	7.6	U	5.7	U	5.3	U
Trichlorofluoromethane	75-69-4	ug/kg	16400.0	15	U	11	U	11	U
Vinyl chloride	75-01-4	ug/kg	646.0	7.6	U	5.7	U	5.3	U

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoran

Q - One or more quality control criteria failed

U - undetected at the limit of detection

TABLE 26
AOC 7A - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7A-SS-SS1(0-6INCHES)		FGOW-AOC7A-SS-SS2(0-6INCHES)		FGOW-AOC7A-SS-SS3(0-6INCHES)	
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	15	U	9.5	U	12	U
1,3-Dichlorobenzene	541-73-1	ug/kg	37700.0	15	U	9.5	U	12	U
1,3-Dichloropropane	142-28-9	ug/kg	NA	15	U	9.5	U	12	U
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0	15	U	9.5	U	12	U
2,2-Dichloropropane	594-20-7	ug/kg	9600.0	15	U	9.5	U	12	U
2-Butanone (MEK)	78-93-3	ug/kg	89600.0	150	BJ	57	BJ	70	BJ
2-Chlorotoluene	95-49-8	ug/kg	NA	15	U	9.5	U	12	U
2-Hexanone	591-78-6	ug/kg	12600.0	61	U	38	U	48	U
4-Chlorotoluene	106-43-4	ug/kg	NA	15	U	9.5	U	12	U
4-Methyl-2-pentanone	108-10-1	ug/kg	443000.0	61	U	38	U	48	U
Acetone	67-64-1	ug/kg	2500.0	1500	J	440	J	560	J
Benzene	71-43-2	ug/kg	255.0	2.8	JJ	2.7	JJ	2.9	JJ
Bromobenzene	108-86-1	ug/kg	NA	15	U	9.5	U	12	U
Bromochloromethane	74-97-5	ug/kg	NA	15	U	9.5	U	12	U
Bromodichloromethane	75-27-4	ug/kg	540.0	15	U	9.5	U	12	U
Bromoform	75-25-2	ug/kg	15900.0	15	U	9.5	U	12	U
Bromomethane	74-83-9	ug/kg	235.0	31	U	19	U	24	U
Carbon disulfide	75-15-0	ug/kg	94.1	2.1	JJ	1.7	JJ	4.3	JJ
Carbon tetrachloride	56-23-5	ug/kg	2980.0	15	U	9.5	U	12	U
Chlorobenzene	108-90-7	ug/kg	13100.0	15	U	9.5	U	12	U
Chloroethane	75-00-3	ug/kg	NA	31	U	19	U	24	U
Chloroform	67-66-3	ug/kg	1190.0	31	U	19	U	24	U
Chloromethane	74-87-3	ug/kg	10400.0	31	U	19	U	24	U
cis-1,2-Dichloroethene	156-59-2	ug/kg	200.0	7.7	U	4.7	U	6.1	U
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398.0	15	U	9.5	U	12	U
Dibromochloromethane	124-48-1	ug/kg	2050.0	15	U	9.5	U	12	U
Dibromomethane	74-95-3	ug/kg	65000.0	15	U	9.5	U	12	U
Dichlorodifluoromethane	75-71-8	ug/kg	39500.0	31	U	19	U	24	U
Ethylbenzene	100-41-4	ug/kg	5160.0	15	U	1.4	JJ	12	U
Hexachlorobutadiene	87-68-3	ug/kg	39.8	15	U	9.5	U	12	U
Isopropylbenzene	98-82-8	ug/kg	NA	15	U	9.5	U	12	U
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	7.7	U	4.7	U	6.1	U
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	61	U	38	U	48	U
Methylene chloride	75-09-2	ug/kg	4050.0	15	U	9.5	U	12	U
n-Butylbenzene	104-51-8	ug/kg	NA	15	U	9.5	U	12	U
n-Propylbenzene	103-65-1	ug/kg	NA	15	U	9.5	U	12	U
Naphthalene	91-20-3	ug/kg	99.4	17	J	2	JJ	12	J
o-Xylene	95-47-6	ug/kg	NA	7.7	U	4.7	U	6.1	U
p-Isopropyltoluene	99-87-6	ug/kg	NA	2.2	JJ	9.5	U	12	U
sec-Butylbenzene	135-98-8	ug/kg	NA	15	U	9.5	U	12	U
Styrene	100-42-5	ug/kg	4690.0	15	U	9.5	U	12	U
tert-Butylbenzene	98-06-6	ug/kg	NA	15	U	9.5	U	12	U
Tetrachloroethene	127-18-4	ug/kg	9920.0	15	U	9.5	U	12	U
Toluene	108-88-3	ug/kg	5450.0	5.1	JJ	4.5	JJ	3.7	JJ
trans-1,2-Dichloroethene	156-60-5	ug/kg	784.0	7.7	U	4.7	U	6.1	U
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398.0	15	U	9.5	U	12	U
Trichloroethene	79-01-6	ug/kg	12400.0	15	U	9.5	U	12	U
Trichlorofluoromethane	75-69-4	ug/kg	16400.0	31	U	19	U	24	U
Vinyl chloride	75-01-4	ug/kg	646.0	15	U	9.5	U	12	U

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

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**TABLE 26
AOC 7A - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA**

