TABLE H.5.1 PETROLEUM HYDROCARBON CHEMISTRY
SYSCO Cooling Pond Sludge
Jacques Whitford Project No. 1000897

Sample ID	Sample Date	BTEX Parameters (mg/kg or ppm)				Total Petroleum Hydrocarbons (mg/kg or ppm)				Resemblance
		Benzene	Toluene	Ethyl-Benzene	Xylenes	C6-C10 Gas	C10-C21 Fuel	C21-C32 Lube	Modified TPH	
Comp 1	30-Jun-05	0.027	0.08	0.07	0.2	ND	11000	57000	69000	lube oil fraction
EQL		0.025	0.025	0.025	0.050	2.5	15	15	-	-
CCME Commercial		5	0.8	20	17	-	-	-	-	-
NSEL Landfill Disposal		5	30	50	50	-	-	-	-	-

Notes:

1. EQL = estimated quantitation limit is the minimum concentration that can be reliably reported
2. nd = parameter not detected above EQL
3. mbg = metres below grade
4. - = no guideline available
5. Modified TPH = total petroleum hydrocarbons excluding total BTEX
6. CCME Commercial = Canadian Council of Ministers of the Environment Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (1999; last updated 2004); Commercial land use
7. NSEL Landfill Disposal = Nova Scotia Environment and Labour*Guidelines for Disposal of Contaminated Solids in Landfills*, Attachment B, March 22, 1994, Updated 2003

TABLE H.5.2 METALS CHEMISTRY
SYSCO Cooling Pond Sludge
Jacques Whitford Project No. 1000897

Parameter	EQL	Units	CCME Commercial (mg/kg)	NSEL Landfill Disposal (mg/kg)	Sample ID
					Comp 1
			Sample Date		30-Jun-05
Aluminum	10	mg/kg	-	-	460
Antimony	2	mg/kg	40	40	40
Arsenic	2	mg/kg	12	50	**110**
Barium	5	mg/kg	2000	2000	11
Beryllium	2	mg/kg	8	8	nd
Boron	5	mg/kg	-	2	nd
Cadmium	0.3	mg/kg	22	20	nd
Total Chromium	2	mg/kg	87	800	79
Cobalt	1	mg/kg	300	300	30
Copper	2	mg/kg	91	500	390
Iron	50	mg/kg	-	-	310000
Lead	0.5	mg/kg	260	1000	**650**
Manganese	2	mg/kg	-	-	1900
Mercury	0.01	mg/kg	24	10	0.05
Molybdenum	2	mg/kg	40	40	19
Nickel	2	mg/kg	50	500	**87**
Selenium	2	mg/kg	3.9	10	nd
Silver	0.5	mg/kg	40	40	nd
Strontium	5	mg/kg	-	-	nd
Thallium	0.1	mg/kg	1	1	nd
Uranium	0.1	mg/kg	-	-	0.1
Vanadium	2	mg/kg	130	200	10
Zinc	5	mg/kg	360	1500	52

Notes:

1. EQL = estimated quantitation limit is the minimum concentration that can be reliably reported
2. mbg = metres below grade
3. - = no guideline available
4. nd = parameter not detected above laboratory detection limit.
5. CCME Commercial = Canadian Council of Ministers of the Environment Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (1999; last updated 2004); Commercial land use
6. NSEL Landfill Disposal = Nova Scotia Environment and Labour Guidelines for Disposal of Contaminated Solids in Landfills

Attachment B, March 22, 1994, Updated 2003

7. **Bolded** = Concentrations in exceedance of CCME Commercial Guidelines
8. **Bolded** = Concentrations in exceedance of NSEL Attachment B Landfill Guidelines, and CCME Commercial Guidelines

Table H.5.3 **VOLATILE ORGANIC COMPOUND (EPA-624) CHEMISTRY**
SYSCO Cooling Pond Sludge
Jacques Whitford Project No. 1000897.

