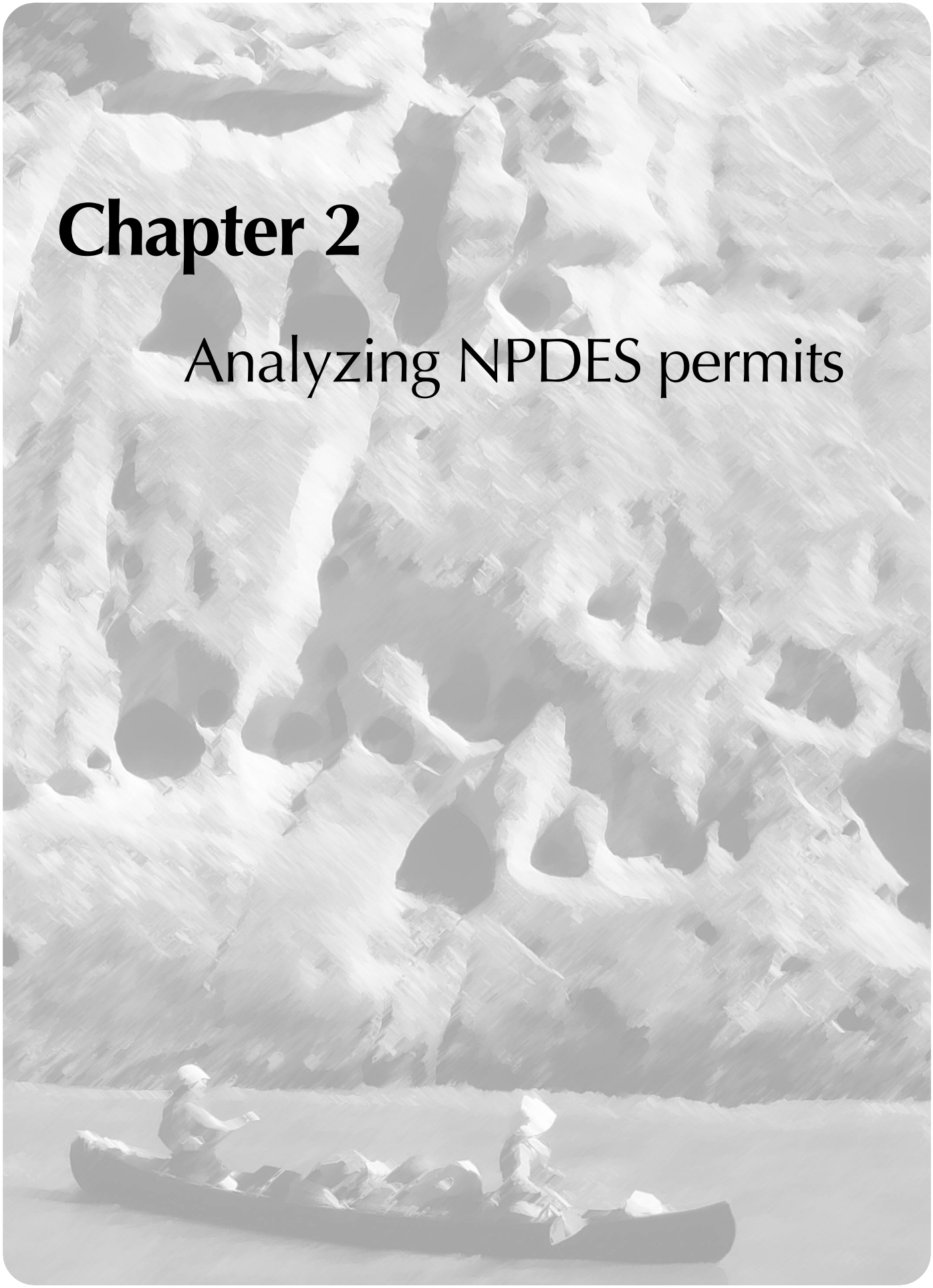
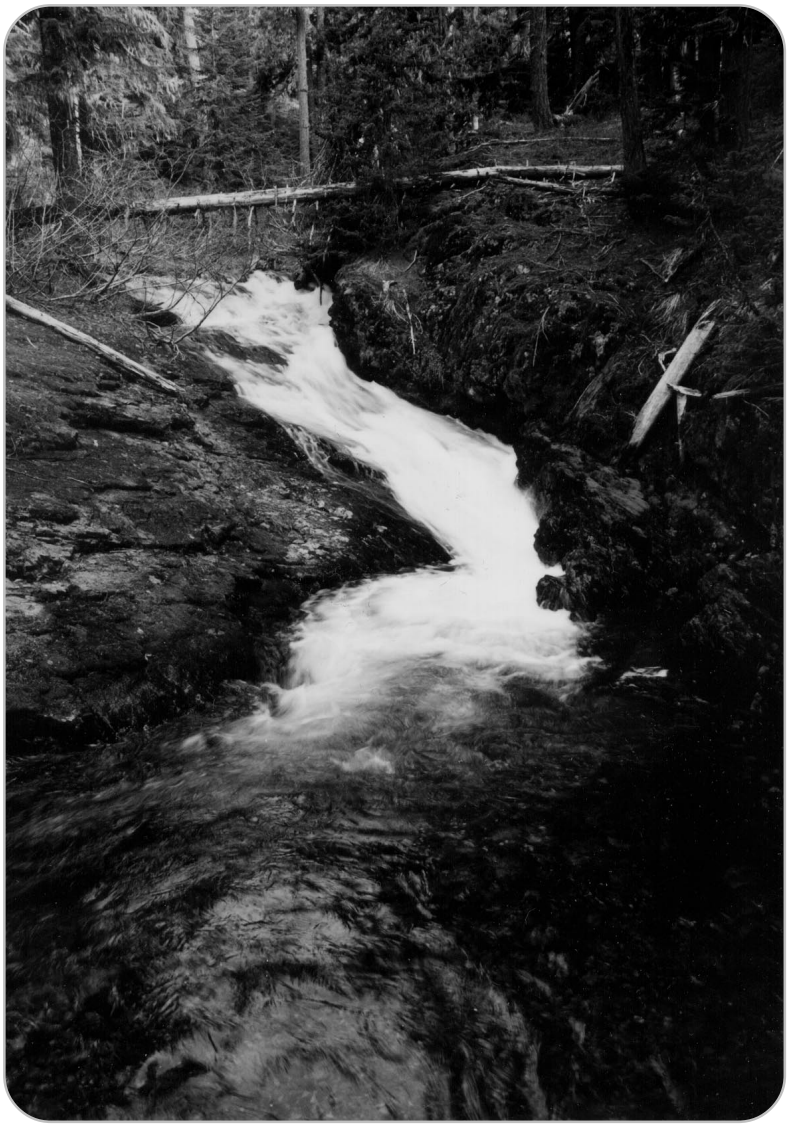


