

US EPA ARCHIVE DOCUMENT



Survey of Surface Impoundments

Facility Wastewater Treatment Overview & Environmental Setting

Complete one copy for your facility.

If you have questions, call the RCRA,
Superfund and EPCRA Hotline:

1-800-424-9346

FIELD(ID)

B. WASTEWATER TREATMENT OVERVIEW & ENVIRONMENTAL SETTING

In this section you will identify the surface impoundments that are within the scope of this study and provide an overview of the sequence of the surface impoundments used in your wastewater treatment system.

Please identify all surface impoundments that were used to manage nonhazardous waste at your facility in the period between June 1, 1990 and today (whether or not they are still in use). For the purpose of this questionnaire, nonhazardous waste means waste that is not classified as hazardous waste according to the federal regulations at 40 CFR Part 261. The surface impoundments that meet these two criteria (in use at some point since June 1, 1990, and used to manage nonhazardous waste) are the surface impoundments that are within the scope of EPA's study. To determine exactly which surface impoundments are within the study's scope, you must identify your surface impoundments using a naming or numbering system. Question B1 requests this information. Question B2 requests that you determine whether these nonhazardous waste surface impoundments are within the study's scope. The remaining questions in this section request information on:

- groundwater uses near your in-scope surface impoundments,
- activities taking place near your in-scope surface impoundments,
- your local climate, and
- information about the characteristics of the subsurface near your in-scope surface impoundments.

B1. Review or Provide Wastewater Flow Diagram

B1a. EPA mailed a topographic map to you under separate cover. Enclosed with the map was a wastewater flow diagram from your National Pollution Discharge Elimination System (NPDES) or state wastewater discharge permit or permit application (if one exists and is publicly available). Please refer to this wastewater flow diagram when answering the following questions.

Is this diagram correct and current?

F Mark If CBI

₁G Yes

₂G No

₃G No diagram provided

If you answered "No," either annotate the diagram to indicate the correct or current information, or provide a new diagram. If a diagram is not provided, please provide one that represents the sequence of your wastewater flows.

B1b. On the wastewater flow diagram discussed in Question B1a, please make the following notations:

F Mark If CBI

- **Label each wastewater impoundment.** Use a unique name or number to identify each impoundment. For example, begin with the first impoundment in the wastewater treatment system that manages wastewater with less than 5 percent solids, proceeding to the next one in sequence. Indicate the unit's function in the wastewater management process (for example, "secondary treatment," or "settling").
- C If a wastewater flow diagram already exists that names or numbers the wastewater impoundments (for example, your state permit application), **use those existing names or numbers.**
- C **Identify each impoundment separately.** This includes each surface impoundment that is part of a group of impoundments that are constructed with dikes or berms in common, are the same size, and operate in the same manner.

For the purpose of this study, a **surface impoundment** is a natural topographic depression, artificial excavation, or dike arrangement for storing, treating, or disposing of wastewater (that is, liquid or semi-solid waste with less than 5 percent solids by weight). A surface impoundment may be constructed above the ground, below the ground, or partly above the ground and partly below the ground. A surface impoundment's length or width is greater than its depth (for example, it is not an injection well).

Wastewater means liquid or semi-solid waste with less than 5 percent solids, by weight.

Note: We will use the names or numbers you assign throughout this questionnaire.

B2. Determine your in-scope surface impoundments.

Using the names or numbers from Question B1, complete the following table identifying all **nonhazardous** waste surface impoundments at your facility.

- If you have a RCRA Part B permit that specifically identifies a particular surface impoundment managing hazardous wastes, do NOT include that surface impoundment in the table.
- If you have a RCRA Part A permit application that specifically identifies a particular surface impoundment managing hazardous wastes, do NOT include that surface impoundment in the table.

If you have more than ten nonhazardous waste surface impoundments, photocopy the table on page B-3 before completing it. Each copy of the page can be used to describe up to ten surface impoundments.

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Instructions for answering Table B2. This question is used to determine whether an impoundment is within the scope of this data collection. Answer this question referring to the period of time during which you were managing nonhazardous wastes in this impoundment.

- Column 1: Enter the name or number from Question B1b.
- Column 2: Did the contents of this impoundment have an average pH of 3.0 or less, calculated on a thirty-day average basis?
- Column 3: Did the contents of this impoundment have an average pH of 11.0 or more, calculated on a thirty-day average basis?
- Column 4: Were any of the chemical constituents listed in Appendix 2 of this survey present in this impoundment?