Parameter	Units	EQL	CCME Commercial (mg/kg)	NSEL Landfill Disposal (mg/kg)	Sample ID
					Comp 1
Sample Date					**30-Jun-05**
Acetone	mg/kg	250	-	-	nd
Benzene	mg/kg	5	5	5	nd
Bromodichloromethane	mg/kg	5	-	50	nd
Bromoform	mg/kg	5	-	-	nd
Bromomethane	mg/kg	7.5	-	150	nd
Carbon Tetrachloride	mg/kg	5	50	50	nd
Chlorobenzene	mg/kg	5	10	10	nd
Chloroform	mg/kg	5	50	-	nd
Dibromochloromethane	mg/kg	5	-	50	nd
1,2-Dichlorobenzene	mg/kg	5	10	10	nd
1,3-Dichlorobenzene	mg/kg	5	10	10	nd
1,4-Dichlorobenzene	mg/kg	5	10	10	nd
1,1-Dichloroethane	mg/kg	5	50	50	nd
1,2-Dichloroethane	mg/kg	5	50	50	nd
1,1-Dichloroethylene	mg/kg	5	50	50	nd
cis-1,2-Dichloroethylene	mg/kg	5	-	50	nd
trans-1,2-Dichloroethylene	mg/kg	5	-	50	nd
1,2-Dichloropropane	mg/kg	5	50	50	nd
cis-1,3-Dichloropropene	mg/kg	5	50	50	nd
trans-1,3-Dichloropropene	mg/kg	5	50	50	nd
Ethylbenzene	mg/kg	5	20	50	nd
Ethylene Dibromide	mg/kg	5	-	-	nd
Methylene Chloride(Dichloromethane)	mg/kg	7.5	50	50	nd
Methyl Isobutyl Ketone	mg/kg	63	-	-	nd
Methyl Ethyl Ketone	mg/kg	63	-	-	nd
Methyl t-butyl ether (MTBE)	mg/kg	5	-	-	nd
Styrene	mg/kg	5	50	50	nd
1,1,1,2-Tetrachloroethane	mg/kg	5	-	50	nd
1,1,2,2-Tetrachloroethane	mg/kg	5	50	50	nd
Tetrachloroethylene	mg/kg	5	0.5	50	nd
Toluene	mg/kg	5	0.8	30	nd
1,1,1-Trichloroethane	mg/kg	5	50	50	nd
1,1,2-Trichloroethane	mg/kg	5	50	50	nd
Trichloroethylene	mg/kg	5	31	50	nd
Vinyl Chloride	mg/kg	5	50	-	nd
p+m-Xylene	mg/kg	5	17	50	nd
o-Xylene	mg/kg	5	17	50	nd
Chloroethane	mg/kg	13	-	50	nd
Chloromethane	mg/kg	13	-	50	nd
Trichlorofluoromethane (FREON 11)	mg/kg	13	-	50	nd

Notes:

1. EQL = estimated quantitation limit is the minimum concentration that can be reliably reported
2. mbg = metres below grade
3. nd = parameter not detected above EQL
4. - = no guideline available
5. CCME Commercial = Canadian Council of Ministers of the Environment Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (1999; last updated 2004); Commercial land use
6. NSEL Disposal Guidelines = Guidelines for Disposal of Contaminated Solids in Landfills, Attachment B, March 1994, Updated 2003

Table H.5.4 **SEMI-VOLATILE ORGANIC COMPOUNDS (EPA-625) CHEMISTRY**
SYSCO Cooling Pond Sludge
Jacques Whitford Project No. 1000897