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7A-SS-SS4(0-6INCHES)		Comments	Exceeds Screening Value?
PCBs							
Aroclor 1016	12674-11-2	ug/kg	NA	230	U	No SV	No SV
Aroclor 1221	11104-28-2	ug/kg	NA	230	U	No SV	No SV
Aroclor 1232	11141-16-5	ug/kg	NA	230	U	No SV	No SV
Aroclor 1242	53469-21-9	ug/kg	NA	230	U	No SV	No SV
Aroclor 1248	12672-29-6	ug/kg	NA	230	U	No SV	No SV
Aroclor 1254	11097-69-1	ug/kg	NA	230	U	Detected; No SV	No SV
Aroclor 1260	11096-82-5	ug/kg	NA	1300		Detected; No SV	No SV
Metals							
Arsenic	7440-38-2	mg/kg	18.0	3.9			No
Barium	7440-39-3	mg/kg	330.0	77			No
Cadmium	7440-43-9	mg/kg	0.4	1.5		Max>SV; maxHQ=4.17	Yes
Chromium	7440-47-3	mg/kg	26.0	15		Max>SV; maxHQ=1.54	Yes
Lead	7439-92-1	mg/kg	11.0	240		Max>SV; maxHQ=47.27	Yes
Mercury	7439-97-6	mg/kg	0.1	0.093		Max>SV; maxHQ=1.9	Yes
Selenium	7782-49-2	mg/kg	0.5	4.2	U	DL>SV	Yes
Silver	7440-22-4	mg/kg	4.2	2.1	U		No
SVOCs							
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110.0	1900	U	DL>SV	Yes
1,2-Dichlorobenzene	95-50-1	ug/kg	2960.0	1900	U	DL>SV	Yes
1,2-Diphenylhydrazine	122-66-7	ug/kg	NA	1900	U	No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	37700.0	1900	U		No
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0	1900	U	DL>SV	Yes
2,4,5-Trichlorophenol	95-95-4	ug/kg	14100.0	1900	U	DL>SV	Yes
2,4,6-Trichlorophenol	88-06-2	ug/kg	9940.0	1900	U	DL>SV	Yes
2,4-Dichlorophenol	120-83-2	ug/kg	87500.0	1900	U		No
2,4-Dimethylphenol	105-67-9	ug/kg	10.0	1900	U	DL>SV	Yes
2,4-Dinitrophenol	51-28-5	ug/kg	60.9	9000	U	DL>SV	Yes
2,4-Dinitrotoluene	121-14-2	ug/kg	1.3	1900	U	See explosives analysis	
2,6-Dichlorophenol	87-65-0	ug/kg	1170.0	1900	U	DL>SV	Yes
2,6-Dinitrotoluene	606-20-2	ug/kg	0.0	1900	U	See explosives analysis	
2-Chloronaphthalene	91-58-7	ug/kg	12.2	1900	U	DL>SV	Yes
2-Chlorophenol	95-57-8	ug/kg	243.0	1900	U	DL>SV	Yes
2-Methylnaphthalene	91-57-6	ug/kg	3240.0	950	J	Max>SV; MaxHQ=1.17	Yes
2-Methylphenol	95-48-7	ug/kg	40400.0	1900	U		No
2-Nitroaniline	88-74-4	ug/kg	74100.0	9000	U	DL>SV	Yes
2-Nitrophenol	88-75-5	ug/kg	1600.0	1900	U	DL>SV	Yes
3,3-Dichlorobenzidine	91-94-1	ug/kg	646.0	9000	U	DL>SV	Yes
3-Methylphenol & 4-Methylphenol	65794-96-9	ug/kg	NA	1900	U	No SV	No SV
3-Nitroaniline	99-09-2	ug/kg	3160.0	9000	U	DL>SV	Yes
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	144.0	9000	U	DL>SV	Yes
4-Bromophenyl phenyl ether	101-55-3	ug/kg	NA	1900	U	No SV	No SV
4-Chloro-3-methylphenol	59-50-7	ug/kg	7950.0	1900	U	DL>SV	Yes
4-Chloroaniline	106-47-8	ug/kg	1100.0	1900	U	DL>SV	Yes
4-Chlorophenyl phenyl ether	7005-72-3	ug/kg	NA	1900	U	No SV	No SV
4-Nitroaniline	100-01-6	ug/kg	21900.0	9000	U	DL>SV	Yes
4-Nitrophenol	100-02-7	ug/kg	5120.0	9000	U	DL>SV	Yes
Acenaphthene	83-32-9	ug/kg	682000.0	4700			No
Acenaphthylene	208-96-8	ug/kg	628000.0	1900	U		No
Anthracene	120-12-7	ug/kg	1480000.0	8400			No
Ben-zidine	92-87-5	ug/kg	NA	22000	U	No SV	No SV
Benzo(a)anthracene	56-55-3	ug/kg	5210.0	14000		Max>SV; maxHQ=21.11	Yes
Benzo(a)pyrene	50-32-8	ug/kg	1520.0	11000		Max>SV; maxHQ=55.92	Yes
Benzo(b)fluoranthene	205-99-2	ug/kg	59800.0	19000	K	Max>SV; maxHQ=2.68	Yes
Benzo(ghi)perylene	191-24-2	ug/kg	119000.0	5300			No
Benzo(k)fluoranthene	207-08-9	ug/kg	148000.0	1900	U		No
Benzoic acid	65-85-0	ug/kg	NA	9000	U	No SV	No SV
Benzyl alcohol	100-51-6	ug/kg	65800.0	1900	U		No
bis(2-Chloroethoxy)methane	111-91-1	ug/kg	302.0	1900	U	DL>SV	Yes
bis(2-Chloroethyl) ether	111-44-4	ug/kg	23700.0	1900	U		No
bis(2-Chloroisopropyl) ether	108-60-1	ug/kg	19900.0	1900	U		No
bis(2-Ethylhexyl) phthalate	117-81-7	ug/kg	925.0	1900	U		No
Butyl benzyl phthalate	85-68-7	ug/kg	239.0	1900	U	DL>SV	Yes
Carbazole	86-74-8	ug/kg	NA	5500		Detected; No SV	No SV
Chrysene	218-01-9	ug/kg	4730.0	14000		Max>SV; maxHQ=23.26	Yes
Di-n-butyl phthalate	84-74-2	ug/kg	150.0	1900	U	DL>SV	Yes
Di-n-octyl phthalate	117-84-0	ug/kg	709000.0	1900	U		No
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400.0	1700	J		No
Dibenzofuran	132-64-9	ug/kg	NA	3100		No SV	No SV
Diethyl phthalate	84-66-2	ug/kg	24800.0	3700	U	DL>SV	Yes
Dimethyl phthalate	131-11-3	ug/kg	734000.0	1900	U		No
Fluoranthene	206-44-0	ug/kg	122000.0	36000		Max>SV; maxHQ=2.46	Yes
Fluorene	86-73-7	ug/kg	122000.0	5200			No
Hexachlorobenzene	118-74-1	ug/kg	199.0	1900	U	DL>SV	Yes
Hexachlorobutadiene	87-68-3	ug/kg	39.8	1900	U	DL>SV	Yes
Hexachloroethane	67-72-1	ug/kg	596.0	1900	U	DL>SV	Yes
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12600.0	5000		Max>SV; maxHQ=3.33	Yes
Isophorone	78-59-1	ug/kg	139000.0	1900	U		No
N-Nitrosodi-n-propylamine	621-64-7	ug/kg	544.0	1900	U	DL>SV	Yes
N-Nitrosodimethylamine	62-75-9	ug/kg	0.0	2900	U	DL>SV	Yes
N-Nitrosodiphenylamine	86-30-6	ug/kg	545.0	1900	U	DL>SV	Yes
N-Nitrosopyrrolidine	930-55-2	ug/kg	12.6	1900	U	DL>SV	Yes
Naphthalene	91-20-3	ug/kg	99.4	2000		Max>SV; maxHQ=83.50	Yes
Nitrobenzene	98-95-3	ug/kg	1310.0	1900	U	DL>SV	Yes
Pentachlorophenol	87-86-5	ug/kg	2100.0	9000	U	DL>SV	Yes
Phenanthrene	85-01-8	ug/kg	45700.0	38000		Max>SV; maxHQ=5.25	Yes
Phenol	108-95-2	ug/kg	120000.0	1900	U		No
Pyrene	129-00-0	ug/kg	78500.0	30000		Max>SV; maxHQ=2.93	Yes
VOCs							
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	225000.0	10	U		No
1,1,1-Trichloroethane	71-55-6	ug/kg	29800.0	10	U		No
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	127.0	10	U		No
1,1,2-Trichloroethane	79-00-5	ug/kg	28600.0	10	U		No
1,1-Dichloroethane	75-34-3	ug/kg	20100.0	10	U		No
1,1-Dichloroethene	75-35-4	ug/kg	8280.0	10	U		No
1,1-Dichloropropene	563-58-6	ug/kg	NA	10	U	No SV	No SV
1,2,3-Trichlorobenzene	87-61-6	ug/kg	NA	10	U	No SV	No SV
1,2,3-Trichloropropane	96-18-4	ug/kg	3360.0	10	U		No
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110.0	10	U		No
1,2,4-Trimethylbenzene	95-63-6	ug/kg	NA	10	U	Detected; No SV	No SV
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/kg	35.2	20	U		No
1,2-Dibromoethane (EDB)	106-93-4	ug/kg	1230.0	10	U		No
1,2-Dichlorobenzene	95-50-1	ug/kg	2960.0	10	U		No
1,2-Dichloroethane	107-06-2	ug/kg	21200.0	10	U		No
1,2-Dichloropropane	78-87-5	ug/kg	32700.0	10	U		No

