

US EPA ARCHIVE DOCUMENT

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 1													
		Air Inhalation		Soil Ingestion		Water Ingestion		Crop Ingestion		Beef Ingestion		Milk Ingestion		Fish Ingestion	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Acetonitrile	75-05-8	note 2	< 1E-01	note 2	note 3	note 2	note 3	note 2	note 3	note 2	note 3	note 2	note 3	note 2	note 3
Acrylonitrile	107-13-1	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-06	< 1E-01	< 1E-08	< 1E-01	7E-07	< 1E-01	7E-07	0.05	< 1E-08	< 1E-01
Aniline	62-53-3	note 2	< 1E-01	< 1E-08	note 3	< 1E-06	note 3	< 1E-08	note 3	8E-07	note 3	8E-07	note 3	< 1E-08	note 3
Arsenic	7440-38-2	< 1E-08	note 3	< 1E-08	< 1E-01	7E-07	< 1E-01	7E-09	< 1E-01	1E-08	< 1E-01	1E-08	< 1E-01	< 1E-08	< 1E-01
Barium	7440-39-3	note 2	< 1E-01	note 2	< 1E-01	note 2	0.08	note 2	< 1E-01	note 2	0.02	note 2	0.3	note 2	< 1E-01
Benzene	71-43-2	8E-09	note 3	< 1E-08	note 3	< 1E-08	note 3	8E-07	note 3	8E-07	note 3	7E-06	note 3	< 1E-08	note 3
Benzo(a)pyrene	50-32-8	note 2	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-04	note 3	< 1E-04	note 3	< 1E-08	note 3
Beryllium	7440-41-7	< 1E-08	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Bis-(2-ethylhexyl) phthalate	117-81-7	note 2	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01
Cadmium	7440-43-9	< 1E-08	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	0.1	note 2	< 1E-01
Carbon disulfide	75-15-0	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	0.05	note 2	< 1E-01
Chlorobenzene	108-90-7	note 2	< 1E-01	note 2	< 1E-01	note 2	0.09	note 2	< 1E-01	note 2	0.2	note 2	0.5	note 2	< 1E-01
Chloroform	67-66-3	7E-07	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	6E-07	0.04	5E-06	2	2E-05	2	< 1E-08	< 1E-01
Dibenz[a,h]anthracene	53-70-3	note 2	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-04	note 3	< 1E-04	note 3	< 1E-08	note 3
Dichlorophenoxyacetic acid, 2,4	94-75-7	note 2	note 3	note 2	< 1E-01	note 2	0.09	note 2	< 1E-01	note 2	0.1	note 2	1	note 2	< 1E-01
Divalent Mercury	7439-97-6	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	0.1	note 2	< 1E-01
Ethylene dibromide	106-93-4	< 1E-08	< 1E-01	< 1E-08	note 3	7E-07	note 3	6E-09	note 3	2E-06	note 3	6E-06	note 3	< 1E-08	note 3
Lead	7439-92-1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1
Methyl ethyl ketone	78-93-3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	0.03	note 2	0.4	note 2	< 1E-01
Methyl methacrylate	80-62-6	note 2	< 1E-01	note 2	< 1E-01	note 2	0.09	note 2	< 1E-01	note 2	0.05	note 2	0.05	note 2	< 1E-01
Methylene chloride	75-09-2	1E-09	< 1E-01	< 1E-08	< 1E-01	9E-07	< 1E-01	7E-07	< 1E-01	7E-06	0.06	8E-06	0.3	< 1E-08	< 1E-01
Nickel [+2]	7440-02-0	3E-09	note 3	note 2	< 1E-01	note 2	0.07	note 2	< 1E-01	note 2	< 1E-01	note 2	0.02	note 2	< 1E-01
Nitrobenzene	98-95-3	note 2	< 1E-01	note 2	< 1E-01	note 2	0.06	note 2	0.004	note 2	0.5	note 2	0.7	note 2	< 1E-01
Pentachlorophenol	87-86-5	note 2	note 3	< 1E-08	< 1E-01	7E-07	< 1E-01	< 1E-08	< 1E-01	7E-07	< 1E-01	3E-06	< 1E-01	< 1E-08	< 1E-01
Phenol	108-95-2	note 2	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Pyridine	110-86-1	note 2	note 3	note 2	< 1E-01	note 2	0.09	note 2	< 1E-01	note 2	< 1E-01	note 2	0.09	note 2	< 1E-01
Silver	7440-22-4	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 1													
		Air Inhalation		Soil Ingestion		Water Ingestion		Crop Ingestion		Beef Ingestion		Milk Ingestion		Fish Ingestion	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Tetrachlorodibenzo-p-dioxin, 2,3	1746-01-6	< 1E-08	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	7E-09	< 1E-01	8E-07	< 1E-01	8E-07	< 1E-01	< 1E-08	< 1E-01
Tetrachloroethylene	127-18-4	3E-09	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	9E-07	0.007	6E-06	0.09	6E-05	0.9	< 1E-08	< 1E-01
Thallium [+1]	7446-18-6	note 2	note 3	note 2	< 1E-01	note 2	0.1	note 2	< 1E-01	note 2	0.006	note 2	0.2	note 2	< 1E-01
Thiram	137-26-8	note 2	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Toluene	108-88-3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	0	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Trichloroethane, 1,1,1-	71-55-6	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	0.4	note 2	7	note 2	7	note 2	< 1E-01
Trichloroethylene	79-01-6	2E-09	note 3	< 1E-08	note 3	< 1E-08	note 3	5E-07	note 3	3E-06	note 3	1E-05	note 3	< 1E-08	note 3
Vinyl chloride	75-01-4	3E-09	note 3	< 1E-08	note 3	5E-07	note 3	9E-07	note 3	2E-05	note 3	2E-05	note 3	< 1E-08	note 3
Zinc	7440-66-6	note 2	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01