Parameter	Units	EQL	CCME Commercial	NSEL Landfill Guidelines	Sample ID
					Comp 1
Sample Date					**30-Jun-05**
1,2,4-Trichlorobenzene	ug/Kg	2000	10000	10000	nd
1,2-Dichlorobenzene	ug/Kg	2000	10000	10000	nd
1,3-Dichlorobenzene	ug/Kg	2000	10000	10000	nd
1,4-Dichlorobenzene	ug/Kg	2000	10000	10000	nd
2,4,6-Trichlorophenol	ug/Kg	2000	5000	10000	nd
2,4-Dichlorophenol	ug/Kg	2000	5000	10000	nd
2,4-Dimethylphenol	ug/Kg	2000	-	10000	nd
2,4-Dinitrophenol	ug/Kg	5000	-	10000	nd
2,4-Dinitrotoluene	ug/Kg	2000	-	-	nd
2,6-Dinitrotoluene	ug/Kg	2000	-	-	nd
2-Chloronaphthalene	ug/Kg	2000	-	10000	nd
2-Chlorophenol	ug/Kg	2000	-	10000	nd
2-Nitrophenol	ug/Kg	2000	-	10000	nd
3,3'-Dichlorobenzidine	ug/Kg	20000	-	-	nd
4-Chloro-3-Methylphenol	ug/Kg	5000	-	10000	nd
4,6-Dinitro-2-methylphenol	ug/Kg	5000	-	10000	nd
4-Bromophenyl phenyl ether	ug/Kg	2000	-	-	nd
4-Chlorophenyl phenyl ether	ug/Kg	2000	-	-	nd
4-Nitrophenol	ug/Kg	5000	-	10000	nd
Acenaphthene	ug/Kg	500	-	10000	860
Acenaphthylene	ug/Kg	500	-	10000	nd
Anthracene	ug/Kg	500	-	10000	nd
Benzidine	ug/Kg	20000	-	-	nd
Benzo(a)anthracene	ug/Kg	500	10000	10000	nd
Benzo(a)pyrene	ug/Kg	500	700	10000	nd
Benzo(b)fluoranthene	ug/Kg	500	10000	10000	nd
Benzo(k)fluoranthene	ug/Kg	500	10000	10000	nd
Benzo(ghi)perylene	ug/Kg	1000	-	10000	nd
Bis(2-chloroethoxy)methane	ug/Kg	2000	-	50000	nd
Bis(2-chloroethyl)ether	ug/Kg	2000	-	50000	nd
Bis(2-chloroisopropyl)ether	ug/Kg	2000	-	50000	nd
Bis(2-ethylhexyl)phthalate	ug/Kg	2000	-	-	nd
Benzyl butyl phthalate	ug/Kg	2000	-	-	nd
Chrysene	ug/Kg	500	-	10000	nd
Di-N-butyl phthalate	ug/Kg	2000	-	-	nd
Di-N-octyl phthalate	ug/Kg	2000	-	-	nd
Dibenzo(a,h)anthracene	ug/Kg	1000	10000	10000	nd
Diethyl phthalate	ug/Kg	2000	-	-	nd
Dimethyl phthalate	ug/Kg	2000	-	-	nd
Fluoranthene	ug/Kg	500	-	10000	nd
Fluorene	ug/Kg	500	-	10000	870
Hexachlorobenzene	ug/Kg	2000	10000	10000	nd
Hexachlorobutadiene	ug/Kg	2000	-	-	nd
Hexachlorocyclopentadiene	ug/Kg	2000	-	-	nd
Hexachloroethane	ug/Kg	2000	-	50000	nd
Indeno(1,2,3-cd)pyrene	ug/Kg	1000	10000	10000	nd
Isophorone	ug/Kg	2000	-	-	nd
N-Nitroso-di-n-propylamine	ug/Kg	5000	-	-	nd
N-Nitrosodimethylamine	ug/Kg	10000	-	-	nd
Naphthalene	ug/Kg	500	22000	10000	8900
Nitrobenzene	ug/Kg	2000	-	50000	nd
Nitrosodiphenylamine/Diphenylamine	ug/Kg	5000	-	-	nd
Pentachlorophenol	ug/Kg	2000	7600	10000	nd
Phenanthrene	ug/Kg	500	50000	10000	nd
Phenol	ug/Kg	2000	3800	10000	nd
Pyrene	ug/Kg	500	100000	10000	nd
Total PAHs	ug/Kg	-	-	50000	10630

Notes:

1. EQL = estimated quantitation limit is the minimum concentration that can be reliably reported
2. mbg = metres below grade
3. nd = parameter not detected above EQL
4. - = no guideline available
5. CCME Commercial = Canadian Council of Ministers of the Environment Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (1999; last updated 2004); Commercial land use
6. NSEL Disposal Guidelines = Guidelines for Disposal of Contaminated Solids in Landfills, Attachment B, March 1994, Updated 2003

TABLE H.5.5 **PCB, DIOXIN CHEMISTRY**
SYSCO Cooling Pond Sludge
Jacques Whitford Project No. 1000897

Parameter	EQL	Units	CCME Commercial	Sample ID	Sample ID
				Comp 1	Cooling Pond BS2
			Sample Date	30-Jun-05	21-Jul-05
pH	n/a	pH	6-8	6.15	-
PCBs	0.05	ug/g	33	nd	-
Dioxin/Furan (Nato)	-	ng(TEQ)/kg	4	**31.20**	**68.60**
TOC	0.1	g/kg	-	100	-