Chapter 2

Analyzing NPDES permits

Chapter 2 | Analyzing NPDES Permits



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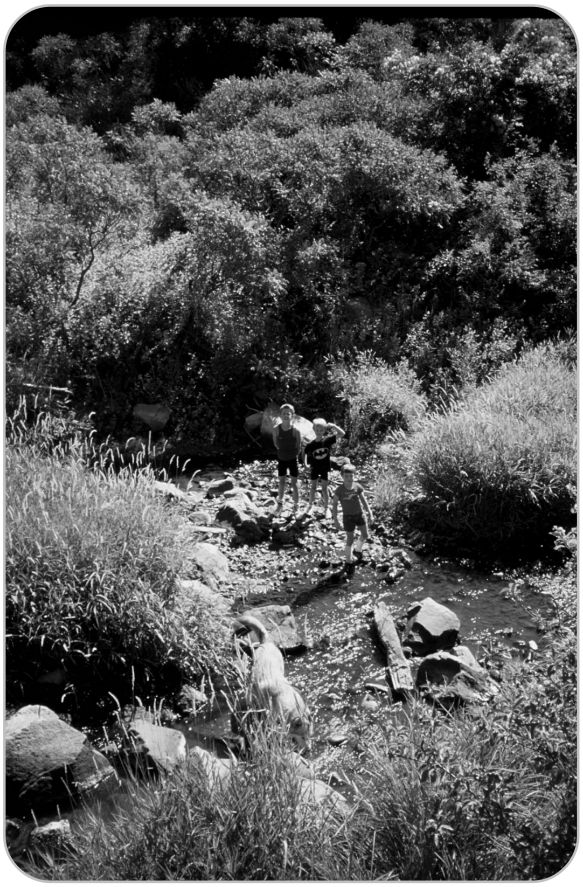
There is no step-by-step, sure-fire method to review an NPDES permit. However, there are some basic rules of thumb and several things you should consistently look for and be aware of. This chapter gives you some pointers on how you can identify permits that may be of concern, simply by looking at the basic information contained in the permit. It also gives you ideas about what you should ask yourself and the agency when reviewing an NPDES permit.