- note 1: Human impacts were not evaluated for this chemical due to the lack of human health toxicity values.
- note 2: The risk was not calculated for this chemical because the chemical did not have a cancer slope factor.
- note 3: The hazard was not calculated for this chemical because it did not have a noncancer reference dose or reference concentration.
- note 4: For this chemical, it either lacks a toxicity value for inhalation or ingestion or the inhalation and ingestion pathways are not additive.
- note 5: For this chemical and exposure pathway, the curve could not be used to interpolate a result.
- NA: Not Applicable

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 1											
		Shower Inhalation		Breast Milk		All Inhalation		All Ingestion		All Ingest & Inhal		Groundwater Total	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Acetonitrile	75-05-8	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	note 3	note 4	note 4	note 4	note 4
Acrylonitrile	107-13-1	7E-09	< 1E-01	NA	NA	7E-09	< 1E-01	< 1E-06	< 1E-01	note 4	note 4	note 4	note 4
Aniline	62-53-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	< 1E-06	note 3	note 4	note 4	note 4	note 4
Arsenic	7440-38-2	< 1E-08	note 3	NA	NA	< 1E-08	note 3	< 1E-06	0.004	note 4	note 4	note 4	note 4
Barium	7440-39-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	0.08	note 4	note 4	note 4	note 4
Benzene	71-43-2	6E-09	note 3	NA	NA	2E-07	note 3	< 1E-06	note 3	< 1E-06	note 4	2E-07	note 4
Benzo(a)pyrene	50-32-8	note 2	note 3	NA	NA	note 2	note 3	< 1E-08	note 3	note 4	note 4	note 4	note 4
Beryllium	7440-41-7	< 1E-08	< 1E-01	NA	NA	< 1E-08	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Bis-(2-ethylhexyl) phthalate	117-81-7	note 2	note 3	NA	NA	note 2	note 3	< 1E-08	< 1E-01	note 4	note 4	note 4	note 4
Cadmium	7440-43-9	< 1E-08	note 3	NA	NA	< 1E-08	note 3	note 2	0.006	note 4	note 4	note 4	note 4
Carbon disulfide	75-15-0	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Chlorobenzene	108-90-7	note 2	0.05	NA	NA	note 2	0.05	note 2	0.1	note 4	< 1E-01	note 4	0.1
Chloroform	67-66-3	8E-09	note 3	NA	NA	9E-07	note 3	< 5E-07	0.03	< 1E-06	note 4	8E-09	note 4
Dibenz[a,h]anthracene	53-70-3	note 2	note 3	NA	NA	note 2	note 3	< 1E-08	note 3	note 4	note 4	note 4	note 4
Dichlorophenoxyacetic acid, 2,4	94-75-7	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4
Divalent Mercury	7439-97-6	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Ethylene dibromide	106-93-4	2E-09	< 1E-01	NA	NA	2E-09	< 1E-01	< 1E-06	note 3	note 4	note 4	note 4	note 4
Lead	7439-92-1	note 1	note 1	NA	NA	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1
Methyl ethyl ketone	78-93-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	< 1E-01	note 4	< 1E-01
Methyl methacrylate	80-62-6	note 2	0.06	NA	NA	note 2	0.06	note 2	< 1E-01	note 4	note 4	note 4	note 4
Methylene chloride	75-09-2	3E-07	< 1E-01	NA	NA	3E-07	< 1E-01	1E-06	0.03	< 1E-06	0.03	1E-06	< 1E-01
Nickel [+2]	7440-02-0	< 1E-08	note 3	NA	NA	3E-09	note 3	note 2	0.08	note 4	note 4	note 4	note 4
Nitrobenzene	98-95-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	< 1E-01	note 4	0.06
Pentachlorophenol	87-86-5	note 2	note 3	NA	NA	note 2	note 3	< 1E-06	< 1E-01	note 4	note 4	note 4	note 4
Phenol	108-95-2	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4
Pyridine	110-86-1	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4
Silver	7440-22-4	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 1											
		Shower Inhalation		Breast Milk		All Inhalation		All Ingestion		All Ingest & Inhal		Groundwater Total	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Tetrachlorodibenzo-p-dioxin, 2,3	1746-01-6	< 1E-08	note 3	NA	< 1E-01	< 1E-08	note 3	8E-09	< 1E-01	8E-09	note 4	< 1E-08	note 4
Tetrachloroethylene	127-18-4	< 1E-08	note 3	NA	NA	3E-09	note 3	< 1E-06	< 1E-01	< 1E-06	note 4	< 1E-08	note 4
Thallium [+1]	7446-18-6	note 2	note 3	NA	NA	note 2	note 3	note 2	0.1	note 4	note 4	note 4	note 4
Thiram	137-26-8	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4
Toluene	108-88-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Trichloroethane, 1,1,1-	71-55-6	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Trichloroethylene	79-01-6	< 1E-08	note 3	NA	NA	2E-09	note 3	6E-07	note 3	note 4	note 4	note 4	note 4
Vinyl chloride	75-01-4	6E-09	note 3	NA	NA	7E-09	note 3	< 1E-06	note 3	< 1E-06	note 4	5E-07	note 4
Zinc	7440-66-6	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4

- note 1: Human impacts were not evaluated for this chemical due to the lack of human health toxicity values.
- note 2: The risk was not calculated for this chemical because the chemical did not have a cancer slope factor.
- note 3: The hazard was not calculated for this chemical because it did not have a noncancer reference dose or reference concentration.
- note 4: For this chemical, it either lacks a toxicity value for inhalation or ingestion or the inhalation and ingestion pathways are not additive.
- note 5: For this chemical and exposure pathway, the curve could not be used to interpolate a result.
- NA: Not Applicable