TABLE B2: DETERMINATION OF IN-SCOPE SURFACE IMPOUNDMENTS							
1	2		3		4		Mark if CBI
Impoundment Identifier (from B1b)	30 day average pH < 3? (Circle Yes or No)		30 day average pH >11? (Circle Yes or No)		Any chemical constituents from Appendix 2? (Circle Yes or No)		
	Yes	No	Yes	No	Yes	No	F
	Yes	No	Yes	No	Yes	No	F
	Yes	No	Yes	No	Yes	No	F
	Yes	No	Yes	No	Yes	No	F
	Yes	No	Yes	No	Yes	No	F
	Yes	No	Yes	No	Yes	No	F
	Yes	No	Yes	No	Yes	No	F
	Yes	No	Yes	No	Yes	No	F
	Yes	No	Yes	No	Yes	No	F
	Yes	No	Yes	No	Yes	No	F

The impoundments you listed in Column 1, for which you circled "Yes" in Column 2, Column 3, OR Column 4, are **IN-SCOPE** for this study. You will need to answer the rest of this questionnaire for all of your in-scope surface impoundments.

The impoundments you listed in Column 1, for which you circled "No" in Column 2, Column 3, AND Column 4, are **OUT-OF-SCOPE** for this study. You do not need to answer the rest of this questionnaire for your out-of-scope surface impoundments.

B3. Annotated Topographic Map

Attached is a topographic map of the area in which we believe your in-scope surface impoundments exist.

If this map does not cover the area in which your in-scope surface impoundments exist, obtain a map that does cover the area or areas in which your surface impoundments exist. Your replacement map must be at a scale of 1:24,000 or larger, and must indicate the scale, orientation to north, and latitude and longitude. The map must show a minimum of 2 kilometers from the perimeter of each in-scope surface impoundment.

If the topographic map we provided does cover the area in which your in-scope surface impoundments exist, but you prefer to use an alternate map, you may use your own alternate map, provided it is at a scale of 1:24,000 or larger, and it indicates scale, orientation to north, and latitude and longitude. The map must show a minimum of 2 kilometers from the perimeter of each in-scope surface impoundment.

Instructions for annotating map

- *Draw the perimeter(s) of your in-scope surface impoundment(s) (those you identified with a "Yes" in Columns 2 OR 3 OR 4 of Table B2) and label them with the name(s) or number(s) you assigned to them in Question B1.* **F Mark If CBI**
- *Indicate your facility's property boundary and clearly label it "PROPERTY LINE."* **F Mark If CBI**
- *Identify all known residences and schools that are not already depicted on the map, and that are located within 2 kilometers of the perimeter of any of your in-scope impoundments. Label each residence with an "R" and each school with an "S."* **F Mark If CBI**
- *Indicate all known groundwater supply wells within 2 kilometers of the perimeter of any of your in-scope impoundments, marking the location of each well with a triangle. Do not mark the location(s) of groundwater monitoring wells. (We will ask you about the location(s) of groundwater monitoring wells in Question C10.) Label each triangle with one of the following uses: "public well," "private drinking water well," "irrigation," "livestock watering," or, if you don't know its use, use "don't know." Label each triangle with a unique number followed by the letter W (for example, 1W, 2W, 3W, etc.).* **F Mark If CBI**

Nearby Human Activities

B4. Identify which of the following activities occur within 2 kilometers of the perimeter of any of your in-scope surface impoundments:
(Check all that apply)

F Mark If CBI

¹G Farming

⁴G Swimming

²G Hunting

⁵G None of the above — Skip to Question B7.