2.1 Analyzing the Basic Information

It is important to be able to identify problem permits. Most states issue hundreds, if not thousands, of NPDES permits each year. Nobody can take time to review all of them, so it is vital you be able to identify those that may be important to you and your organization.



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When reviewing NPDES permits, always have the following information in front of you:

- ✔ THE PERMIT PUBLIC NOTICE gives basic, concise information about the proposed permit and deadlines;
- ✔ THE PERMIT ITSELF should have effluent limits and any **special conditions** of the permit;
- ✔ THE PERMIT FACT SHEET should explain all the details and analysis that went into drafting the permit; and
- ✔ A COPY OF THE OLD PERMIT if the permit is reissued or modified; you'll want this for comparison purposes.
- ✔ You may also want to REQUEST ADDITIONAL INFORMATION such as the antidegradation analysis, reasonable potential analysis or other items.

As you sort through these items, watch for basic information that gives you a general handle on the situation and helps you decide if and when to dig deeper. We'll walk you through some basic questions by type of permit: information to look for in all permits, new permits, modified permits and reissued permits.

All Permits

An NPDES permit public notice and cover page are required by 40 CFR 124.8(a) to contain the following basic information:

- NAME OF THE DISCHARGER – who is asking for permission to discharge pollution?
- DISCHARGER'S ADDRESS – where to contact the discharger and where the facility is located.
- PERMIT NUMBER – every NPDES permit is assigned a unique number to identify it.
- RECEIVING WATERS – the lake or stream(s) into which pollution will be released.
- EXACT LOCATION OF THE DISCHARGE AND OUTFALLS – the latitude and longitude, river mile or some other description of location of the discharge pipe, also known as the **outfalls or outlets**.

The notice will also have an issue date, effective date, modification date (if the permit is modified) and possibly an expiration date (for modified or renewed permits). On new permits, don't be alarmed if there are no expiration, issue or effective dates. Since the permit hasn't been issued yet, there is no issue date, and until it *is* issued, the agency cannot assign an expiration date. Just remember that NPDES permits are valid for no more than five years from the date they are issued.[14]

Following are some questions you should consider when looking at this basic information. Keeping these in mind can help you determine if there are more serious issues to consider as you get into the permit itself.

Questions To Consider

Where is the discharge? Is the location of the permit correct?

Sometimes you'll find that the latitude and longitude locate the discharge point in far-off places like Australia. This is almost certainly a mistake, so point it out to the agency in your comment letter. Sometimes the agency doesn't tell you exactly where the discharge is, which is a major oversight on their part, and you need to ask exactly where the pollution will be released.

Where is the discharge in relationship to other places in the watershed?

Is the discharge upstream from or near a swimming area, boat ramp, state park, recreational area, drinking water source or intake? Is it in a stretch of stream where threatened or endangered species are known to exist? If the discharge is near any resources that may be impacted by pollution, you should carefully examine the permit.

Is the permit new, modified or reissued?

Different considerations apply for each permit, depending on which category it fits. Just because a permit is reissued, don't assume it's identical to the old one. Following are some questions to keep in mind as you delve further into each type of permit.

New Permits

These are brand new permits for brand new discharges. New permits should be carefully scrutinized.

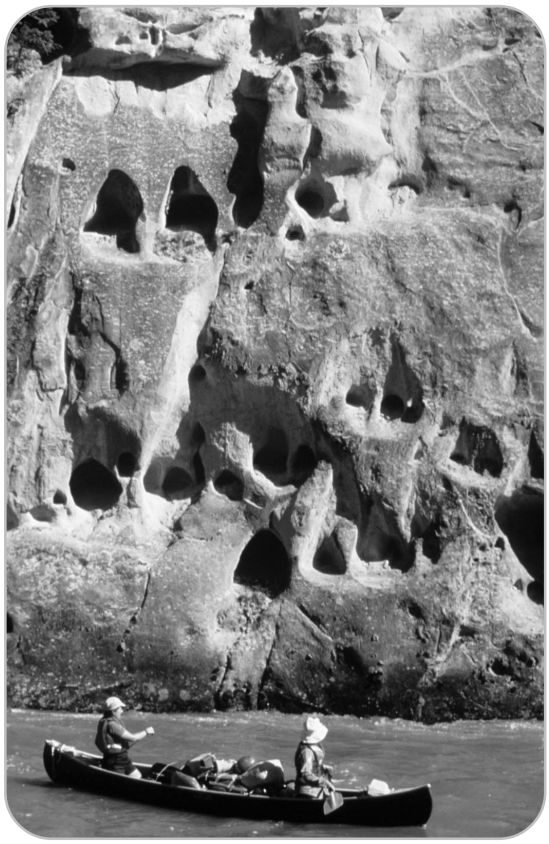
Questions To Consider

What impact might the discharge have on existing beneficial uses?

