

Appendix C
Ground water monitoring parameters

A. Wastes Generated From Fuel Burning Operations Using Primarily Coal as Fuel [OAC 3745-30-01(B)(1)]

1. Annual Monitoring Parameters

- Temperature*
- Specific conductance*
- pH*
- Calcium**
- Chloride**
- Potassium**
- Sodium**
- Sulfate**
- Arsenic
- Barium
- Cadmium
- Chromium
- Iron
- Lead
- Magnesium
- Manganese
- Selenium
- Total Dissolved Solids
- Gross Beta
- Gross Alpha

2. Background Water Quality Parameters #

- Temperature*
- Specific Conductance*
- pH*
- Calcium**
- Chloride**
- Potassium**
- Sodium**
- Sulfate**
- Arsenic
- Barium
- Cadmium
- Chromium
- Iron
- Lead
- Magnesium
- Manganese
- Mercury
- Selenium
- Silver
- Total Organic Carbon
- Chemical Oxygen Demand
- Total Dissolved Solids
- Gross Beta
- Gross Alpha
- Turbidity
- Total Alkalinity
- Phenols***
- Cyanide***
- The Volatile Organic Compounds listed in Appendix A to this rule***

- # Parameters determined at least quarterly for initial year of ground water monitoring
- * Parameters determined each time a monitoring well is sampled.
- ** Indicator parameters to be determined at least semi-annually.
- *** Only need to sample for initial quarter unless Director determines otherwise.

B. Waste Generated From Foundry Operations [OAC 3745-30-01(B)(2)]

1. Annual Monitoring Parameters

Temperature*
 Specific conductance*
 pH*
 Copper**
 Fluoride**
 Iron**
 Lead**
 Phenols** (*including cresols*)
 Sulfate**
 Zinc**
 Total dissolved solids**
 Ammonia
 Arsenic
 Barium
 Cadmium
 Chloride
 Chromium
 Lead
 Manganese
 Magnesium
 Sodium
 Turbidity
 Formaldehyde
 The volatile organic compounds
 (VOCs) detected in background
 sampling.

2. Background Water Quality Parameters #

Temperature*
 Specific conductance*
 pH*
 Copper**
 Fluoride**
 Iron**
 Lead**
 Phenols** (*including cresols*)
 Sulfate**
 Zinc**
 Total dissolved solids**
 Ammonia
 Arsenic
 Barium
 Cadmium
 Chloride
 Chromium
 Lead
 Manganese
 Magnesium
 Sodium
 Turbidity
 Formaldehyde
 The volatile organic compounds
 (VOCs) listed in appendix A to this
 rule***

- # Parameters determined at least quarterly for initial year of ground water monitoring
 * Parameters determined each time a monitoring well is sampled.
 ** Based on waste characterization, the owner or operator shall select four (or more) of the double asterisked parameters as indicator parameters to be determined at least semi-annually. The other double-asterisked parameters remain on the annual list.
 *** Only need to sample for initial quarter unless Director determines otherwise.

C. Wastes Generated from Pulp and Papermaking Operations
[OAC 3745-30-01(B)(3)]

1. Annual Monitoring Parameters

Temperature*
 Specific conductance*
 pH*
 Chemical Oxygen Demand**
 Total Alkalinity**
 Sodium**
 Sulfate**
 Ammonia
 Arsenic
 Barium
 Cadmium
 Calcium
 Chloride
 Chromium
 Iron
 Lead
 Magnesium
 Manganese
 Nitrate-nitrite
 Potassium
 Total Dissolved Solids
 Turbidity

2. Background Water Quality Parameters

 Temperature*
 Specific conductance*
 pH*
 Chemical Oxygen Demand**
 Total Alkalinity**
 Sodium**
 Sulfate**
 Ammonia
 Arsenic
 Barium
 Cadmium
 Calcium
 Chloride
 Chromium
 Iron
 Lead
 Magnesium
 Manganese
 Nitrate-nitrite
 Potassium
 Total Dissolved Solids
 Turbidity
 Phenols***
 Cyanide***
 The Volatile Organic Compounds
 listed in Appendix A to this rule***

- # Parameters determined at least quarterly for initial year of ground water monitoring
 * Parameters determined each time a monitoring well is sampled.
 ** Indicator parameters to be determined at least semi-annually.
 *** Only need to sample for initial quarter unless Director determines otherwise.

D.Wastes Generated from Steelmaking Operations[OAC 3745-30-01(B)(4)]

1. Annual Monitoring Parameters

Temperature*
 Specific conductance*
 pH*
 Total Dissolved Solids**
 Iron**
 Sodium**
 Sulfate**
 Ammonia
 Antimony
 Arsenic
 Barium
 Cadmium
 Calcium
 Chloride
 Chromium
 Copper
 Lead
 Magnesium
 Manganese
 Mercury
 Nickel
 Selenium
 Sodium
 Sulfate
 Zinc
 Turbidity
 Total Organic Carbon
 Gross Beta
 Gross Alpha

2. Background Water Quality Parameters

 Temperature*
 Specific conductance*
 pH*
 Total Dissolved Solids**
 Iron**
 Sodium**
 Sulfate**
 Ammonia
 Antimony
 Arsenic
 Barium
 Cadmium
 Calcium
 Chloride
 Chromium
 Copper
 Lead
 Magnesium
 Manganese
 Mercury
 Nitrate-Nitrite
 Nickel
 Selenium
 Sodium
 Sulfate
 Zinc
 Turbidity
 Total Organic Carbon
 Gross Beta
 Gross Alpha
 Chemical Oxygen Demand
 Total Alkalinity
 Phenols***
 Cyanide***
 The Volatile Organic Compounds
 listed in Appendix A to this rule***

- # Parameters determined at least quarterly for initial year of ground water monitoring
- * Parameters determined each time a monitoring well is sampled.
- ** Indicator parameters to be determined at least semi-annually.
- *** Only need to sample for initial quarter unless Director determines otherwise.

