

Table 2
Semiannual and Annual Leachate Monitoring Parameters
Sioux Falls Regional Sanitary Landfill

Parameters & Sample Container ¹	Preservatives	Method	Laboratory Reporting Limits ²	Holding Time
Non-Preserved Inorganics - 2-1 Liter Plastic				
BOD	Cool < 4°C	SM 5210B	3.00 mg/L	48 Hours
TSS	Cool < 4°C	USGS I-3765-85	60.0 mg/L	7 Days
TDS	Cool < 4°C	SM 2540C	30.0 mg/L	7 Days
pH	Cool < 4°C	SM 4500 H+	0.1 S.U.	taken immediately
Preserved Inorganics - 2-500 mL Plastic				
Ammonia Nitrogen	H ₂ SO ₄ , Cool < 4°C	EPA 350.1	0.5 mg/L	28 Days
TKN	H ₂ SO ₄ , Cool < 4°C	EPA 351.2	1.00 mg/L	28 Days
COD	H ₂ SO ₄ , Cool < 4°C	SM 5520D	25.0 mg/L	28 Days
TOC	H ₂ SO ₄ , Cool < 4°C	SM 5310C	40.0 mg/L	28 Days
Total Metals - 1-500 mL Plastic				
Arsenic (As)	HNO ₃ , Cool < 4°C	EPA 200.8	0.001 mg/L	6 Months
Cadmium (Cd)	HNO ₃ , Cool < 4°C	EPA 200.8	0.0005 mg/L	6 Months
Chromium (Cr)	HNO ₃ , Cool < 4°C	EPA 200.8	0.005 mg/L	6 Months
Copper (Cu)	HNO ₃ , Cool < 4°C	EPA 200.8	0.0005 mg/L	6 Months
Lead (Pb)	HNO ₃ , Cool < 4°C	EPA 200.8	0.0005 mg/L	6 Months
Mercury (Hg)	HNO ₃ , Cool < 4°C	EPA 245.2	0.0002 mg/L	28 Days
Molybdenum (Mo)	HNO ₃ , Cool < 4°C	EPA 200.8	0.001 mg/L	6 Months
Nickel (Ni)	HNO ₃ , Cool < 4°C	EPA 200.8	0.0005 mg/L	6 Months
Selenium (Se)	HNO ₃ , Cool < 4°C	EPA 200.8	0.005 mg/L	6 Months
Silver (Ag)	HNO ₃ , Cool < 4°C	EPA 200.8	0.0005 mg/L	6 Months
Zinc (Zn)	HNO ₃ , Cool < 4°C	EPA 200.8	0.005 mg/L	6 Months
Oil and Grease - 2-1 Liter Glass				
Oil & Grease (HEM)	H ₂ SO ₄ , Cool < 4°C	EPA 1664A	4.85 mg/L	28 Days
Oil & Grease (HEM-SGT)	H ₂ SO ₄ , Cool < 4°C	EPA 1664A	4.85 mg/L	28 Days
VOCs - 5-40 mL VOA Vials				
Acetone	HCl, Cool < 4°C	EPA 624	10.0 ug/L	14 Days
Benzene	HCl, Cool < 4°C	EPA 624	0.5 ug/L	14 Days
Bromobenzene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
Bromochloromethane	HCl, Cool < 4°C	EPA 624	5.0 ug/L	14 Days
Bromodichloromethane	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
Bromoform	HCl, Cool < 4°C	EPA 624	5.0 ug/L	14 Days
Bromomethane	HCl, Cool < 4°C	EPA 624	4.0 ug/L	14 Days
2-Butanone (MEK)	HCl, Cool < 4°C	EPA 624	10.0 ug/L	14 Days
Carbon Tetrachloride	HCl, Cool < 4°C	EPA 624	2.0 ug/L	14 Days
Chlorobenzene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
Chlorodibromomethane	HCl, Cool < 4°C	EPA 624	5.0 ug/L	14 Days
2-Chloroethylvinyl ether	HCl, Cool < 4°C	EPA 624	2.0 ug/L	14 Days
Chloroethane	HCl, Cool < 4°C	EPA 624	4.0 ug/L	14 Days
Chloroform	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
Chloromethane	HCl, Cool < 4°C	EPA 624	3.0 ug/L	14 Days
2-Chlorotoluene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
4-Chlorotoluene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
1,2-Dibromoethane	HCl, Cool < 4°C	EPA 624	10.0 ug/L	14 Days
Dibromoethane	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
1,2-Dichlorobenzene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
1,3-Dichlorobenzene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
1,4-Dichlorobenzene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days