You will need to make sure the discharge will not cause degradation of water quality or habitat that supports aquatic life, recreational uses, drinking water quality or any other existing beneficial use. These existing uses are protected by state and federal antidegradation policies. See Chapter 4 for a discussion of states' antidegradation policies.

If the new discharge is into a polluted waterbody, should we allow more pollution to be released, making an existing water quality problem worse?

According to federal regulations, no NPDES permit may be issued "to a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards."[15] Therefore, if a waterbody is already threatened or impaired by certain pollutants, a new permit should not allow more of the same problem pollutants to be released.



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Modified Permits

Dischargers can seek to alter their permits at any time. They may be altered because the discharger has changed or updated pollution control technology, expanded the facility, changed ownership or a variety of other reasons. When permits are modified, anything may be changed.

Anyone can ask for a modification of a permit if 1) there are significant alterations to the permitted facilities, 2) new information about the effects of the permitted discharge (including cumulative effects) have become available or 3) if any regulations upon which the permit was based have been changed or superseded.[16]

Your agency should provide a summary of these modifications in the permit public notice. Modified permits should be closely examined and the following questions kept in mind.

Questions To Consider

Is flow from the facility increasing?

If the flow is increasing, the amount of pollution discharged may be increasing.

Are effluent limits changing?

If the allowed concentration or quantity of pollutants is increasing, you should find out why.

Is frequency of monitoring for pollutants changing?

The less the discharger monitors, the less likely they will detect a violation.

TIM PALMER

Where is the proposed discharge?

Just as with new permits, you must keep in mind where the discharge is located. If the discharge is to a waterbody that is already violating water quality standards, the discharger should not be allowed to make the problem worse. If it is to a high-quality stream (see the discussion about antidegradation in Chapter 4), the discharger should not be allowed to unnecessarily degrade water quality.

Did the discharger add or move any outfalls?

This might indicate big changes at the facility that need to be scrutinized.

Are there changes to the standards or has a problem been defined in the stream since the permit was issued?

These are both reasons to request modification of a permit.

Reissued

When a permit expires, the agency grants a renewed, or reissued, permit. This is easily the most confusing category. Do not assume that a "reissued" permit is identical to the old one. This is not necessarily true. Another important thing to know is that the expiration of a permit does not mean discharges must cease. A discharger is allowed to continue operating under an expired permit.

Very often there are significant modifications to the reissued permit, including new discharge limits, new outfall pipes and new monitoring requirements. The difference between a reissued and modified permit is that a reissued permit was requested around the time the old permit expired. A modified permit is requested well in advance of permit expiration. The fact sheet should tell you if there are modifications, but if it doesn't, call the agency and ask.

The same questions apply for reissued permits as for modified permits.

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This makes it sound like all NPDES permits should be scrutinized. And to a certain degree, that is correct. But with time at a premium, the effective activist learns quickly how to pick the most important battles. As you gain experience and knowledge, you will be able to identify which permits may need closer scrutiny.

Other things you may want to consider when deciding whether or not to scrutinize a permit:

- ✔ *Will it allow discharge of pollutants that are of particular concern (e.g., bacteria near places people use for recreation or water supply)?*
- ✔ *Does the discharger have a bad reputation in the community or nationally?*
- ✔ *Are toxic pollutants or bioaccumulative pollutants to be released?*
- ✔ *Is the discharge in a watershed of particular importance to you or your organization?*

2.2 Analyzing NPDES Permits: What Do I Look for Inside?

Analyzing an NPDES permit can be straightforward or complex, depending on how deeply you want to delve into the permit itself and how much research you wish to do into the decisions which led to its issuance.

In the first few pages of the permit you will find information on the specific pollutants that can be discharged, how much of these pollutants can be discharged (concentration and total pounds of pollution) and the type and frequency of monitoring that is to be performed for these pollutants. This is the meat and potatoes of a permit and, depending on the size and complexity of the facility, may be several pages long.