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 2													
		Air Inhalation		Soil Ingestion		Water Ingestion		Crop Ingestion		Beef Ingestion		Milk Ingestion		Fish Ingestion	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Acetonitrile	75-05-8	note 2	< 1E-01	note 2	note 3	note 2	note 3	note 2	note 3	note 2	note 3	note 2	note 3	note 2	note 3
Acrylonitrile	107-13-1	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-06	< 1E-01	< 1E-08	< 1E-01	9E-07	< 1E-01	9E-07	0.08	< 1E-08	< 1E-01
Aniline	62-53-3	note 2	< 1E-01	< 1E-08	note 3	< 1E-06	note 3	< 1E-08	note 3	9E-07	note 3	1E-06	note 3	< 1E-08	note 3
Arsenic	7440-38-2	< 1E-08	note 3	< 1E-08	< 1E-01	8E-07	< 1E-01	6E-09	< 1E-01	1E-07	< 1E-01	5E-07	< 1E-01	< 1E-08	< 1E-01
Barium	7440-39-3	note 2	< 1E-01	note 2	< 1E-01	note 2	0.1	note 2	< 1E-01	note 2	0.04	note 2	0.4	note 2	< 1E-01
Benzene	71-43-2	2E-08	note 3	< 1E-08	note 3	7E-09	note 3	9E-07	note 3	1E-06	note 3	9E-06	note 3	< 1E-08	note 3
Benzo(a)pyrene	50-32-8	note 2	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-04	note 3	< 1E-04	note 3	< 1E-08	note 3
Beryllium	7440-41-7	< 1E-08	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Bis-(2-ethylhexyl) phthalate	117-81-7	note 2	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01
Cadmium	7440-43-9	< 1E-08	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	0.1	note 2	< 1E-01
Carbon disulfide	75-15-0	note 2	< 1E-01	note 2	< 1E-01	note 2	0.01	note 2	< 1E-01	note 2	< 1E-01	note 2	0.09	note 2	< 1E-01
Chlorobenzene	108-90-7	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E+00	note 2	< 1E-01
Chloroform	67-66-3	7E-07	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	6E-07	0.03	5E-06	2	2E-05	2	< 1E-08	< 1E-01
Dibenz[a,h]anthracene	53-70-3	note 2	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-04	note 3	< 1E-04	note 3	< 1E-08	note 3
Dichlorophenoxyacetic acid, 2,4	94-75-7	note 2	note 3	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	1	note 2	4	note 2	< 1E-01
Divalent Mercury	7439-97-6	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	0.1	note 2	< 1E-01
Ethylene dibromide	106-93-4	< 1E-08	< 1E-01	< 1E-08	note 3	9E-07	note 3	9E-09	note 3	5E-06	note 3	9E-06	note 3	< 1E-08	note 3
Lead	7439-92-1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1
Methyl ethyl ketone	78-93-3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	0.9	note 2	9	note 2	< 1E-01
Methyl methacrylate	80-62-6	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Methylene chloride	75-09-2	1E-09	< 1E-01	< 1E-08	< 1E-01	9E-07	< 1E-01	6E-07	< 1E-01	7E-06	0.06	8E-06	0.3	< 1E-08	< 1E-01
Nickel [+2]	7440-02-0	3E-09	note 3	note 2	< 1E-01	note 2	0.06	note 2	< 1E-01	note 2	< 1E-01	note 2	0.03	note 2	< 1E-01
Nitrobenzene	98-95-3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	< 1E+01	note 2	< 1E+01	note 2	< 1E-01
Pentachlorophenol	87-86-5	note 2	note 3	< 1E-08	< 1E-01	9E-07	< 1E-01	< 1E-08	< 1E-01	9E-07	< 1E-01	5E-06	< 1E-01	< 1E-08	< 1E-01
Phenol	108-95-2	note 2	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Pyridine	110-86-1	note 2	note 3	note 2	< 1E-01	note 2	0.9	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01
Silver	7440-22-4	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 2													
		Air Inhalation		Soil Ingestion		Water Ingestion		Crop Ingestion		Beef Ingestion		Milk Ingestion		Fish Ingestion	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Tetrachlorodibenzo-p-dioxin, 2,3	1746-01-6	2E-09	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	1E-08	< 1E-01	9E-07	< 1E-01	9E-07	< 1E-01	< 1E-08	< 1E-01
Tetrachloroethylene	127-18-4	3E-09	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	1E-06	0.009	9E-06	0.1	7E-05	1	< 1E-08	< 1E-01
Thallium [+1]	7446-18-6	note 2	note 3	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	0.2	note 2	1	note 2	< 1E-01
Thiram	137-26-8	note 2	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Toluene	108-88-3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Trichloroethane, 1,1,1-	71-55-6	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E+01	note 2	< 1E+01	note 2	< 1E-01
Trichloroethylene	79-01-6	2E-09	note 3	< 1E-08	note 3	< 1E-08	note 3	5E-07	note 3	3E-06	note 3	1E-05	note 3	< 1E-08	note 3
Vinyl chloride	75-01-4	4E-09	note 3	< 1E-08	note 3	5E-07	note 3	9E-07	note 3	2E-05	note 3	2E-05	note 3	< 1E-08	note 3
Zinc	7440-66-6	note 2	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01

- note 1: Human impacts were not evaluated for this chemical due to the lack of human health toxicity values.
- note 2: The risk was not calculated for this chemical because the chemical did not have a cancer slope factor.
- note 3: The hazard was not calculated for this chemical because it did not have a noncancer reference dose or reference concentration.
- note 4: For this chemical, it either lacks a toxicity value for inhalation or ingestion or the inhalation and ingestion pathways are not additive.
- note 5: For this chemical and exposure pathway, the curve could not be used to interpolate a result.
- NA: Not Applicable