Notes:

1. EQL = estimated quantitation limit is the minimum concentration that can be reliably reported
2. mbg = metres below grade
3. - = no guideline available
4. nd = parameter not detected above laboratory detection limit.
5. CCME Commercial = Canadian Council of Ministers of the Environment Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (1999; last updated 2004); Commercial land use.
6. **Bolded** = exceeds applicable guidelines

TABLE H.5.6

SEMI-VOLATILES LEACHATE CHEMISTRY
SYSCO Cooling Pond Sludge
Jacques Whitford Project No. 1000897

Parameter	Units	EQL	NSEL Landfill Guidelines	Sample ID
				CYLINDER #5
Sample Date				
1,2,4-Trichlorobenzene	ug/L	5	500	nd
1,2-Dichlorobenzene	ug/L	5	500	nd
1,3-Dichlorobenzene	ug/L	5	500	nd
1,4-Dichlorobenzene	ug/L	5	500	nd
2,4,6-Trichlorophenol	ug/L	5	200	nd
2,4-Dichlorophenol	ug/L	5	200	nd
2,4-Dimethylphenol	ug/L	5	100	nd
2,4-Dinitrophenol	ug/L	13	100	nd
2,4-Dinitrotoluene	ug/L	5	240	nd
2,6-Dinitrotoluene	ug/L	5	240	nd
2-Chloronaphthalene	ug/L	5	-	nd
2-Chlorophenol	ug/L	5	200	nd
2-Nitrophenol	ug/L	5	100	nd
3,3'-Dichlorobenzidine	ug/L	50	-	nd
4-Chloro-3-Methylphenol	ug/L	13	200	nd
4,6-Dinitro-2-methylphenol	ug/L	13	100	nd
4-Bromophenyl phenyl ether	ug/L	5	-	nd
4-Chlorophenyl phenyl ether	ug/L	5	-	nd
4-Nitrophenol	ug/L	13	100	nd
Acenaphthene	ug/L	3	10000	nd
Acenaphthylene	ug/L	3	10000	nd
Anthracene	ug/L	3	10000	nd
Benzo(a)pyrene	ug/L	3	10000	nd
Benzo(k)fluoranthene	ug/L	3	10000	nd
Benzo(ghi)perylene	ug/L	5	10000	nd
Bis(2-chloroethoxy)methane	ug/L	5	10000	nd
Bis(2-chloroethyl)ether	ug/L	5	10000	nd
Bis(2-chloroisopropyl)ether	ug/L	5	10000	nd
Bis(2-ethylhexyl)phthalate	ug/L	5	10000	nd
Benzyl butyl phthalate	ug/L	5	10000	nd
Chrysene	ug/L	3	10000	nd
Di-N-butyl phthalate	ug/L	5	-	nd
Di-N-octyl phthalate	ug/L	5	-	nd
Dibenzo(a,h)anthracene	ug/L	5	10000	nd
Diethyl phthalate	ug/L	5	-	nd
Dimethyl phthalate	ug/L	5	-	nd
Fluoranthene	ug/L	3	10000	nd
Fluorene	ug/L	3	10000	nd
Hexachlorobenzene	ug/L	5	500	nd
Hexachlorobutadiene	ug/L	5	-	nd
Hexachlorocyclopentadiene	ug/L	5	-	nd
Hexachloroethane	ug/L	5	500	nd
Indeno(1,2,3-cd)pyrene	ug/L	5	10000	nd
Isophorone	ug/L	5	-	nd
N-Nitroso-di-n-propylamine	ug/L	13	-	nd
N-Nitrosodimethylamine	ug/L	25	-	nd
Naphthalene	ug/L	3	10000	30
Nitrobenzene	ug/L	5	500	nd
Nitrosodiphenylamine/Diphenylamine	ug/L	13	-	nd
Pentachlorophenol	ug/L	5	200	nd
Phenanthrene	ug/L	3	10000	nd
Phenol	ug/L	5	100	nd
Pyrene	ug/Kg	3	-	nd
Total PAHs	ug/Kg	-	50000	30

Notes:

1. EQL = estimated quantitation limit for routine analysis
2. <(0)= parameter not detected above EQL
3. "-" = no guideline available
4. **Bolded** = exceeds applicable guidelines
5. NSEL Landfill Guidelines = Nova Scotia Department of Environment and Labour Guidelines for disposal of contaminated solids and landfills, Attachment C, March 1994, Updated 2003

Table H.5.7 **METALS LEACHATE CHEMISTRY**
SYSCO Cooling Pond Sludge
Jacques Whitford Project No. 1000897

Parameter	Units	EQL	NSEL Landfill Guidelines	Sample ID
				Comp 1
Sample Date				30-Jun-05
Aluminum (Al)	ug/L	100	500000	630
Antimony (Sb)	ug/L	20	-	64
Arsenic (As)	ug/L	20	5000	56
Barium (Ba)	ug/L	50	100000	260
Beryllium (Be)	ug/L	20	10000	nd
Boron (B)	ug/L	500	500000	nd
Cadmium (Cd)	ug/L	3	500	3.5
Chromium (Cr)	ug/L	20	5000	nd
Cobalt (Co)	ug/L	10	5000	100
Copper (Cu)	ug/L	20	100000	68
Iron (Fe)	ug/L	500	-	150000
Lead (Pb)	ug/L	5	5000	2800
Manganese (Mn)	ug/L	20	-	1000
Mercury (Hg)	ug/L	0.01	100	nd
Molybdenum (Mo)	ug/L	20	5000	nd
Nickel (Ni)	ug/L	20	20000	1200
Selenium (Se)	ug/L	20	1000	nd
Silver (Ag)	ug/L	5	5000	nd
Strontium (Sr)	ug/L	50	-	61
Thallium (Tl)	ug/L	1	-	nd
Tin (Sn)	ug/L	20	-	nd
Uranium (U)	ug/L	1	2000	1.5
Vanadium (V)	ug/L	20	10000	nd
Zinc (Zn)	ug/L	50	500000	1100
Lithium (Li)	ug/L	20	250000	nd

Notes:

1. EQL = estimated quantitation limit for routine analysis
2. <(0)= parameter not detected above EQL
3. "-" = no guideline available
4. NSEL Landfill Disposal = Nova Scotia Environment and Labour Guidelines for Disposal of Contaminated Solids in Landfills, Attachment C, March 22, 1994 Updated 2003

TABLE H.5.8 SOIL POLYCYCLIC AROMATIC HYDROCARBON (PAH) CHEMISTRY
SYSCO Cooling Pond Substrate
Jacques Whitford Project No. 1000897

Parameter	EQL	Units	CCME Commercial	Sample ID
				BH-1-C, 6'-8'
			Sample Depth (mbg)	6'-8'
			Sample Date	30-Jun-05
1-Methylnaphthalene	0.05	mg/kg	-	nd
2-Methylnaphthalene	0.05	mg/kg	-	nd
Acenaphthene	0.05	mg/kg	-	nd
Acenaphthylene	0.05	mg/kg	-	nd
Anthracene	0.05	mg/kg	-	nd
Benzo(a)anthracene	0.05	mg/kg	10	nd
Benzo(a)pyrene	0.05	mg/kg	0.7	nd
Benzo(b)fluoranthene	0.05	mg/kg	10	nd
Benzo(ghi)perylene	0.05	mg/kg	-	nd
Benzo(k)fluoranthene	0.05	mg/kg	10	nd
Chrysene	0.05	mg/kg	-	nd
Dibenzo(a,h)anthracene	0.05	mg/kg	10	nd
Fluoranthene	0.05	mg/kg	-	nd
Fluorene	0.05	mg/kg	-	nd
Indeno(1,2,3-cd)pyrene	0.05	mg/kg	10	nd
Naphthalene	0.05	mg/kg	22	nd
Perylene	0.05	mg/kg	-	nd
Phenanthrene	0.05	mg/kg	50	nd
Pyrene	0.05	mg/kg	100	nd

Notes:
1. EQL = estimated quantitation limit is the minimum concentration that can be reliably reported
2. mbg = metres below grade
3. nd = parameter not detected above EQL
4. - = no guideline available
5. CCME Commercial = Canadian Council of Ministers of the Environment Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (1999; last updated 2004); Commercial land use