E. Wastes Generated from Gypsum Processing Plant Operations
[OAC 3745-30-01(B)(5)]

1. Annual Monitoring Parameters

Temperature*
 Specific Conductance* **
 pH* **
 Calcium**
 Sulfate**
 Arsenic
 Barium
 Cadmium
 Chromium
 Chloride
 Iron
 Lead
 Magnesium
 Manganese
 Mercury
 Selenium
 Sodium
 Chemical Oxygen Demand
 Total Alkalinity
 Total Dissolved Solids

2. Background Water Quality Parameters

 Temperature*
 Specific Conductance* **
 pH* **
 Calcium**
 Sulfate**
 Arsenic
 Barium
 Cadmium
 Chromium
 Chloride
 Iron
 Lead
 Magnesium
 Manganese
 Mercury
 Nitrate-Nitrite
 Selenium
 Sodium
 Chemical Oxygen Demand
 Total Alkalinity
 Total Dissolved Solids
 Total Organic Carbon
 Turbidity
 Phenols***
 Cyanide***
 The Volatile Organic Compounds
 listed in Appendix A to this rule***

- # Parameters determined at least quarterly for initial year of ground water monitoring
 * Parameters determined each time a monitoring well is sampled.
 ** Indicator parameters to be determined at least semi-annually.
 *** Only need to sample for initial quarter unless Director determines otherwise.

F. Wastes Generated from Lime Processing Operations

[OAC 3745-30-01(B)(6)]

1. Annual Monitoring Parameters

Temperature*
 Specific conductance*
 pH* **
 Chloride**
 Potassium**
 Sodium**
 Sulfate**
 Total Dissolved Solids**
 Barium
 Iron
 Lead
 Magnesium
 Manganese
 Selenium
 Turbidity
 Chemical Oxygen Demand
 Total Alkalinity
 Gross Beta
 Gross Alpha

2. Background Water Quality Parameters

 Temperature*
 Specific conductance*
 pH* **
 Chloride**
 Potassium**
 Sodium**
 Sulfate**
 Total Dissolved Solids**
 Arsenic
 Barium
 Calcium
 Iron
 Lead
 Magnesium
 Manganese
 Selenium
 Turbidity
 Chemical Oxygen Demand
 Total Alkalinity
 Gross Beta
 Gross Alpha
 Phenols***
 Cyanide***
 The Volatile Organic Compounds
 listed in Appendix A to this rule***

- # Parameters determined at least quarterly for initial year of ground water monitoring
 * Parameters determined each time a monitoring well is sampled.
 ** Indicator parameters to be determined at least semi-annually.
 *** Only need to sample for initial quarter unless Director determines otherwise.

G. Wastes Generated from Portland Cement Operations
[OAC 3745-30-01(B)(7)]

1. Annual Monitoring Parameters

Temperature* Specific
conductance* pH* **
Chloride**
Potassium** Sodium**
Sulfate**
Total Dissolved Solids**
Barium
Chloride
Chromium
Iron
Lead
Magnesium
Manganese
Mercury
Selenium
Turbidity
Chemical Oxygen Demand
Total Alkalinity
Gross Beta
Gross Alpha

2. Background Water Quality Parameters #

Temperature*
Specific Conductance*
pH* **
Chloride**
Potassium**
Sodium**
Sulfate**
Total Dissolved Solids**
Arsenic
Barium
Calcium
Chloride
Chromium
Iron
Lead
Magnesium
Manganese
Mercury
Selenium
Turbidity
Chemical Oxygen Demand
Total Alkalinity
Gross Beta
Gross Alpha
Phenols***
Cyanide***
The Volatile Organic Compounds
listed in Appendix A to this rule***

- # Parameters determined at least quarterly for initial year of ground water monitoring
* Parameters determined each time a monitoring well is sampled.
** Indicator parameters determined at least semi-annually.
*** Only need to sample for initial quarter unless Director determines otherwise.

H. Industrial solid waste facilities permitted and operating under Chapter 3745-29 of the Administrative Code.

1. Annual Monitoring Parameters

Temperature*
 Specific conductance*
 pH*
 Ammonia**
 Calcium**
 Chloride**
 Iron**
 Nitrate-nitrite**
 Potassium**
 Sodium**
 Sulfate**
 Total alkalinity**
 Antimony
 Arsenic
 Barium
 Beryllium
 Cadmium
 Chromium
 Cobalt
 Copper
 Lead
 Magnesium
 Manganese
 Nickel
 Selenium
 Silver
 Thallium
 Vanadium
 Zinc
 Turbidity
 Chemical oxygen demand
 Total dissolved solids
 The volatile organic compounds
 (VOCS) listed in appendix
 A to this rule

2. Background Water Quality
 Parameters #

Background Water Quality
 Parameters are the same as
 Annual Monitoring Parameters.

Parameters determined at least quarterly for initial year of ground water monitoring.

Analysis for these parameters shall be representative of the quality background ground water that has not been affected by past or present operations at the landfill facility and representative of the quality of ground water passing directly downgradient of the limits of solid waste placement.

* Parameters field analyzed each time a monitoring well is sampled.

** Indicator parameters determined at least semi-annually.