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 2											
		Shower Inhalation		Breast Milk		All Inhalation		All Ingestion		All Ingest & Inhal		Groundwater Total	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Acetonitrile	75-05-8	note 2	< 1E+00	NA	NA	note 2	< 1E+00	note 2	note 3	note 4	note 4	note 4	note 4
Acrylonitrile	107-13-1	9E-09	< 1E-01	NA	NA	9E-09	< 1E-01	< 1E-06	< 1E-01	note 4	note 4	note 4	note 4
Aniline	62-53-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	< 1E-06	note 3	note 4	note 4	note 4	note 4
Arsenic	7440-38-2	< 1E-08	note 3	NA	NA	< 1E-08	note 3	< 1E-06	0.005	note 4	note 4	note 4	note 4
Barium	7440-39-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	0.1	note 4	note 4	note 4	note 4
Benzene	71-43-2	7E-09	note 3	NA	NA	4E-07	note 3	1E-06	note 3	< 1E-06	note 4	3E-07	note 4
Benzo(a)pyrene	50-32-8	note 2	note 3	NA	NA	note 2	note 3	< 1E-08	note 3	note 4	note 4	note 4	note 4
Beryllium	7440-41-7	< 1E-08	< 1E-01	NA	NA	< 1E-08	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Bis-(2-ethylhexyl) phthalate	117-81-7	note 2	note 3	NA	NA	note 2	note 3	< 1E-08	< 1E-01	note 4	note 4	note 4	note 4
Cadmium	7440-43-9	< 1E-08	note 3	NA	NA	< 1E-08	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4
Carbon disulfide	75-15-0	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	0.01	note 4	note 4	note 4	note 4
Chlorobenzene	108-90-7	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E+00	note 4	< 1E+00	note 4	< 1E+00
Chloroform	67-66-3	2E-09	note 3	NA	NA	9E-07	note 3	< 5E-07	0.01	< 1E-06	note 4	2E-09	note 4
Dibenz[a,h]anthracene	53-70-3	note 2	note 3	NA	NA	note 2	note 3	< 1E-08	note 3	note 4	note 4	note 4	note 4
Dichlorophenoxyacetic acid, 2,4	94-75-7	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E+00	note 4	note 4	note 4	note 4
Divalent Mercury	7439-97-6	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Ethylene dibromide	106-93-4	6E-09	< 1E-01	NA	NA	6E-09	< 1E-01	< 1E-06	note 3	note 4	note 4	note 4	note 4
Lead	7439-92-1	note 1	note 1	NA	NA	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1
Methyl ethyl ketone	78-93-3	note 2	0.09	NA	NA	note 2	0.09	note 2	< 1E+00	note 4	< 1E+00	note 4	< 1E+00
Methyl methacrylate	80-62-6	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E+00	note 4	note 4	note 4	note 4
Methylene chloride	75-09-2	3E-07	< 1E-01	NA	NA	3E-07	< 1E-01	1E-06	0.01	< 1E-06	0.01	1E-06	< 1E-01
Nickel [+2]	7440-02-0	< 1E-08	note 3	NA	NA	3E-09	note 3	note 2	0.07	note 4	note 4	note 4	note 4
Nitrobenzene	98-95-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E+00	note 4	< 1E+00	note 4	< 1E+00
Pentachlorophenol	87-86-5	note 2	note 3	NA	NA	note 2	note 3	< 1E-06	< 1E-01	note 4	note 4	note 4	note 4
Phenol	108-95-2	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4
Pyridine	110-86-1	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E+00	note 4	note 4	note 4	note 4
Silver	7440-22-4	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4



Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

		Protection Group 2											
		Shower Inhalation		Breast Milk		All Inhalation		All Ingestion		All Ingest & Inhal		Groundwater Total	
Chemical Name	CASRN	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Tetrachlorodibenzo-p-dioxin, 2,3	1746-01-6	< 1E-08	note 3	NA	< 1E-01	2E-09	note 3	9E-09	< 1E-01	1E-08	note 4	< 1E-08	note 4
Tetrachloroethylene	127-18-4	< 1E-08	note 3	NA	NA	3E-09	note 3	< 1E-06	< 1E-01	< 1E-06	note 4	< 1E-08	note 4
Thallium [+1]	7446-18-6	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E+00	note 4	note 4	note 4	note 4
Thiram	137-26-8	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4
Toluene	108-88-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Trichloroethane, 1,1,1-	71-55-6	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E+00	note 4	note 4	note 4	note 4
Trichloroethylene	79-01-6	< 1E-08	note 3	NA	NA	2E-09	note 3	4E-07	note 3	note 4	note 4	note 4	note 4
Vinyl chloride	75-01-4	3E-09	note 3	NA	NA	5E-09	note 3	< 1E-06	note 3	< 1E-06	note 4	5E-07	note 4
Zinc	7440-66-6	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4

- note 1: Human impacts were not evaluated for this chemical due to the lack of human health toxicity values.
- note 2: The risk was not calculated for this chemical because the chemical did not have a cancer slope factor.
- note 3: The hazard was not calculated for this chemical because it did not have a noncancer reference dose or reference concentration.
- note 4: For this chemical, it either lacks a toxicity value for inhalation or ingestion or the inhalation and ingestion pathways are not additive.
- note 5: For this chemical and exposure pathway, the curve could not be used to interpolate a result.
- NA: Not Applicable

