

Table 4
Landfill Gas Monitoring Parameters
Sioux Falls Regional Sanitary Landfill

Parameters & Sample Container ¹	Preservatives	Method	Laboratory Reporting Limits ²	Holding Time
Natural Gas - 6L Summa Canister				
Oxygen	None	ASTM D-1945	0.10%	30 days
Nitrogen	None	ASTM D-1945	0.10%	30 days
Carbon Monoxide	None	ASTM D-1945	0.10%	30 days
Methane	None	ASTM D-1945	0.00010%	30 days
Carbon Dioxide	None	ASTM D-1945	0.10%	30 days
Ethane	None	ASTM D-1945	0.00010%	30 days
Ethene	None	ASTM D-1945	0.00010%	30 days
Acetylene	None	ASTM D-1945	0.00010%	30 days
Propane	None	ASTM D-1945	0.00010%	30 days
Isobutane	None	ASTM D-1945	0.00010%	30 days
Butane	None	ASTM D-1945	0.00010%	30 days
Neopentane	None	ASTM D-1945	0.00010%	30 days
Isopentane	None	ASTM D-1945	0.00010%	30 days
Pentane	None	ASTM D-1945	0.00010%	30 days
C6+	None	ASTM D-1945	0.00010%	30 days
Hydrogen	None	ASTM D-1945	2.5%	30 days
Sulfur Gases - 1L Tedlar Bag				
Hydrogen Sulfide	None	ASTM D-5504	10 ppbv	24 hours
Carbonyl Sulfide	None	ASTM D-5504	10 ppbv	24 hours
Methyl Mercaptan	None	ASTM D-5504	10 ppbv	24 hours
Ethyl Mercaptan	None	ASTM D-5504	10 ppbv	24 hours
Dimethyl Sulfide	None	ASTM D-5504	10 ppbv	24 hours
Carbon Disulfide	None	ASTM D-5504	10 ppbv	24 hours
Isopropyl Mercaptan	None	ASTM D-5504	10 ppbv	24 hours
tert-Butyl Mercaptan	None	ASTM D-5504	10 ppbv	24 hours
n-Propyl Mercaptan	None	ASTM D-5504	10 ppbv	24 hours
Ethyl Methyl Sulfide	None	ASTM D-5504	10 ppbv	24 hours
Thiophene	None	ASTM D-5504	10 ppbv	24 hours
Isobutyl Mercaptan	None	ASTM D-5504	10 ppbv	24 hours
Diethyl Sulfide	None	ASTM D-5504	10 ppbv	24 hours
n-Butyl Mercaptan	None	ASTM D-5504	10 ppbv	24 hours
Dimethyl Disulfide	None	ASTM D-5504	10 ppbv	24 hours
3-Methylthiophene	None	ASTM D-5504	10 ppbv	24 hours
Tetrahydrothiophene	None	ASTM D-5504	10 ppbv	24 hours
2-Ethylthiophene	None	ASTM D-5504	10 ppbv	24 hours
2,5-Dimethylthiophene	None	ASTM D-5504	10 ppbv	24 hours
Diethyl Disulfide	None	ASTM D-5504	10 ppbv	24 hours