TABLE 26
AOC 7A - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7A-SS-SS4(0-6INCHES)		Comments	Exceeds Screening Value?
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	10	U	No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	37700.0	10	U		No
1,3-Dichloropropane	142-28-9	ug/kg	NA	10	U	No SV	No SV
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0	10	U		No
2,2-Dichloropropane	594-20-7	ug/kg	9600.0	10	U		No
2-Butanone (MEK)	78-93-3	ug/kg	89600.0	110	BJ		No
2-Chlorotoluene	95-49-8	ug/kg	NA	10	U	No SV	No SV
2-Hexanone	591-78-6	ug/kg	12600.0	40	U		No
4-Chlorotoluene	106-43-4	ug/kg	NA	10	U	No SV	No SV
4-Methyl-2-pentanone	108-10-1	ug/kg	443000.0	40	U		No
Acetone	67-64-1	ug/kg	2500.0	400	J		No
Benzene	71-43-2	ug/kg	255.0	2.9	JJ		No
Bromobenzene	108-86-1	ug/kg	NA	10	U	No SV	No SV
Bromochloromethane	74-97-5	ug/kg	NA	10	U	No SV	No SV
Bromodichloromethane	75-27-4	ug/kg	540.0	10	U		No
Bromoform	75-25-2	ug/kg	15900.0	10	U		No
Bromomethane	74-83-9	ug/kg	235.0	20	U		No
Carbon disulfide	75-15-0	ug/kg	94.1	0.92	JJ		No
Carbon tetrachloride	56-23-5	ug/kg	2980.0	10	U		No
Chlorobenzene	108-90-7	ug/kg	13100.0	10	U		No
Chloroethane	75-00-3	ug/kg	NA	20	U	No SV	No SV
Chloroform	67-66-3	ug/kg	1190.0	20	U		No
Chloromethane	74-87-3	ug/kg	10400.0	20	U		No
cis-1,2-Dichloroethene	156-59-2	ug/kg	200.0	5	U		No
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398.0	10	U		No
Dibromochloromethane	124-48-1	ug/kg	2050.0	10	U		No
Dibromomethane	74-95-3	ug/kg	65000.0	10	U		No
Dichlorodifluoromethane	75-71-8	ug/kg	39500.0	20	U		No
Ethylbenzene	100-41-4	ug/kg	5160.0	1.3	JJ		No
Hexachlorobutadiene	87-68-3	ug/kg	39.8	10	U		No
Isopropylbenzene	98-82-8	ug/kg	NA	10	U	No SV	No SV
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	5	U	No SV	No SV
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	40	U	No SV	No SV
Methylene chloride	75-09-2	ug/kg	4050.0	10	U		No
n-Butylbenzene	104-51-8	ug/kg	NA	10	U	No SV	No SV
n-Propylbenzene	103-65-1	ug/kg	NA	10	U	No SV	No SV
Naphthalene	91-20-3	ug/kg	99.4	2.6	JJ		No
o-Xylene	95-47-6	ug/kg	NA	5	U	No SV	No SV
p-Isopropyltoluene	99-87-6	ug/kg	NA	10	U	Detected; No SV	No SV
sec-Butylbenzene	135-98-8	ug/kg	NA	10	U	No SV	No SV
Styrene	100-42-5	ug/kg	4690.0	10	U		No
tert-Butylbenzene	98-06-6	ug/kg	NA	10	U	No SV	No SV
Tetrachloroethene	127-18-4	ug/kg	9920.0	10	U		No
Toluene	108-88-3	ug/kg	5450.0	3.6	JJ		No
trans-1,2-Dichloroethene	156-60-5	ug/kg	784.0	5	U		No
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398.0	10	U		No
Trichloroethene	79-01-6	ug/kg	12400.0	10	U		No
Trichlorofluoromethane	75-69-4	ug/kg	16400.0	20	U		No
Vinyl chloride	75-01-4	ug/kg	646.0	10	U		No