Table 2 (cont)
Semiannual and Annual Leachate Monitoring Parameters
Sioux Falls Regional Sanitary Landfill

Parameters & Sample Container ¹	Preservatives	Method	Laboratory Reporting Limits ²	Holding Time
VOCs - 5-40 mL VOA Vials				
Dichlorodifluoromethane	HCl, Cool < 4°C	EPA 624	3.0 ug/L	14 Days
1,1-Dichloroethane	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
1,2-Dichloroethane	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
1,1-Dichloroethene	HCl, Cool < 4°C	EPA 624	2.0 ug/L	14 Days
cis-1,2-Dichloroethene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
trans-1,2-Dichloroethene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
1,2-Dichloropropane	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
1,3-Dichloropropane	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
2,2-Dichloropropane	HCl, Cool < 4°C	EPA 624	4.0 ug/L	14 Days
1,1-Dichloropropene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
cis-1,3-Dichloropropene	HCl, Cool < 4°C	EPA 624	5.0 ug/L	14 Days
trans-1,3-Dichloropropene	HCl, Cool < 4°C	EPA 624	5.0 ug/L	14 Days
Ethylbenzene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
4-Methyl-2-pentanone (MIBK)	HCl, Cool < 4°C	EPA 624	10.0 ug/L	14 Days
Methylene Chloride	HCl, Cool < 4°C	EPA 624	5.0 ug/L	14 Days
Styrene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
1,1,1,2-Tetrachloroethane	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
1,1,2,2-Tetrachloroethane	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
Tetrachloroethene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
Toluene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
1,1,1-Trichloroethane	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
1,1,2-Trichloroethane	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
Trichloroethene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
Trichlorofluoromethane	HCl, Cool < 4°C	EPA 624	4.0 ug/L	14 Days
1,2,3-Trichloropropane	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
Vinyl chloride	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
m+p-Xylenes	HCl, Cool < 4°C	EPA 624	2.0 ug/L	14 Days
o-Xylene	HCl, Cool < 4°C	EPA 624	1.0 ug/L	14 Days
Total BTEX ³	HCl, Cool < 4°C	EPA 624	2.0 ug/L	14 Days
SVOCs - 2-1 Liter Glass				
Acenaphthene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Acenaphthylene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Anthracene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Benzidine	Cool < 4°C	EPA 625	100 ug/L	7 Days
Benzo(a)anthracene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Benzo(b)fluoranthene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Benzo(k)fluoranthene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Benzo(a)pyrene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Benzo(g,h,i)perylene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Disulfoton	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Butyl benzyl phthalate	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
bis(2-chloroethyl)ether	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
bis(2-chloroethoxy)methane	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
bis(2-ethylhexyl)phthalate	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
bis(2-chloroisopropyl) ether	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
4-Bromophenyl phenylether	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
2-Chloronaphthalene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days

Table 2 (cont)
Semiannual and Annual Leachate Monitoring Parameters
Sioux Falls Regional Sanitary Landfill

Parameters & Sample Container ¹	Preservatives	Method	Laboratory Reporting Limits ²	Holding Time
SVOCs - 2-1 Liter Glass				
4-Chlorophenyl phenyl ether	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Chrysene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Dibenzo(a,h)anthracene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Di-n-butyl phthalate	Cool < 4°C	EPA 625	20.0 ug/L	7 Days
1,4 Dioxane	Cool < 4°C	EPA 625	10.0 ug/L	14 Days
3,3'-Dichlorobenzidine	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Diethyl phthalate	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Dimethyl phthalate	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
2,4-Dinitrotoluene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
2,6-Dinitrotoluene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Di-n-octyl phthalate	Cool < 4°C	EPA 625	20.0 ug/L	7 Days
Fluoranthene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Fluorene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Hexachlorobenzene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Hexachlorobutadiene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Hexachlorocyclopentadiene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Hexachloroethane	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Indeno(1,2,3-c,d)pyrene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Isophorone	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Naphthalene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Nitrobenzene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
n-Nitrosodimethylamine	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
n-Nitrosodiphenylamine	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
n-Nitroso-di-n-propylamine	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Phenanthrene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Pyrene	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Benzoic Acid	Cool < 4°C	EPA 625	100 ug/L	7 Days
4-Chloro-3-methylphenol	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
2-Chlorophenol	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
2,4-Dichlorophenol	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
2,4-Dimethylphenol	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
2,4-Dinitrophenol	Cool < 4°C	EPA 625	20.0 ug/L	7 Days
4,6-Dinitro-2-methylphenol	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
2-Nitrophenol	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
4-Nitrophenol	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Pentachlorophenol	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Phenol	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
o-Cresol (2-Methylphenol)	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
m+p-Cresol (3/4-Methylphenol)	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
2,4,6-Trichlorophenol	Cool < 4°C	EPA 625	10.0 ug/L	7 Days
Dioxins/Furans - 2 - 1 Liter Glass⁴				
1,2,3,4,6,7,8-HpCDD	Cool < 4°C	EPA 1613B	52.6 pg/L	7 Days
OCDD	Cool < 4°C	EPA 1613B	105 pg/L	7 Days