Table 4 (cont)
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Parameters & Sample Container ¹	Preservatives	Method	Laboratory Reporting Limits ²	Holding Time
VOCs - 6L Summa Canister				
Freon 12	None	EPA TO-15	0.5 ppbv	30 days
Freon 114	None	EPA TO-15	0.5 ppbv	30 days
Chloromethane	None	EPA TO-15	0.5 ppbv	30 days
Vinyl Chloride	None	EPA TO-15	0.5 ppbv	30 days
1,3-Butadiene	None	EPA TO-15	0.5 ppbv	30 days
Bromomethane	None	EPA TO-15	0.5 ppbv	30 days
Chloroethane	None	EPA TO-15	0.5 ppbv	30 days
Freon 11	None	EPA TO-15	0.5 ppbv	30 days
Ethanol	None	EPA TO-15	2.0 ppbv	30 days
Freon 113	None	EPA TO-15	0.5 ppbv	30 days
1,1-Dichloroethene	None	EPA TO-15	0.5 ppbv	30 days
Acetone	None	EPA TO-15	2.0 ppbv	30 days
2-Propanol (Isopropyl Alcohol)	None	EPA TO-15	2.0 ppbv	30 days
Carbon disulfide	None	EPA TO-15	0.5 ppbv	30 days
3-Chloropropene (Ally Chloride)	None	EPA TO-15	0.5 ppbv	30 days
Methylene Chloride	None	EPA TO-15	1.0 ppbv	30 days
Methyl tert-butyl ether	None	EPA TO-15	0.5 ppbv	30 days
trans-1,2-Dichloroethene	None	EPA TO-15	0.5 ppbv	30 days
Hexane	None	EPA TO-15	0.5 ppbv	30 days
1,1-Dichloroethane	None	EPA TO-15	0.5 ppbv	30 days
2-Butanone (Methy Ethyl Ketone)	None	EPA TO-15	1.0 ppbv	30 days
cis-1,2-Dichloroethene	None	EPA TO-15	0.5 ppbv	30 days
Tetrahydrofuran	None	EPA TO-15	0.5 ppbv	30 days
Chloroform	None	EPA TO-15	0.5 ppbv	30 days
1,1,1-Trichloroethane	None	EPA TO-15	0.5 ppbv	30 days
Cyclohexane	None	EPA TO-15	0.5 ppbv	30 days
Carbon Tetrachloride	None	EPA TO-15	0.5 ppbv	30 days
2,2,4-Trimethylpentane	None	EPA TO-15	0.5 ppbv	30 days
Benzene	None	EPA TO-15	0.5 ppbv	30 days
1,2-Dichloroethane	None	EPA TO-15	0.5 ppbv	30 days
Heptane	None	EPA TO-15	0.5 ppbv	30 days
Trichloroethene	None	EPA TO-15	0.5 ppbv	30 days
1,2-Dichloropropane	None	EPA TO-15	0.5 ppbv	30 days
1,4-Dioxane	None	EPA TO-15	0.5 ppbv	30 days
Bromodichloromethane	None	EPA TO-15	0.5 ppbv	30 days
cis-1,3-Dichloropropene	None	EPA TO-15	0.5 ppbv	30 days
4-Methyl-2-pentanone (MIBK)	None	EPA TO-15	0.5 ppbv	30 days
Toluene	None	EPA TO-15	0.5 ppbv	30 days
trans-1,3-Dichloropropene	None	EPA TO-15	0.5 ppbv	30 days
1,1,2-Trichloroethane	None	EPA TO-15	0.5 ppbv	30 days
Tetrachloroethene	None	EPA TO-15	0.5 ppbv	30 days
2-Hexanone (MBK)	None	EPA TO-15	0.5 ppbv	30 days

Table 4 (cont)
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Parameters & Sample Container ¹	Preservatives	Methods	Laboratory Reporting Limits ²	Holding Time
VOCs - 6L Summa Canister				
Dibromochloromethane	None	EPA TO-15	0.5 ppbv	30 days
1,2-Dibromoethane	None	EPA TO-15	0.5 ppbv	30 days
Chlorobenzene	None	EPA TO-15	0.5 ppbv	30 days
Ethyl Benzene	None	EPA TO-15	0.5 ppbv	30 days
m,p-Xylene	None	EPA TO-15	1.0 ppbv	30 days
o-Xylene	None	EPA TO-15	0.5 ppbv	30 days
Styrene	None	EPA TO-15	0.5 ppbv	30 days
Bromoform	None	EPA TO-15	0.5 ppbv	30 days
Cumene	None	EPA TO-15	0.5 ppbv	30 days
1,1,2,2-Tetrachloroethane	None	EPA TO-15	0.5 ppbv	30 days
Propylbenzene	None	EPA TO-15	0.5 ppbv	30 days
4-Ethyltoluene	None	EPA TO-15	0.5 ppbv	30 days
1,3,5-Trimethylbenzene	None	EPA TO-15	0.5 ppbv	30 days
1,2,4-Trimethylbenzene	None	EPA TO-15	0.5 ppbv	30 days
1,3-Dichlorobenzene	None	EPA TO-15	0.5 ppbv	30 days
1,4-Dichlorobenzene	None	EPA TO-15	0.5 ppbv	30 days
alpha-Chlorotoluene (Benzyl Chloride)	None	EPA TO-15	0.5 ppbv	30 days
1,2-Dichlorobenzene	None	EPA TO-15	0.5 ppbv	30 days
1,2,4-Trichlorobenzene	None	EPA TO-15	0.5 ppbv	30 days
Hexachlorobutadiene	None	EPA TO-15	0.5 ppbv	30 days
Siloxanes - 6L Summa Canister³				
Octamethylcyclotetrasiloxane (D4)	None	EPA TO-15 mod	50 ppbv	30 days
Decamethylcyclopentasiloxane (D5)	None	EPA TO-15 mod	50 ppbv	30 days
Dodecamethylcyclohexasiloxane (D6)	None	EPA TO-15 mod	50 ppbv	30 days
Hexamethyldisiloxane	None	EPA TO-15 mod	50 ppbv	30 days
Octamethyltrisiloxane	None	EPA TO-15 mod	50 ppbv	30 days

Table adapted from Sioux Falls Regional Sanitary Landfill Comprehensive Monitoring Plan, September and November 2011
ppbv - parts per billion by volume

¹Container 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

³Specially lined summa canister compatible with siloxanes to be used