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 3													
		Air Inhalation		Soil Ingestion		Water Ingestion		Crop Ingestion		Beef Ingestion		Milk Ingestion		Fish Ingestion	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Acetonitrile	75-05-8	note 2	< 1E-01	note 2	note 3	note 2	note 3	note 2	note 3	note 2	note 3	note 2	note 3	note 2	note 3
Acrylonitrile	107-13-1	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-05	0.3	1E-09	< 1E-01	2E-05	0.2	2E-05	2	< 1E-08	< 1E-01
Aniline	62-53-3	note 2	< 1E-01	< 1E-08	note 3	< 1E-05	note 3	< 1E-08	note 3	4E-05	note 3	7E-05	note 3	< 1E-08	note 3
Arsenic	7440-38-2	3E-10	note 3	< 1E-08	< 1E-01	5E-06	0.04	7E-09	< 1E-01	5E-07	< 1E-01	6E-07	< 1E-01	< 1E-08	< 1E-01
Barium	7440-39-3	note 2	< 1E-01	note 2	< 1E-01	note 2	0.1	note 2	< 1E-01	note 2	0.04	note 2	0.4	note 2	< 1E-01
Benzene	71-43-2	< 1E-06	note 3	< 1E-08	note 3	< 5E-07	note 3	< 1E-05	note 3	< 1E-05	note 3	< 1E-04	note 3	< 1E-08	note 3
Benzo(a)pyrene	50-32-8	note 2	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-04	note 3	< 1E-04	note 3	< 1E-08	note 3
Beryllium	7440-41-7	< 1E-08	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Bis-(2-ethylhexyl) phthalate	117-81-7	note 2	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01
Cadmium	7440-43-9	< 1E-08	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	0.1	note 2	< 1E-01
Carbon disulfide	75-15-0	note 2	< 1E-01	note 2	< 1E-01	note 2	0.01	note 2	< 1E-01	note 2	< 1E-01	note 2	0.09	note 2	< 1E-01
Chlorobenzene	108-90-7	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E+00	note 2	< 1E-01
Chloroform	67-66-3	6E-06	note 3	< 1E-08	< 1E-01	6E-09	< 1E-01	4E-06	0.5	1E-05	8	8E-05	8	< 1E-08	< 1E-01
Dibenz[a,h]anthracene	53-70-3	note 2	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-04	note 3	< 1E-04	note 3	< 1E-08	note 3
Dichlorophenoxyacetic acid, 2,4	94-75-7	note 2	note 3	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	1	note 2	4	note 2	< 1E-01
Divalent Mercury	7439-97-6	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	0.1	note 2	< 1E-01
Ethylene dibromide	106-93-4	3E-10	< 1E-01	< 1E-08	note 3	9E-06	note 3	< 5E-06	note 3	1E-05	note 3	2E-05	note 3	< 1E-08	note 3
Lead	7439-92-1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1
Methyl ethyl ketone	78-93-3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	0.9	note 2	9	note 2	< 1E-01
Methyl methacrylate	80-62-6	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Methylene chloride	75-09-2	9E-09	< 1E-01	< 1E-08	< 1E-01	9E-06	0.2	7E-06	0.07	7E-05	0.8	7E-05	3	< 1E-08	< 1E-01
Nickel [+2]	7440-02-0	3E-09	note 3	note 2	< 1E-01	note 2	0.06	note 2	< 1E-01	note 2	< 1E-01	note 2	0.03	note 2	< 1E-01
Nitrobenzene	98-95-3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	< 1E+01	note 2	< 1E+01	note 2	< 1E-01
Pentachlorophenol	87-86-5	note 2	note 3	< 1E-08	< 1E-01	8E-06	< 1E-01	2E-09	< 1E-01	8E-06	< 1E-01	8E-06	0.06	< 1E-08	< 1E-01
Phenol	108-95-2	note 2	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Pyridine	110-86-1	note 2	note 3	note 2	< 1E-01	note 2	0.9	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01
Silver	7440-22-4	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 3													
		Air Inhalation		Soil Ingestion		Water Ingestion		Crop Ingestion		Beef Ingestion		Milk Ingestion		Fish Ingestion	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Tetrachlorodibenzo-p-dioxin, 2,3	1746-01-6	2E-09	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	1E-08	< 1E-01	9E-07	< 1E-01	9E-07	< 1E-01	< 1E-08	< 1E-01
Tetrachloroethylene	127-18-4	< 1E-08	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-05	< 1E+00	< 1E-04	< 1E+01	< 1E-04	< 1E+01	< 1E-08	< 1E-01
Thallium [+1]	7446-18-6	note 2	note 3	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	0.2	note 2	1	note 2	< 1E-01
Thiram	137-26-8	note 2	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Toluene	108-88-3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Trichloroethane, 1,1,1-	71-55-6	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E+01	note 2	< 1E+01	note 2	< 1E-01
Trichloroethylene	79-01-6	2E-09	note 3	< 1E-08	note 3	< 1E-08	note 3	5E-07	note 3	3E-06	note 3	1E-05	note 3	< 1E-08	note 3
Vinyl chloride	75-01-4	7E-07	note 3	< 1E-08	note 3	7E-06	note 3	1E-05	note 3	5E-05	note 3	5E-05	note 3	< 1E-08	note 3
Zinc	7440-66-6	note 2	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01

- note 1: Human impacts were not evaluated for this chemical due to the lack of human health toxicity values.
- note 2: The risk was not calculated for this chemical because the chemical did not have a cancer slope factor.
- note 3: The hazard was not calculated for this chemical because it did not have a noncancer reference dose or reference concentration.
- note 4: For this chemical, it either lacks a toxicity value for inhalation or ingestion or the inhalation and ingestion pathways are not additive.
- note 5: For this chemical and exposure pathway, the curve could not be used to interpolate a result.
- NA: Not Applicable