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoran

Q - One or more quality control criteria failed

U - undetected at the limit of detection

TABLE 27
AOC 7B - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7B-SS-GP1(0-6INCHES)	FGOW-AOC7B-SS-GP2(0-6INCHES)	FGOW-AOC7B-SS-GP3(0-6INCHES)	Comments	Exceeds Screening Value?			
Explosives											
2,4-Dinitrotoluene	121-14-2	mg/kg	1.3		0.25	U		No			
2,6-Dinitrotoluene	606-20-2	mg/kg	0.033		0.25	U	DL>SV	Yes			
Metals											
Arsenic	7440-38-2	mg/kg	18.0	2.2	J	2	J	1.4	J	No	
Barium	7440-39-3	mg/kg	330.0	34		34		33		No	
Cadmium	7440-43-9	mg/kg	0.4	0.52	U	0.096	J	0.09	J	No	
Chromium	7440-47-3	mg/kg	26.0	8.8		11		8.2		No	
Lead	7439-92-1	mg/kg	11.0	3.2	JB	3.3	J	3.2	J	No	
Mercury	7439-97-6	mg/kg	0.1	0.0078	J	0.038	U	0.037	U	No	
Selenium	7782-49-2	mg/kg	0.5	3.1	U	3.4	U	3.3	U	DL>SV	Yes
Silver	7440-22-4	mg/kg	4.2	1.6	U	1.7	U	1.7	U	No	
SVOCs											
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110.0	340	U	380	U	370	U	No	
1,2-Dichlorobenzene	95-50-1	ug/kg	2960.0	340	U	380	U	370	U	No	
1,2-Diphenylhydrazine	122-66-7	ug/kg	NA	340	U	380	U	370	U	No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	37700.0	340	U	380	U	370	U	No	
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0	340	U	380	U	370	U	No	
2,4,5-Trichlorophenol	95-95-4	ug/kg	14100.0	340	U	380	U	370	U	No	
2,4,6-Trichlorophenol	88-06-2	ug/kg	9940.0	340	U	380	U	370	U	No	
2,4-Dichlorophenol	120-83-2	ug/kg	87500.0	340	U	380	U	370	U	No	
2,4-Dimethylphenol	105-67-9	ug/kg	10.0	340	U	380	U	370	U	DL>SV	Yes
2,4-Dinitrophenol	51-28-5	ug/kg	60.9	1700	U	1800	U	1800	U	DL>SV	Yes
2,4-Dinitrotoluene	121-14-2	ug/kg	1.3	340	U	380	U	370	U	See explosives analysis	
2,6-Dichlorophenol	87-65-0	ug/kg	1170.0	340	U	380	U	370	U	No	
2,6-Dinitrotoluene	606-20-2	ug/kg	0.033	340	U	380	U	370	U	See explosives analysis	
2-Chloronaphthalene	91-58-7	ug/kg	12.2	340	U	380	U	370	U	DL>SV	Yes
2-Chlorophenol	95-57-8	ug/kg	243.0	340	U	380	U	370	U	DL>SV	Yes
2-Methylnaphthalene	91-57-6	ug/kg	3240.0	340	U	380	U	370	U	No	
2-Methylphenol	95-48-7	ug/kg	40400.0	340	U	380	U	370	U	No	
2-Nitroaniline	88-74-4	ug/kg	74100.0	1700	U	1800	U	1800	U	No	
2-Nitrophenol	88-75-5	ug/kg	1600.0	340	U	380	U	370	U	No	
3,3-Dichlorobenzidine	91-94-1	ug/kg	646.0	1700	U	1800	U	1800	U	DL>SV	Yes
3-Methylphenol & 4-Methylphenol	65794-96-9	ug/kg	NA	340	U	380	U	370	U	No SV	No SV
3-Nitroaniline	99-09-2	ug/kg	3160.0	1700	U	1800	U	1800	U	No	
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	144.0	1700	U	1800	U	1800	U	DL>SV	Yes
4-Bromophenyl phenyl ether	101-55-3	ug/kg	NA	340	U	380	U	370	U	No SV	No SV
4-Chloro-3-methylphenol	59-50-7	ug/kg	7950.0	340	U	380	U	370	U	No	
4-Chloroaniline	106-47-8	ug/kg	1100.0	340	U	380	U	370	U	No	
4-Chlorophenyl phenyl ether	7005-72-3	ug/kg	NA	340	U	380	U	370	U	No SV	No SV
4-Nitroaniline	100-01-6	ug/kg	21900.0	1700	U	1800	U	1800	U	No	

TABLE 27
AOC 7B - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7B-SS-GP1(0-6INCHES)	FGOW-AOC7B-SS-GP2(0-6INCHES)	FGOW-AOC7B-SS-GP3(0-6INCHES)	Comments	Exceeds Screening Value?
4-Nitrophenol	100-02-7	ug/kg	5120.0	1700 U	1800 U	1800 U		No
Acenaphthene	83-32-9	ug/kg	682000.0	340 U	380 U	370 U		No
Acenaphthylene	208-96-8	ug/kg	628000.0	340 U	380 U	370 U		No
Anthracene	120-12-7	ug/kg	1480000.0	340 U	380 U	370 U		No
Benzidine	92-87-5	ug/kg	NA	4200 U	4600 U	4400 U	No SV	No SV
Benzo(a)anthracene	56-55-3	ug/kg	5210.0	340 U	380 U	370 U		No
Benzo(a)pyrene	50-32-8	ug/kg	1520.0	340 U	380 U	370 U		No
Benzo(b)fluoranthene	205-99-2	ug/kg	59800.0	340 U	380 U	370 U		No
Benzo(ghi)perylene	191-24-2	ug/kg	119000.0	340 U	380 U	370 U		No
Benzo(k)fluoranthene	207-08-9	ug/kg	148000.0	340 U	380 U	370 U		No
Benzoic acid	65-85-0	ug/kg	NA	1700 U	1800 U	1800 U	No SV	No SV
Benzyl alcohol	100-51-6	ug/kg	65800.0	340 U	380 U	370 U		No
bis(2-Chloroethoxy)methane	111-91-1	ug/kg	302.0	340 U	380 U	370 U	DL>SV	Yes
bis(2-Chloroethyl) ether	111-44-4	ug/kg	23700.0	340 U	380 U	370 U		No
bis(2-Chloroisopropyl) ether	108-60-1	ug/kg	19900.0	340 U	380 U	370 U		No
bis(2-Ethylhexyl) phthalate	117-81-7	ug/kg	925.0	340 U	380 U	370 U		No
Butyl benzyl phthalate	85-68-7	ug/kg	239.0	340 U	380 U	370 U	DL>SV	Yes
Carbazole	86-74-8	ug/kg	NA	340 U	380 U	370 U	No SV	No SV
Chrysene	218-01-9	ug/kg	4730.0	340 U	380 U	370 U		No
Di-n-butyl phthalate	84-74-2	ug/kg	150.0	340 U	380 U	370 U	DL>SV	Yes
Di-n-octyl phthalate	117-84-0	ug/kg	709000.0	340 U	380 U	370 U		No
Dibenz(a,h)anthracene	53-70-3	ug/kg	18400.0	340 U	380 U	370 U		No
Dibenzofuran	132-64-9	ug/kg	NA	340 U	380 U	370 U	No SV	No SV
Diethyl phthalate	84-66-2	ug/kg	24800.0	690 U	760 U	730 U		No
Dimethyl phthalate	131-11-3	ug/kg	734000.0	340 U	380 U	370 U		No
Fluoranthene	206-44-0	ug/kg	122000.0	340 U	380 U	370 U		No
Fluorene	86-73-7	ug/kg	122000.0	340 U	380 U	370 U		No
Hexachlorobenzene	118-74-1	ug/kg	199.0	340 U	380 U	370 U	DL>SV	Yes
Hexachlorobutadiene	87-68-3	ug/kg	39.8	340 U	380 U	370 U	DL>SV	Yes
Hexachloroethane	67-72-1	ug/kg	596.0	340 U	380 U	370 U		No
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12600.0	340 U	380 U	370 U		No
Isophorone	78-59-1	ug/kg	139000.0	340 U	380 U	370 U		No
N-Nitrosodi-n-propylamine	621-64-7	ug/kg	544.0	340 U	380 U	370 U		No
N-Nitrosodimethylamine	62-75-9	ug/kg	0.0	540 U	590 U	580 U	DL>SV	Yes
N-Nitrosodiphenylamine	86-30-6	ug/kg	545.0	340 U	380 U	370 U		No
N-Nitrosopyrrolidine	930-55-2	ug/kg	12.6	340 U	380 U	370 U	DL>SV	Yes
Naphthalene	91-20-3	ug/kg	99.4	340 U	380 U	370 U	DL>SV	Yes
Nitrobenzene	98-95-3	ug/kg	1310.0	340 U	380 U	370 U		No
Pentachlorophenol	87-86-5	ug/kg	2100.0	1700 U	1800 U	1800 U		No
Phenanthrene	85-01-8	ug/kg	45700.0	340 U	380 U	370 U		No
Phenol	108-95-2	ug/kg	120000.0	340 U	380 U	370 U		No
Pyrene	129-00-0	ug/kg	78500.0	420 U	460 U	440 U		No