³G Fishing

B5. If you answered “fishing” in Question B4, provide the name(s) of the surface water body or surface water bodies in which fishing occurs:

F Mark If CBI

*Use the name(s) on the topographic map from Question B3. If the surface water body(ies) is not named on the map, provide the local name both on the map and below. If fishing occurs only in a specific portion of the surface water body(ies), indicate the specific area where **fishing** occurs on the map from Question B3.*

fishing occurs in _____

B6. If you answered “swimming” in Question B4, provide the name(s) of the surface water body or surface water bodies in which swimming occurs:

F Mark If CBI

*Use the name(s) on the topographic map from Question B3. If the surface water body(ies) is not named on the map, provide the local name both on the map and below. If swimming occurs only in a specific portion of the surface water body(ies), indicate the specific area where **swimming** occurs on the map from Question B3.*

swimming occurs in _____

Climatic Conditions

B7. Use of Meteorological Data

F Mark If CBI

EPA plans to use meteorological data from the National Climatic Data Center for the National Oceanic and Atmospheric Administration (NOAA) meteorological station nearest your facility. In most cases, we believe these data will provide an accurate means of estimating meteorological conditions at your facility. In some cases, however, steep terrain, microclimate effects, or the proximity of buildings may make data from the nearest station inaccurate for a given facility.

Your facility's nearest NOAA station is: **FIELD(NOAA STATION)**

Would the use of meteorological information (rainfall, wind speed, wind direction) from the nearest NOAA meteorological station provide an accurate representation of meteorological conditions near your in-scope surface impoundments?

Yes No

If you answered "No" and you are concerned about the accuracy of the meteorological information we plan to use, provide an explanation and alternative meteorologic station on the lines below.

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Subsurface Characteristics

This section asks for site-specific information relating to the subsurface (soils, fill materials, geologic materials, and groundwater) beneath your facility. In Section C you will provide information about impoundment liners. The information you provide in this section will be used to model the subsurface transport of chemicals.

The subsurface characteristics provided here should apply to all in-scope impoundments you identified in Question B2. If the subsurface characteristics are significantly different beneath different impoundments, please answer Questions B9 and B10 separately for each impoundment.

B8. Are the subsurface characteristics similar for all in-scope impoundments at your facility?

F Mark If CBI

Yes — Continue to Question B9 No

If you answered "No" to Question B8, please review Questions B9 and B10 to determine how many copies of those pages you will need to make in order to answer Questions B9 and B10 for the in-scope surface impoundments that have different subsurface characteristics. **Before you go on,** make extra copies of Questions B9 and B10 for your in-scope surface impoundments. Write the appropriate surface impoundment names or numbers from Question B2 in the upper right hand corner of each page.

As an alternative to answering Questions B9 through B12 in the format requested, you may attach to this questionnaire equivalent information that is in a different format. The information you attach may include reports of studies conducted at your facility that describe the site-specific subsurface characteristics at your impoundment(s) (for example the geologic and hydrogeologic setting at your facility). The information you attach also may include graphics (for example, cross sections and stratigraphic columns). Please be aware that if the information you provide does not respond fully to Questions B9 through B12, we may contact you to obtain the missing information.

Please check here if you have attached information to this questionnaire that responds in whole or in part to Questions B9 through B12.

**B9. Characteristics of Soil, Fill, and Geologic Materials
Beneath your Surface Impoundments**

This question asks you to describe - in table format - the characteristics of the soil, fill, and geologic materials that directly surround and lie beneath your in-scope surface impoundments. The question requests that you identify and describe each subsurface layer beginning with the one closest to land surface. You may stop when you have described the deepest subsurface layer that corresponds with the deeper of the two saturated zones described in Question B10. Question B10 will request more detailed information about the subsurface layers you identify in this question, when those layers correspond with saturated zones.

Instructions for completing Table B9:

Please enter "DK" for any information that you don't know.

- Column 1: Please number each distinct subsurface layer, starting with the land surface.*
- Column 2: Please provide a brief description of the subsurface layer (for example, a description of the soil type or the lithology of geologic materials, such as loam, sand, silt, clay, sandy-silt, sand and gravel fill, shale, granite, limestone, or sandstone).*
- Column 3: What is the typical depth from land surface to the top of each subsurface layer (specify units)? Provide the typical depth at the impoundment. If not available, provide the typical depth at the facility.*
- Column 4: What is the typical thickness of each subsurface layer (specify units)? Provide the typical thickness at the impoundment. If not available, provide the typical thickness at the facility.*
- Column 5: What is the percent of organic carbon in the subsurface layer?*

TABLE B9: CHARACTERIZATION OF SUBSURFACE LAYERS							
1 Subsurface Layer Number	2 Brief Description of Subsurface Layer (for example, sand, silt, clay, sandy-silt, sand and gravel fill, shale, granite)	3 Typical Depth from Land Surface to Top of Subsurface Layer		4 Typical Thickness of Subsurface Layer		5 Percent Organic Carbon of Subsurface Layer (%)	Mark if CBI
		Value	Units	Value	Units		
1 (Land Surface)							F
2							F
3							F
4							F
5							F
6							F
7							F

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B10. Characteristics of Saturated Zones Beneath Your Surface Impoundments

This question asks you to describe in greater detail the characteristics of certain subsurface layers you identified in Question B9 that also are saturated zones. A saturated zone is a subsurface zone in which the pore spaces are full of water. We want to obtain information about the top two saturated zones below your surface impoundment(s).