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 3											
		Shower Inhalation		Breast Milk		All Inhalation		All Ingestion		All Ingest & Inhal		Groundwater Total	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Acetonitrile	75-05-8	note 2	< 1E+00	NA	NA	note 2	< 1E+00	note 2	note 3	note 4	note 4	note 4	note 4
Acrylonitrile	107-13-1	5E-06	< 1E-01	NA	NA	5E-06	< 1E-01	< 1E-05	0.3	note 4	note 4	note 4	note 4
Aniline	62-53-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	< 1E-05	note 3	note 4	note 4	note 4	note 4
Arsenic	7440-38-2	< 1E-08	note 3	NA	NA	3E-10	note 3	5E-06	0.05	note 4	note 4	note 4	note 4
Barium	7440-39-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	0.1	note 4	note 4	note 4	note 4
Benzene	71-43-2	< 1E-06	note 3	NA	NA	< 1E-06	note 3	< 1E-05	note 3	< 1E-05	note 4	< 5E-06	note 4
Benzo(a)pyrene	50-32-8	note 2	note 3	NA	NA	note 2	note 3	< 1E-08	note 3	note 4	note 4	note 4	note 4
Beryllium	7440-41-7	< 1E-08	< 1E-01	NA	NA	< 1E-08	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Bis-(2-ethylhexyl) phthalate	117-81-7	note 2	note 3	NA	NA	note 2	note 3	< 1E-08	< 1E-01	note 4	note 4	note 4	note 4
Cadmium	7440-43-9	< 1E-08	note 3	NA	NA	< 1E-08	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4
Carbon disulfide	75-15-0	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	0.01	note 4	note 4	note 4	note 4
Chlorobenzene	108-90-7	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E+00	note 4	< 1E+00	note 4	< 1E+00
Chloroform	67-66-3	8E-09	note 3	NA	NA	7E-06	note 3	3E-06	< 1E-01	8E-06	note 4	1E-08	note 4
Dibenz[a,h]anthracene	53-70-3	note 2	note 3	NA	NA	note 2	note 3	< 1E-08	note 3	note 4	note 4	note 4	note 4
Dichlorophenoxyacetic acid, 2,4	94-75-7	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E+00	note 4	note 4	note 4	note 4
Divalent Mercury	7439-97-6	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Ethylene dibromide	106-93-4	1E-08	< 1E-01	NA	NA	1E-08	< 1E-01	< 1E-05	note 3	note 4	note 4	note 4	note 4
Lead	7439-92-1	note 1	note 1	NA	NA	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1
Methyl ethyl ketone	78-93-3	note 2	0.09	NA	NA	note 2	0.09	note 2	< 1E+00	note 4	< 1E+00	note 4	< 1E+00
Methyl methacrylate	80-62-6	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E+00	note 4	note 4	note 4	note 4
Methylene chloride	75-09-2	4E-06	< 1E-01	NA	NA	4E-06	< 1E-01	1E-05	0.4	< 1E-05	0.4	9E-06	0.2
Nickel [+2]	7440-02-0	< 1E-08	note 3	NA	NA	3E-09	note 3	note 2	0.07	note 4	note 4	note 4	note 4
Nitrobenzene	98-95-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E+00	note 4	< 1E+00	note 4	< 1E+00
Pentachlorophenol	87-86-5	note 2	note 3	NA	NA	note 2	note 3	8E-06	< 1E-01	note 4	note 4	note 4	note 4
Phenol	108-95-2	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4
Pyridine	110-86-1	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E+00	note 4	note 4	note 4	note 4
Silver	7440-22-4	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

		Protection Group 3											
		Shower Inhalation		Breast Milk		All Inhalation		All Ingestion		All Ingest & Inhal		Groundwater Total	
Chemical Name	CASRN	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Tetrachlorodibenzo-p-dioxin, 2,3	1746-01-6	< 1E-08	note 3	NA	< 1E-01	2E-09	note 3	9E-09	< 1E-01	1E-008	note 4	< 1E-08	note 4
Tetrachloroethylene	127-18-4	< 1E-08	note 3	NA	NA	< 1E-08	note 3	< 1E-05	< 1E+00	< 1E-05	note 4	< 1E-08	note 4
Thallium [+1]	7446-18-6	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E+00	note 4	note 4	note 4	note 4
Thiram	137-26-8	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4
Toluene	108-88-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Trichloroethane, 1,1,1-	71-55-6	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E+00	note 4	note 4	note 4	note 4
Trichloroethylene	79-01-6	< 1E-08	note 3	NA	NA	2E-09	note 3	4E-07	note 3	note 4	note 4	note 4	note 4
Vinyl chloride	75-01-4	8E-07	note 3	NA	NA	9E-07	note 3	< 1E-05	note 3	< 1E-05	note 4	7E-06	note 4
Zinc	7440-66-6	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4

- note 1: Human impacts were not evaluated for this chemical due to the lack of human health toxicity values.
- note 2: The risk was not calculated for this chemical because the chemical did not have a cancer slope factor.
- note 3: The hazard was not calculated for this chemical because it did not have a noncancer reference dose or reference concentration.
- note 4: For this chemical, it either lacks a toxicity value for inhalation or ingestion or the inhalation and ingestion pathways are not additive.
- note 5: For this chemical and exposure pathway, the curve could not be used to interpolate a result.
- NA: Not Applicable