TABLE 27
AOC 7B - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7B-SS-GP1(0-6INCHES)		FGOW-AOC7B-SS-GP2(0-6INCHES)		FGOW-AOC7B-SS-GP3(0-6INCHES)		Comments	Exceeds Screening Value?
VOCs											
1,1,1,2-Tetrachloroethane	630-20-6	ug/kg	225000.0	4.5	U	4.5	U	5.2	U		No
1,1,1-Trichloroethane	71-55-6	ug/kg	29800.0	4.5	U	4.5	U	5.2	U		No
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	127.0	4.5	U	4.5	U	5.2	U		No
1,1,2-Trichloroethane	79-00-5	ug/kg	28600.0	4.5	U	4.5	U	5.2	U		No
1,1-Dichloroethane	75-34-3	ug/kg	20100.0	4.5	U	4.5	U	5.2	U		No
1,1-Dichloroethene	75-35-4	ug/kg	8280.0	4.5	U	4.5	U	5.2	U		No
1,1-Dichloropropene	563-58-6	ug/kg	NA	4.5	U	4.5	U	5.2	U	No SV	No SV
1,2,3-Trichlorobenzene	87-61-6	ug/kg	NA	4.5	U	4.5	U	5.2	U	No SV	No SV
1,2,3-Trichloropropane	96-18-4	ug/kg	3360.0	4.5	U	4.5	U	5.2	U		No
1,2,4-Trichlorobenzene	120-82-1	ug/kg	11110.0	4.5	U	4.5	U	5.2	U		No
1,2,4-Trimethylbenzene	95-63-6	ug/kg	NA	4.5	U	0.75	J	5.2	U	Detected; No SV	No SV
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	ug/kg	35.2	9.1	U	9	U	10	U		No
1,2-Dibromoethane (EDB)	106-93-4	ug/kg	1230.0	4.5	U	4.5	U	5.2	U		No
1,2-Dichlorobenzene	95-50-1	ug/kg	2960.0	4.5	U	4.5	U	5.2	U		No
1,2-Dichloroethane	107-06-2	ug/kg	21200.0	4.5	U	4.5	U	5.2	U		No
1,2-Dichloropropane	78-87-5	ug/kg	32700.0	4.5	U	4.5	U	5.2	U		No
1,3,5-Trimethylbenzene	108-67-8	ug/kg	NA	4.5	U	4.5	U	5.2	U	No SV	No SV
1,3-Dichlorobenzene	541-73-1	ug/kg	37700.0	4.5	U	4.5	U	5.2	U		No
1,3-Dichloropropane	142-28-9	ug/kg	NA	4.5	U	4.5	U	5.2	U	No SV	No SV
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0	4.5	U	4.5	U	5.2	U		No
2,2-Dichloropropane	594-20-7	ug/kg	9600.0	4.5	U	4.5	U	5.2	U		No
2-Butanone (MEK)	78-93-3	ug/kg	89600.0	12	JB	8.6	JB	9.6	JB		No
2-Chlorotoluene	95-49-8	ug/kg	NA	4.5	U	4.5	U	5.2	U	No SV	No SV
2-Hexanone	591-78-6	ug/kg	12600.0	18	U	18	U	21	U		No
4-Chlorotoluene	106-43-4	ug/kg	NA	4.5	U	4.5	U	5.2	U	No SV	No SV
4-Methyl-2-pentanone	108-10-1	ug/kg	443000.0	18	U	18	U	21	U		No
Acetone	67-64-1	ug/kg	2500.0	23	J	18	U	21	U		No
Benzene	71-43-2	ug/kg	255.0	4.5	U	4.5	U	5.2	U		No
Bromobenzene	108-86-1	ug/kg	NA	4.5	U	4.5	U	5.2	U	No SV	No SV
Bromochloromethane	74-97-5	ug/kg	NA	4.5	U	4.5	U	5.2	U	No SV	No SV
Bromodichloromethane	75-27-4	ug/kg	540.0	4.5	U	4.5	U	5.2	U		No
Bromoform	75-25-2	ug/kg	15900.0	4.5	U	4.5	U	5.2	U		No
Bromomethane	74-83-9	ug/kg	235.0	9.1	U	9	U	10	U		No
Carbon disulfide	75-15-0	ug/kg	94.1	4.5	U	4.5	U	5.2	U		No
Carbon tetrachloride	56-23-5	ug/kg	2980.0	4.5	U	4.5	U	5.2	U		No
Chlorobenzene	108-90-7	ug/kg	13100.0	4.5	U	4.5	U	5.2	U		No
Chloroethane	75-00-3	ug/kg	NA	9.1	U	9	U	10	U	No SV	No SV
Chloroform	67-66-3	ug/kg	1190.0	9.1	U	9	U	10	U		No
Chloromethane	74-87-3	ug/kg	10400.0	9.1	U	9	U	10	U		No
cis-1,2-Dichloroethene	156-59-2	ug/kg	200.0	2.3	U	2.3	U	2.6	U		No
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398.0	4.5	U	4.5	U	5.2	U		No
Dibromochloromethane	124-48-1	ug/kg	2050.0	4.5	U	4.5	U	5.2	U		No

TABLE 27
AOC 7B - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7B-SS-GP1(0-6INCHES)	FGOW-AOC7B-SS-GP2(0-6INCHES)	FGOW-AOC7B-SS-GP3(0-6INCHES)	Comments	Exceeds Screening Value?
Dibromomethane	74-95-3	ug/kg	65000.0	4.5 U	4.5 U	5.2 U		No
Dichlorodifluoromethane	75-71-8	ug/kg	39500.0	9.1 U	9 U	10 U		No
Ethylbenzene	100-41-4	ug/kg	5160.0	4.5 U	4.5 U	5.2 U		No
Hexachlorobutadiene	87-68-3	ug/kg	39.8	4.5 U	4.5 U	5.2 U		No
Isopropylbenzene	98-82-8	ug/kg	NA	4.5 U	4.5 U	5.2 U	No SV	No SV
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	2.3 U	2.3 U	2.6 U	No SV	No SV
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	18 U	18 U	21 U	No SV	No SV
Methylene chloride	75-09-2	ug/kg	4050.0	4.5 U	4.5 U	5.2 U		No
n-Butylbenzene	104-51-8	ug/kg	NA	4.5 U	4.5 U	5.2 U	No SV	No SV
n-Propylbenzene	103-65-1	ug/kg	NA	4.5 U	4.5 U	5.2 U	No SV	No SV
Naphthalene	91-20-3	ug/kg	99.4	4.5 U	1.1 J	5.2 U		No
o-Xylene	95-47-6	ug/kg	NA	2.3 U	2.3 U	2.6 U	No SV	No SV
p-Isopropyltoluene	99-87-6	ug/kg	NA	4.5 U	4.5 U	5.2 U	No SV	No SV
sec-Butylbenzene	135-98-8	ug/kg	NA	4.5 U	4.5 U	5.2 U	No SV	No SV
Styrene	100-42-5	ug/kg	4690.0	4.5 U	4.5 U	5.2 U		No
tert-Butylbenzene	98-06-6	ug/kg	NA	4.5 U	4.5 U	5.2 U	No SV	No SV
Tetrachloroethene	127-18-4	ug/kg	9920.0	4.5 U	4.5 U	5.2 U		No
Toluene	108-88-3	ug/kg	5450.0	0.81 JJ	4.5 U	5.2 U		No
trans-1,2-Dichloroethene	156-60-5	ug/kg	784.0	2.3 U	2.3 U	2.6 U		No
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398.0	4.5 U	4.5 U	5.2 U		No
Trichloroethene	79-01-6	ug/kg	12400.0	4.5 U	4.5 U	5.2 U		No
Trichlorofluoromethane	75-69-4	ug/kg	16400.0	9.1 U	9 U	10 U		No
Vinyl chloride	75-01-4	ug/kg	646.0	4.5 U	4.5 U	5.2 U		No