Instructions for completing Table B10:

Multiple saturated zones may exist at your site. Please complete the following table, to the extent the data requested are available for:

- *(In Row 1) the saturated zone beneath your in-scope impoundments that is closest to the land surface and is laterally continuous across your facility; and*
- *(In Row 2) the saturated zone beneath your in-scope impoundments that is second-closest to the land surface and is laterally continuous across your facility.*

Please enter "DK" for any information that you don't know.

Column 1: What is the name of the saturated zone? If there is no commonly recognized name, use a descriptive name (for example, alluvial, uppermost, bedrock)

Column 2: List the number(s) from Table B9, Column 1, that correspond to the subsurface layer(s) in which the saturated zone is located.

Column 3: Is the groundwater in this saturated zone suitable for drinking? Circle "Yes," "No," or "DK."

Column 4: What is the typical depth from land surface to the top of the saturated zone you listed in Column 1 (specify units)? Provide the typical depth at the impoundment. If not available, provide the typical depth at the facility.

Column 5: What is the typical depth from land surface to the bottom of the saturated zone you listed in Column 1 (specify units)? Provide the typical depth at the impoundment. If not available, provide the typical depth at the facility.

Column 6: Is groundwater in this saturated zone known to discharge to a surface water body within 2 kilometers of your in-scope impoundment(s)? Circle "Yes," "No," or "DK."

Column 7: If this saturated zone supplies water to a public well, private drinking water supply well, irrigation well, livestock well, and/or other well you identified on the map in Question B3, indicate in Column 7 which wells marked on the map in Question B3 withdraw water from that saturated zone. When designating wells in Column 7, use the numbers you gave the wells when you marked them on the map in Question B3 (for example, 1W, 2W, 3W, etc.).

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TABLE B10: GROUNDWATER													
1 Saturated Zone Name	2 Subsurface Layer Number(s) (from Table B9, Column 1)	3 Is groundwater suitable for drinking? (Circle Yes, No, or DK)			4 Typical depth to top of saturated zone		5 Typical depth to bottom of saturated zone		6 Does the saturated zone discharge to surface water? (Circle Yes, No, or DK)			7 Indicate the wells (from topographic map in Question B3) supplied by the saturated zone	Mark if CBI
					Value	Units	Value	Units					
		Yes	No	DK					Yes	No	DK		F
		Yes	No	DK					Yes	No	DK		F

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B11. If you answered "No" in either row of Column 3 in Table B10, please complete the following table.

Instructions for completing Table B11:

Column 1: What is the name of the saturated zone in which the groundwater is unsuitable for drinking?

Column 2: Provide the reason the groundwater is unsuitable for drinking.

TABLE B11: SATURATED ZONES WITH GROUNDWATER THAT IS UNSUITABLE FOR DRINKING		
1	2	Mark if CBI
Name of Saturated Zone in which Groundwater is Unsuitable for Drinking (from Table B10, Column 1)	Reason Groundwater Is Unsuitable for Drinking	
		F
		F

B12. If you answered "Yes" in either row of Column 6 in Table B10, please complete the following table.

Instructions for completing Table B12:

Column 1: What is the name of the saturated zone that discharges to surface water?

Column 2: Indicate the name of the surface water body. If the surface water body is unnamed, please complete Column 3.

Column 3: Indicate the type of surface water body (for example, pond, stream, spring) and the location of the surface water body (for example, 100 feet northeast of impoundment 2).

TABLE B12: SURFACE WATER DISCHARGE				
1 Saturated Zone that Discharges to Surface Water	2 Surface Water Body Name	3 Surface Water Body Type and Location		Mark if CBI
		Type	Location	
				F
				F

END OF SECTION B

Please continue with Section C.

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