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 4													
		Air Inhalation		Soil Ingestion		Water Ingestion		Crop Ingestion		Beef Ingestion		Milk Ingestion		Fish Ingestion	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Acetonitrile	75-05-8	note 2	< 1E-01	note 2	note 3	note 2	note 3	note 2	note 3	note 2	note 3	note 2	note 3	note 2	note 3
Acrylonitrile	107-13-1	< 1E-08	< 1E-01	< 1E-08	< 1E-01	9E-06	0.2	6E-09	< 1E-01	6E-05	0.7	6E-05	6	< 1E-08	< 1E-01
Aniline	62-53-3	note 2	< 1E-01	< 1E-08	note 3	< 1E-05	note 3	< 1E-08	note 3	< 1E-04	note 3	< 1E-04	note 3	< 1E-08	note 3
Arsenic	7440-38-2	9E-09	note 3	2E-09	< 1E-01	1E-05	0.7	1E-06	0.002	< 1E-06	< 1E-01	< 1E-05	< 1E-01	< 1E-08	< 1E-01
Barium	7440-39-3	note 2	< 1E-01	note 2	< 1E-01	note 2	0.9	note 2	< 1E-01	note 2	0.6	note 2	2	note 2	< 1E-01
Benzene	71-43-2	< 5E-07	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-05	note 3	< 1E-05	note 3	< 1E-04	note 3	< 1E-08	note 3
Benzo(a)pyrene	50-32-8	note 2	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-04	note 3	< 1E-04	note 3	< 1E-08	note 3
Beryllium	7440-41-7	< 1E-08	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Bis-(2-ethylhexyl) phthalate	117-81-7	note 2	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-08	< 1E-01
Cadmium	7440-43-9	< 1E-08	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+01	note 2	< 1E-01
Carbon disulfide	75-15-0	note 2	< 1E-01	note 2	< 1E-01	note 2	0.006	note 2	< 1E-01	note 2	0.3	note 2	0.3	note 2	< 1E-01
Chlorobenzene	108-90-7	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E+00	note 2	< 1E-01
Chloroform	67-66-3	< 1E-05	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-05	< 1E+00	< 1E-04	< 1E+01	< 1E-04	< 1E+01	< 1E-08	< 1E-01
Dibenz[a,h]anthracene	53-70-3	note 2	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-08	note 3	< 1E-04	note 3	< 1E-04	note 3	< 1E-08	note 3
Dichlorophenoxyacetic acid, 2,4	94-75-7	note 2	note 3	note 2	< 1E-01	note 2	0.8	note 2	< 1E-01	note 2	5	note 2	6	note 2	< 1E-01
Divalent Mercury	7439-97-6	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01
Ethylene dibromide	106-93-4	9E-10	< 1E-01	< 1E-08	note 3	8E-06	note 3	8E-06	note 3	4E-05	note 3	5E-05	note 3	< 1E-08	note 3
Lead	7439-92-1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1
Methyl ethyl ketone	78-93-3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E+01	note 2	< 1E-01
Methyl methacrylate	80-62-6	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Methylene chloride	75-09-2	8E-08	< 1E-01	< 1E-08	< 1E-01	9E-06	0.1	8E-06	0.07	8E-05	2	8E-05	7	< 1E-08	< 1E-01
Nickel [+2]	7440-02-0	< 1E-08	note 3	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01
Nitrobenzene	98-95-3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+01	note 2	< 1E+01	note 2	< 1E-01
Pentachlorophenol	87-86-5	note 2	note 3	< 1E-08	< 1E-01	9E-06	0.05	7E-09	< 1E-01	2E-05	0.2	6E-05	2	< 1E-08	< 1E-01
Phenol	108-95-2	note 2	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Pyridine	110-86-1	note 2	note 3	note 2	< 1E-01	note 2	0.8	note 2	< 1E-01	note 2	0.7	note 2	6	note 2	< 1E-01
Silver	7440-22-4	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 4													
		Air Inhalation		Soil Ingestion		Water Ingestion		Crop Ingestion		Beef Ingestion		Milk Ingestion		Fish Ingestion	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Tetrachlorodibenzo-p-dioxin, 2,3	1746-01-6	< 1E-08	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-06	< 1E-01	< 1E-04	< 1E-01	< 1E-04	< 1E-01	< 1E-08	< 1E-01
Tetrachloroethylene	127-18-4	< 1E-08	note 3	< 1E-08	< 1E-01	< 1E-08	< 1E-01	< 1E-05	< 1E-01	< 1E-04	< 1E+01	< 1E-04	< 1E+01	< 1E-08	< 1E-01
Thallium [+1]	7446-18-6	note 2	note 3	note 2	< 1E-01	note 2	< 1E+00	note 2	< 1E-01	note 2	0.4	note 2	2	note 2	< 1E-01
Thiram	137-26-8	note 2	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Toluene	108-88-3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01
Trichloroethane, 1,1,1-	71-55-6	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E+01	note 2	< 1E+01	note 2	< 1E-01
Trichloroethylene	79-01-6	9E-09	note 3	< 1E-08	note 3	< 1E-08	note 3	< 5E-06	note 3	7E-05	note 3	8E-05	note 3	< 1E-08	note 3
Vinyl chloride	75-01-4	7E-07	note 3	< 1E-08	note 3	4E-06	note 3	2E-05	note 3	6E-05	note 3	6E-05	note 3	< 1E-08	note 3
Zinc	7440-66-6	note 2	note 3	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01	note 2	< 1E-01

- note 1: Human impacts were not evaluated for this chemical due to the lack of human health toxicity values.
- note 2: The risk was not calculated for this chemical because the chemical did not have a cancer slope factor.
- note 3: The hazard was not calculated for this chemical because it did not have a noncancer reference dose or reference concentration.
- note 4: For this chemical, it either lacks a toxicity value for inhalation or ingestion or the inhalation and ingestion pathways are not additive.
- note 5: For this chemical and exposure pathway, the curve could not be used to interpolate a result.
- NA: Not Applicable

Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

Chemical Name	CASRN	Protection Group 4											
		Shower Inhalation		Breast Milk		All Inhalation		All Ingestion		All Ingest & Inhal		Groundwater Total	
		Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Acetonitrile	75-05-8	note 2	< 1E+00	NA	NA	note 2	< 1E+00	note 2	note 3	note 4	note 4	note 4	note 4
Acrylonitrile	107-13-1	7E-06	0.04	NA	NA	4E-06	< 1E-01	< 1E-05	0.5	note 4	note 4	note 4	note 4
Aniline	62-53-3	note 2	< 1E+00	NA	NA	note 2	< 1E-01	< 1E-05	note 3	note 4	note 4	note 4	note 4
Arsenic	7440-38-2	< 1E-08	note 3	NA	NA	9E-09	note 3	< 1E-05	0.9	note 4	note 4	note 4	note 4
Barium	7440-39-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	0.9	note 4	note 4	note 4	note 4
Benzene	71-43-2	< 1E-08	note 3	NA	NA	< 1E-06	note 3	< 1E-06	note 3	< 5E-06	note 4	< 1E-08	note 4
Benzo(a)pyrene	50-32-8	note 2	note 3	NA	NA	note 2	note 3	< 1E-08	note 3	note 4	note 4	note 4	note 4
Beryllium	7440-41-7	< 1E-08	< 1E-01	NA	NA	< 1E-08	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Bis-(2-ethylhexyl) phthalate	117-81-7	note 2	note 3	NA	NA	note 2	note 3	< 1E-08	< 1E-01	note 4	note 4	note 4	note 4
Cadmium	7440-43-9	< 1E-08	note 3	NA	NA	< 1E-08	note 3	note 2	< 1E+00	note 4	note 4	note 4	note 4
Carbon disulfide	75-15-0	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	0.01	note 4	note 4	note 4	note 4
Chlorobenzene	108-90-7	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	< 1E-01	note 4	< 1E-01
Chloroform	67-66-3	< 1E-08	note 3	NA	NA	< 1E-05	note 3	< 5E-06	< 1E-01	< 1E-05	note 4	< 1E-08	note 4
Dibenz[a,h]anthracene	53-70-3	note 2	note 3	NA	NA	note 2	note 3	< 1E-08	note 3	note 4	note 4	note 4	note 4
Dichlorophenoxyacetic acid, 2,4	94-75-7	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E+00	note 4	note 4	note 4	note 4
Divalent Mercury	7439-97-6	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Ethylene dibromide	106-93-4	9E-09	< 1E-01	NA	NA	1E-08	< 1E-01	< 1E-05	note 3	note 4	note 4	note 4	note 4
Lead	7439-92-1	note 1	note 1	NA	NA	note 1	note 1	note 1	note 1	note 1	note 1	note 1	note 1
Methyl ethyl ketone	78-93-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E+00	note 4	< 1E+00	note 4	< 1E+00
Methyl methacrylate	80-62-6	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Methylene chloride	75-09-2	6E-06	< 1E-01	NA	NA	4E-06	< 1E-01	< 1E-05	0.5	< 1E-05	0.5	1E-05	0.1
Nickel [+2]	7440-02-0	< 1E-08	note 3	NA	NA	< 1E-08	note 3	note 2	< 1E+00	note 4	note 4	note 4	note 4
Nitrobenzene	98-95-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E+00	note 4	< 1E+00	note 4	< 1E-01
Pentachlorophenol	87-86-5	note 2	note 3	NA	NA	note 2	note 3	< 1E-05	0.07	note 4	note 4	note 4	note 4
Phenol	108-95-2	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4
Pyridine	110-86-1	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E+00	note 4	note 4	note 4	note 4
Silver	7440-22-4	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4



Table EP4. Chemical-specific Risks and Hazards by Exposure Pathway for Landfills (unitless)  
 Human Receptors - 1000 meters; Ecological Receptors - 2000 meters

		Protection Group 4											
		Shower Inhalation		Breast Milk		All Inhalation		All Ingestion		All Ingest & Inhal		Groundwater Total	
Chemical Name	CASRN	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ	Risk	HQ
Tetrachlorodibenzo-p-dioxin, 2,3	1746-01-6	< 1E-08	note 3	NA	< 1E-01	< 1E-08	note 3	< 1E-08	< 1E-01	< 5E-07	note 4	< 1E-08	note 4
Tetrachloroethylene	127-18-4	< 1E-08	note 3	NA	NA	< 1E-08	note 3	< 5E-06	< 1E-01	< 5E-06	note 4	< 1E-08	note 4
Thallium [+1]	7446-18-6	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E+00	note 4	note 4	note 4	note 4
Thiram	137-26-8	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4
Toluene	108-88-3	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Trichloroethane, 1,1,1-	71-55-6	note 2	< 1E-01	NA	NA	note 2	< 1E-01	note 2	< 1E-01	note 4	note 4	note 4	note 4
Trichloroethylene	79-01-6	< 1E-08	note 3	NA	NA	9E-09	note 3	9E-07	note 3	note 4	note 4	note 4	note 4
Vinyl chloride	75-01-4	1E-06	note 3	NA	NA	1E-06	note 3	1E-05	note 3	< 1E-05	note 4	5E-06	note 4
Zinc	7440-66-6	note 2	note 3	NA	NA	note 2	note 3	note 2	< 1E-01	note 4	note 4	note 4	note 4

- note 1: Human impacts were not evaluated for this chemical due to the lack of human health toxicity values.
- note 2: The risk was not calculated for this chemical because the chemical did not have a cancer slope factor.
- note 3: The hazard was not calculated for this chemical because it did not have a noncancer reference dose or reference concentration.
- note 4: For this chemical, it either lacks a toxicity value for inhalation or ingestion or the inhalation and ingestion pathways are not additive.
- note 5: For this chemical and exposure pathway, the curve could not be used to interpolate a result.
- NA: Not Applicable