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranthene and benzo(k)fluoranthene

Q - One or more quality control criteria failed

U - undetected at the limit of detection

TABLE 28
AOC 7C - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7C-SS-GP1(0-6INCHES)	FGOW-AOC7C-SS-GP2(0-6INCHES)	FGOW-AOC7C-SS-GP3(0-6INCHES)	FGOW-AOC7C-SS-GP4(0-6INCHES)	FGOW-AOC7C-SS-GP5(0-6INCHES)	FGOW-AOC7C-SS-GP6(0-6INCHES)
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
2,2-Dichloropropane	594-20-7	ug/kg	9600.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
2-Butanone (MEK)	78-93-3	ug/kg	89600.0	10 JB	17 U	8.2 JBu	21 U	16 U	10 JBJ
2-Chlorotoluene	95-49-8	ug/kg	NA	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
2-Hexanone	591-78-6	ug/kg	12600.0	22 U	17 U	17 U	21 U	16 U	22 U
4-Chlorotoluene	106-43-4	ug/kg	NA	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
4-Methyl-2-pentanone	108-10-1	ug/kg	443000.0	22 U	17 U	17 U	21 U	16 U	22 U
Acetone	67-64-1	ug/kg	2500.0	22 U	17 U	17 U	21 U	16 U	22 U
Benzene	71-43-2	ug/kg	255.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Bromobenzene	108-86-1	ug/kg	NA	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Bromochloromethane	74-97-5	ug/kg	NA	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Bromodichloromethane	75-27-4	ug/kg	540.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Bromoform	75-25-2	ug/kg	15900.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Bromomethane	74-83-9	ug/kg	235.0	11 U	8.5 U	8.7 U	10 U	8.2 U	11 U
Carbon disulfide	75-15-0	ug/kg	94.1	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Carbon tetrachloride	56-23-5	ug/kg	2980.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Chlorobenzene	108-90-7	ug/kg	13100.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Chloroethane	75-00-3	ug/kg	NA	11 U	8.5 U	8.7 U	10 U	8.2 U	11 U
Chloroform	67-66-3	ug/kg	1190.0	11 U	8.5 U	8.7 U	10 U	8.2 U	11 U
Chloromethane	74-87-3	ug/kg	10400.0	11 U	8.5 U	8.7 U	10 U	8.2 U	11 U
cis-1,2-Dichloroethene	156-59-2	ug/kg	200.0	2.7 U	2.1 U	2.2 U	2.6 U	2.1 U	2.7 U
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Dibromochloromethane	124-48-1	ug/kg	2050.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Dibromomethane	74-95-3	ug/kg	65000.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Dichlorodifluoromethane	75-71-8	ug/kg	39500.0	11 U	8.5 U	8.7 U	10 U	8.2 U	11 U
Ethylbenzene	100-41-4	ug/kg	5160.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Hexachlorobutadiene	87-68-3	ug/kg	39.8	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Isopropylbenzene	98-82-8	ug/kg	NA	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	2.7 U	2.1 U	2.2 U	2.6 U	2.1 U	2.7 U
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	22 U	17 U	17 U	21 U	16 U	22 U
Methylene chloride	75-09-2	ug/kg	4050.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
n-Butylbenzene	104-51-8	ug/kg	NA	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
n-Propylbenzene	103-65-1	ug/kg	NA	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Naphthalene	91-20-3	ug/kg	99.4	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
o-Xylene	95-47-6	ug/kg	NA	2.7 U	2.1 U	2.2 U	2.6 U	2.1 U	2.7 U
p-Isopropyltoluene	99-87-6	ug/kg	NA	5.4 U	4.2 U	4.3 U	2.4 JQJ	4.1 U	5.4 U
sec-Butylbenzene	135-98-8	ug/kg	NA	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Styrene	100-42-5	ug/kg	4690.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
tert-Butylbenzene	98-06-6	ug/kg	NA	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Tetrachloroethene	127-18-4	ug/kg	9920.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Toluene	108-88-3	ug/kg	5450.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
trans-1,2-Dichloroethene	156-60-5	ug/kg	784.0	2.7 U	2.1 U	2.2 U	2.6 U	2.1 U	2.7 U
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Trichloroethene	79-01-6	ug/kg	12400.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Trichlorofluoromethane	75-69-4	ug/kg	16400.0	11 U	8.5 U	8.7 U	10 U	8.2 U	11 U
Vinyl chloride	75-01-4	ug/kg	646.0	5.4 U	4.2 U	4.3 U	5.2 U	4.1 U	5.4 U
Other									
Nitrocellulose	9004-70-0		NA		1.7 3Ju		1.8 BJu		1.2 BJu

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranthene and benzo(k)fluoranthene