Table 2 (cont)
Semiannual and Annual Leachate Monitoring Parameters
Sioux Falls Regional Sanitary Landfill

Parameters & Sample Container ¹	Preservatives	Method	Laboratory Reporting Limits ²	Holding Time
Pesticides - 2-1 Liter Glass				
Aldrin	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
alpha-BHC	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
beta-BHC	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
gamma-BHC	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
delta-BHC	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
Chlordane	Cool < 4°C	EPA 608	2.00 ug/L	72 Hours
Alpha-Chlordane	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
gamma-Chlordane	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
4,4'-DDD	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
4,4'-DDE	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
4,4'-DDT	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
Dieldrin	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
Endosulfan I	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
Endosulfan II	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
Endosulfan sulfate	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
Endrin	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
Endrin Ketone	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
Endrin Aldehyde	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
Hepachlor	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
Hepachlor Epoxide	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
Methoxychlor	Cool < 4°C	EPA 608	0.032 ug/L	72 Hours
Toxaphene	Cool < 4°C	EPA 608	2.00 ug/L	72 Hours
Perfluorochemicals (PFCs) 2 - 1-Liter Glass⁴				
Perfluorobutane Sulfonate (PFBS)	Cool < 4°C	DV-LC-0012 ⁵	0.02 ug/L	7 Days
Perfluorobutanoic Acid (PFBA)	Cool < 4°C	DV-LC-0012 ⁵	0.02 ug/L	7 Days
Perfluorodecane Sulfonate (PFDS)	Cool < 4°C	DV-LC-0012 ⁵	0.02 ug/L	7 Days
Perfluorodecanoic Acid (PFDA)	Cool < 4°C	DV-LC-0012 ⁵	0.02 ug/L	7 Days
Perfluorododecanoic Acid (PFDoA)	Cool < 4°C	DV-LC-0012 ⁵	0.03 ug/L	7 Days
Perfluoroheptanoic Acid (PFHpA)	Cool < 4°C	DV-LC-0012 ⁵	0.03 ug/L	7 Days
Perfluorohexane Sulfonate (PFHxS)	Cool < 4°C	DV-LC-0012 ⁵	0.03 ug/L	7 Days
Perfluorohexanoic Acid (PFHxA)	Cool < 4°C	DV-LC-0012 ⁵	0.02 ug/L	7 Days
Perfluorononanoic Acid (PFNA)	Cool < 4°C	DV-LC-0012 ⁵	0.04 ug/L	7 Days
Perfluorooctanoic Acid (PFOA)	Cool < 4°C	DV-LC-0012 ⁵	0.02 ug/L	7 Days
Perfluorooctane Sulfonate (PFOS)	Cool < 4°C	DV-LC-0012 ⁵	0.03 ug/L	7 Days
Perfluoropentanoic Acid (PFPA)	Cool < 4°C	DV-LC-0012 ⁵	0.03 ug/L	7 Days
Perfluorotetradecanoic Acid (PFTeA)	Cool < 4°C	DV-LC-0012 ⁵	0.03 ug/L	7 Days
Perfluorotridecanoic Acid (PFTriA)	Cool < 4°C	DV-LC-0012 ⁵	0.04 ug/L	7 Days
Perfluoroundecanoic Acid (PFUnA)	Cool < 4°C	DV-LC-0012 ⁵	0.02 ug/L	7 Days

Table adapted from Sioux Falls Regional Sanitary Landfill Comprehensive Monitoring Plan, September and November 2011

mg/L - milligrams per liter

ug/L - micrograms per liter

S.U. - standard units

¹Use SWDP #RL03A or current for required parameters and frequency. Container listed is typical. Container selected for sample collection to be approved by laboratory performing analysis for the parameter listed.

²Laboratory reporting limits with no dilutions

³If visible petroleum sheen is observed, the monitoring should be performed daily

⁴Analysis on annual basis

⁵TestAmerica Laboratories SOP based on EPA DW methods