Q - One or more quality control criteria failed

U - undetected at the limit of detection

TABLE 28
AOC 7C - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7C-SS-GP7(0-6INCHES)	FGOW-AOC7C-SS-SS1(0-6INCHES)	FGOW-AOC7C-SS-SS2(0-6INCHES)	FGOW-AOC7C-SS-SS3(0-6INCHES)	FGOW-AOC7C-SS-SS4(0-6INCHES)	FGOW-AOC7C-SS-SS5(0-6INCHES)
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0	11 U					
2,2-Dichloropropane	594-20-7	ug/kg	9600.0	11 U					
2-Butanone (MEK)	78-93-3	ug/kg	89600.0	21 JBJ					
2-Chlorotoluene	95-49-8	ug/kg	NA	11 U					
2-Hexanone	591-78-6	ug/kg	12600.0	45 U					
4-Chlorotoluene	106-43-4	ug/kg	NA	11 U					
4-Methyl-2-pentanone	108-10-1	ug/kg	443000.0	45 U					
Acetone	67-64-1	ug/kg	2500.0	45 U					
Benzene	71-43-2	ug/kg	255.0	11 U					
Bromobenzene	108-86-1	ug/kg	NA	11 U					
Bromochloromethane	74-97-5	ug/kg	NA	11 U					
Bromodichloromethane	75-27-4	ug/kg	540.0	11 U					
Bromoform	75-25-2	ug/kg	15900.0	11 U					
Bromomethane	74-83-9	ug/kg	235.0	23 U					
Carbon disulfide	75-15-0	ug/kg	94.1	11 U					
Carbon tetrachloride	56-23-5	ug/kg	2980.0	11 U					
Chlorobenzene	108-90-7	ug/kg	13100.0	11 U					
Chloroethane	75-00-3	ug/kg	NA	23 U					
Chloroform	67-66-3	ug/kg	1190.0	23 U					
Chloromethane	74-87-3	ug/kg	10400.0	23 U					
cis-1,2-Dichloroethene	156-59-2	ug/kg	200.0	5.6 U					
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398.0	11 U					
Dibromochloromethane	124-48-1	ug/kg	2050.0	11 U					
Dibromomethane	74-95-3	ug/kg	65000.0	11 U					
Dichlorodifluoromethane	75-71-8	ug/kg	39500.0	23 U					
Ethylbenzene	100-41-4	ug/kg	5160.0	11 U					
Hexachlorobutadiene	87-68-3	ug/kg	39.8	11 U					
Isopropylbenzene	98-82-8	ug/kg	NA	11 U					
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA	5.6 U					
Methyl tert-butyl ether	1634-04-4	ug/kg	NA	45 U					
Methylene chloride	75-09-2	ug/kg	4050.0	11 U					
n-Butylbenzene	104-51-8	ug/kg	NA	11 U					
n-Propylbenzene	103-65-1	ug/kg	NA	11 U					
Naphthalene	91-20-3	ug/kg	99.4	1.5 JBJ					
o-Xylene	95-47-6	ug/kg	NA	5.6 U					
p-Isopropyltoluene	99-87-6	ug/kg	NA	11 U					
sec-Butylbenzene	135-98-8	ug/kg	NA	11 U					
Styrene	100-42-5	ug/kg	4690.0	11 U					
tert-Butylbenzene	98-06-6	ug/kg	NA	11 U					
Tetrachloroethene	127-18-4	ug/kg	9920.0	11 U					
Toluene	108-88-3	ug/kg	5450.0	11 U					
trans-1,2-Dichloroethene	156-60-5	ug/kg	784.0	5.6 U					
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398.0	11 U					
Trichloroethene	79-01-6	ug/kg	12400.0	11 U					
Trichlorofluoromethane	75-69-4	ug/kg	16400.0	23 U					
Vinyl chloride	75-01-4	ug/kg	646.0	11 U					
Other									
Nitrocellulose	9004-70-0		NA	1.4 BJu	1.4 BJu	2.8 BJu	1.8 BJu	1.5 BJu	2.7 BJu

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

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j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluoranti

Q - One or more quality control criteria failed

U - undetected at the limit of detection

TABLE 28
AOC 7C - SURFACE SOIL DATA COMPARED TO SOIL SCREENING VALUES
FORMER GOPHER ORDNANCE WORKS
ROSEMOUNT, MINNESOTA

	CAS Number	Unit	Ecological Soil Screening Value	FGOW-AOC7C-SS-SS6(0-6INCHES)	FGOW-AOC7C-SS-SS7(0-6INCHES)	FGOW-AOC7C-SS-SS8(0-6INCHES)	Comments	Exceeds Screening Value?
1,4-Dichlorobenzene	106-46-7	ug/kg	546.0					No
2,2-Dichloropropane	594-20-7	ug/kg	9600.0					No
2-Butanone (MEK)	78-93-3	ug/kg	89600.0					No
2-Chlorotoluene	95-49-8	ug/kg	NA				No SV	No SV
2-Hexanone	591-78-6	ug/kg	12600.0					No
4-Chlorotoluene	106-43-4	ug/kg	NA				No SV	No SV
4-Methyl-2-pentanone	108-10-1	ug/kg	443000.0					No
Acetone	67-64-1	ug/kg	2500.0					No
Benzene	71-43-2	ug/kg	255.0					No
Bromobenzene	108-86-1	ug/kg	NA				No SV	No SV
Bromochloromethane	74-97-5	ug/kg	NA				No SV	No SV
Bromodichloromethane	75-27-4	ug/kg	540.0					No
Bromoform	75-25-2	ug/kg	15900.0					No
Bromomethane	74-83-9	ug/kg	235.0					No
Carbon disulfide	75-15-0	ug/kg	94.1					No
Carbon tetrachloride	56-23-5	ug/kg	2980.0					No
Chlorobenzene	108-90-7	ug/kg	13100.0					No
Chloroethane	75-00-3	ug/kg	NA				No SV	No SV
Chloroform	67-66-3	ug/kg	1190.0					No
Chloromethane	74-87-3	ug/kg	10400.0					No
cis-1,2-Dichloroethene	156-59-2	ug/kg	200.0					No
cis-1,3-Dichloropropene	10061-01-5	ug/kg	398.0					No
Dibromochloromethane	124-48-1	ug/kg	2050.0					No
Dibromomethane	74-95-3	ug/kg	65000.0					No
Dichlorodifluoromethane	75-71-8	ug/kg	39500.0					No
Ethylbenzene	100-41-4	ug/kg	5160.0					No
Hexachlorobutadiene	87-68-3	ug/kg	39.8					No
Isopropylbenzene	98-82-8	ug/kg	NA				No SV	No SV
m-Xylene & p-Xylene	136777-61-2	ug/kg	NA				No SV	No SV
Methyl tert-butyl ether	1634-04-4	ug/kg	NA					No
Methylene chloride	75-09-2	ug/kg	4050.0					No
n-Butylbenzene	104-51-8	ug/kg	NA				No SV	No SV
n-Propylbenzene	103-65-1	ug/kg	NA				No SV	No SV
Naphthalene	91-20-3	ug/kg	99.4					No
o-Xylene	95-47-6	ug/kg	NA				No SV	No SV
p-Isopropyltoluene	99-87-6	ug/kg	NA				Detected; No SV	No SV
sec-Butylbenzene	135-98-8	ug/kg	NA				No SV	No SV
Styrene	100-42-5	ug/kg	4690.0					No
tert-Butylbenzene	98-06-6	ug/kg	NA				No SV	No SV
Tetrachloroethene	127-18-4	ug/kg	9920.0					No
Toluene	108-88-3	ug/kg	5450.0					No
trans-1,2-Dichloroethene	156-60-5	ug/kg	784.0					No
trans-1,3-Dichloropropene	10061-02-6	ug/kg	398.0					No
Trichloroethene	79-01-6	ug/kg	12400.0					No
Trichlorofluoromethane	75-69-4	ug/kg	16400.0					No
Vinyl chloride	75-01-4	ug/kg	646.0					No
Other								
Nitrocellulose	9004-70-0		NA	2.1 BJu	1.2 BJ	1.5 BJ	Detected; No SV	No SV

Notes:

Shaded cells indicate chemicals identified as exceeding screening values.

DL = Detection Limit

HQ = Hazard Quotient = Chemical concentration/SV

Max = Maximum Detected Concentration

mg/kg = milligram per kilogram

SV = Screening Value

ug/kg = microgram per kilogram

B - blank contamination above the method detection limit

E - estimated because value is above linear calibration range

J - estimated

j - estimated

K - the reported benzo(b)fluoranthene may consist of both benzo(b)fluorani

Q - One or more quality control criteria failed

U - undetected at the limit of detection

TABLE 30
SUMMARY OF HAZARD QUOTIENTS FOR FOOD WEB EXPOSURES
AOC 7
FORMER GOPHER ORDNANCE WORKS, ROSEMOUNT, MINNESOTA

Chemical	Short-tailed shrew			White-footed mouse			Meadow vole			Red fox		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics												
Arsenic	7.57	0.76	2.40	3.75	0.38	1.19	9.82	0.98	3.11	0.54	0.05	0.17
Cadmium	9.57	0.96	3.03	2.16	0.22	0.68	0.82	0.08	0.26	0.45	0.04	0.14
Chromium	1.18	0.12	0.37	0.24	0.02	0.08	0.03	<0.01	<0.01	0.06	<0.01	0.02
Lead	18.16	1.82	5.74	4.61	0.46	1.46	4.73	0.47	1.50	1.44	0.14	0.45
Mercury	84.48	16.90	37.78	21.88	4.38	9.79	18.53	3.71	8.29	0.38	0.23	0.29
Selenium	2.73	1.65	2.12	1.59	0.96	1.24	4.24	2.57	3.30	0.67	0.41	0.52
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Semivolatile Organic Compounds												
1,2,4-Trichlorobenzene	0.03	0.02	0.02	0.02	<0.01	0.01	0.05	0.02	0.03	<0.01	<0.01	<0.01
1,2-Dichlorobenzene	0.03	<0.01	0.01	0.02	<0.01	<0.01	0.05	<0.01	0.02	<0.01	<0.01	<0.01
1,3-Dichlorobenzene	0.03	<0.01	<0.01	0.02	<0.01	<0.01	0.04	<0.01	0.01	<0.01	<0.01	<0.01
1,4-Dichlorobenzene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.01	<0.01	<0.01	<0.01
4-Bromophenyl-Phenylether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-Phenylether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	5.71	0.57	1.80	1.69	0.17	0.54	3.53	0.35	1.12	0.74	0.07	0.24
Benzo(a)pyrene	5.05	0.50	1.60	1.24	0.12	0.39	1.95	0.20	0.62	0.55	0.05	0.17
Benzo(b)fluoranthene	7.06	0.71	2.23	1.77	0.18	0.56	3.38	0.34	1.07	0.85	0.09	0.27
Benzo(g,h,i)perylene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	0.17	0.02	0.05	0.04	<0.01	0.01	0.08	<0.01	0.03	0.02	<0.01	<0.01
Chrysene	7.89	0.79	2.49	2.15	0.22	0.68	3.57	0.36	1.13	0.88	0.09	0.28
Dibenz(a,h)anthracene	1.07	0.11	0.34	0.23	0.02	0.07	0.21	0.02	0.07	0.09	<0.01	0.03
Fluoranthene	0.16	0.02	0.05	0.06	<0.01	0.02	0.13	0.01	0.04	0.02	<0.01	<0.01
Fluorene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachlorobutadiene	1.26	0.13	0.40	0.39	0.04	0.12	0.64	0.06	0.20	0.14	0.01	0.04
Hexachlorobenzene	2.44	0.24	0.77	0.55	0.05	0.17	0.34	0.03	0.11	0.18	0.02	0.06
Hexachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.82	0.28	0.89	0.60	0.06	0.19	0.64	0.06	0.20	0.26	0.03	0.08
Pentachlorophenol	0.10	<0.01	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.10	0.01	0.03	0.06	<0.01	0.02	0.16	0.02	0.05	0.02	<0.01	<0.01
Pyrene	0.12	0.01	0.04	0.04	<0.01	0.01	0.09	<0.01	0.03	0.02	<0.01	<0.01

Shaded values indicate Hazard Quotients exceeding 1.0

TABLE 30
SUMMARY OF HAZARD QUOTIENTS FOR FOOD WEB EXPOSURES
AOC 7
FORMER GOPHER ORDNANCE WORKS, ROSEMOUNT, MINNESOTA

Chemical	American robin			Mourning dove			Red-tailed hawk		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics									
Arsenic	0.44	0.15	0.25	0.84	0.28	0.48	<0.01	<0.01	<0.01
Cadmium	3.11	0.23	0.84	0.74	0.05	0.20	0.15	0.01	0.04
Chromium	6.61	1.32	2.96	0.39	0.08	0.17	0.55	0.11	0.24
Lead	71.21	7.12	22.52	54.37	5.44	17.19	2.12	0.21	0.67
Mercury	3.29	1.65	2.33	2.00	1.00	1.41	0.02	<0.01	0.01
Selenium	1.62	0.47	0.88	3.47	1.73	2.45	0.23	0.07	0.12
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Semivolatile Organic Compounds									
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
1,3-Dichlorobenzene	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
1,4-Dichlorobenzene	0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
4-Bromophenyl-Phenylether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-Phenylether	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.06	<0.01	0.02	0.14	0.01	0.05	<0.01	<0.01	<0.01
Acenaphthylene	0.04	<0.01	0.01	0.10	0.01	0.03	<0.01	<0.01	<0.01
Anthracene	0.14	0.01	0.04	0.28	0.03	0.09	0.01	<0.01	<0.01
Benzo(a)anthracene	0.10	0.01	0.03	0.16	0.02	0.05	0.01	<0.01	<0.01
Benzo(a)pyrene	0.07	<0.01	0.02	0.09	<0.01	0.03	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	0.11	0.01	0.03	0.16	0.02	0.05	0.01	<0.01	<0.01
Benzo(g,h,i)perylene	0.02	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	0.13	0.01	0.04	0.16	0.02	0.05	0.01	<0.01	<0.01
Dibenz(a,h)anthracene	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	0.41	0.04	0.13	0.69	0.07	0.22	0.05	<0.01	0.01
Fluorene	0.05	<0.01	0.02	0.12	0.01	0.04	<0.01	<0.01	<0.01
Hexachlorobutadiene	0.69	0.22	0.39	0.85	0.26	0.47	0.08	0.02	0.04
Hexachlorobenzene	23.71	2.37	7.50	10.87	1.09	3.44	2.90	0.29	0.92
Hexachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.04	<0.01	0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
Pentachlorophenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.43	0.04	0.14	0.90	0.09	0.28	0.05	<0.01	0.01
Pyrene	0.32	0.03	0.10	0.53	0.05	0.17	0.04	<0.01	0.01

Shaded values indicate Hazard Quotients exceeding 1.0