As you go through a permit, take notes on what you find and what concerns you have. Once you have completed your review, you may wish to write a letter to the agency summarizing these findings, asking them questions you would like answered, expressing your concerns about the permit and asking the agency to strengthen permit conditions. You may also wish to ask for a public hearing where you and other members of the public can testify or introduce additional information for the agency's consideration. Hearings allow you to share your findings with concerned members of the public, as well as have them entered into the public record. (See Chapter 3 for information on writing comments and attending hearings.)

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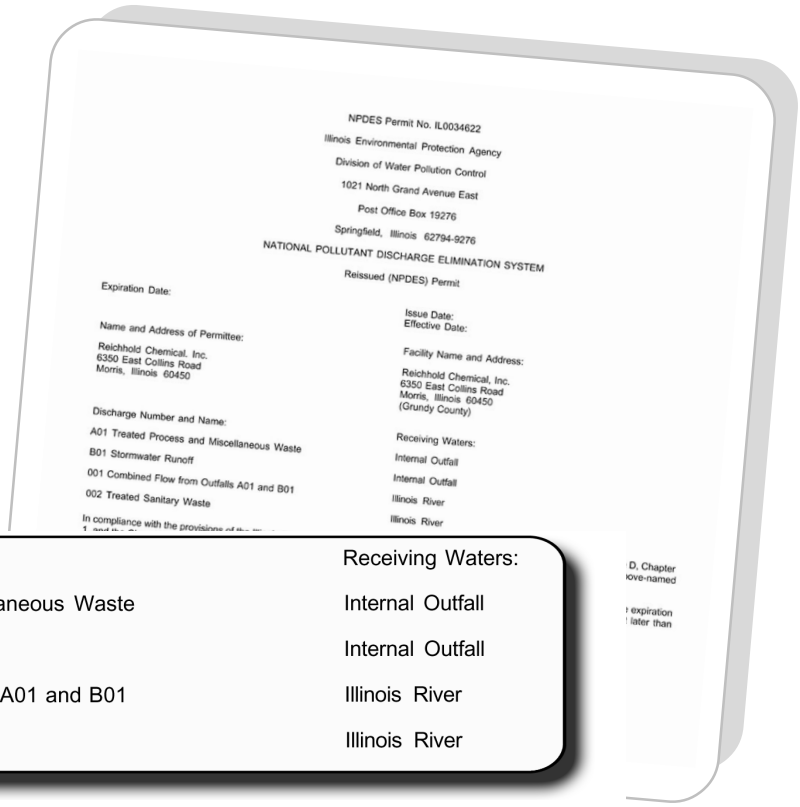
How to Read the Permit

Now we are ready to read and analyze the permit limits. If you follow along with a permit of your own, make sure you get the old permit out so you can compare the documents and see if anything has changed. Each of the following sections describes a specific part of the permit, and also draws attention to some questions you need to consider and raise in your comments to the agency.

Discharge Number and Name

This specifies to which pipe or outfall the permit limits apply. NPDES permits typically regulate pollution released from a discrete discharge point known as an outfall, and each is assigned an outfall number. Each outfall has its own regulated pollutants, permit limits and monitoring requirements. Most dischargers have only one outfall, but many have multiple outfalls.


NPDES Permit No. IL0034622
Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
Reissued (NPDES) Permit

Expiration Date:

Issue Date:
Effective Date:

Name and Address of Permittee:
Reichhold Chemical, Inc.
6350 East Collins Road
Morris, Illinois 60450

Facility Name and Address:
Reichhold Chemical, Inc.
6350 East Collins Road
Morris, Illinois 60450
(Grundy County)

Discharge Number and Name:
A01 Treated Process and Miscellaneous Waste
B01 Stormwater Runoff
001 Combined Flow from Outfalls A01 and B01
002 Treated Sanitary Waste

Receiving Waters:
Internal Outfall
Internal Outfall
Illinois River
Illinois River

In compliance with the provisions of the

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expiration
later than

Discharge Number and Name:	Receiving Waters:
A01 Treated Process and Miscellaneous Waste	Internal Outfall
B01 Stormwater Runoff	Internal Outfall
001 Combined Flow from Outfalls A01 and B01	Illinois River
002 Treated Sanitary Waste	Illinois River

Questions To Consider

Have outfalls been added or eliminated since the last permit?

Compare the new and previous permits and see if there are any new outfalls. When outfalls are added, it often indicates the facility is changing its treatment processes, changing manufacturing processes or possibily expanding. This should be a clue that you need to scrutinize the permit limits very closely. Sometimes old outfalls "disappear" from the permit. This can be good, as it may indicate that less pollution will be released. Still, the discharger and the agency should give an explanation as to why a former outfall is no longer included in the permit.

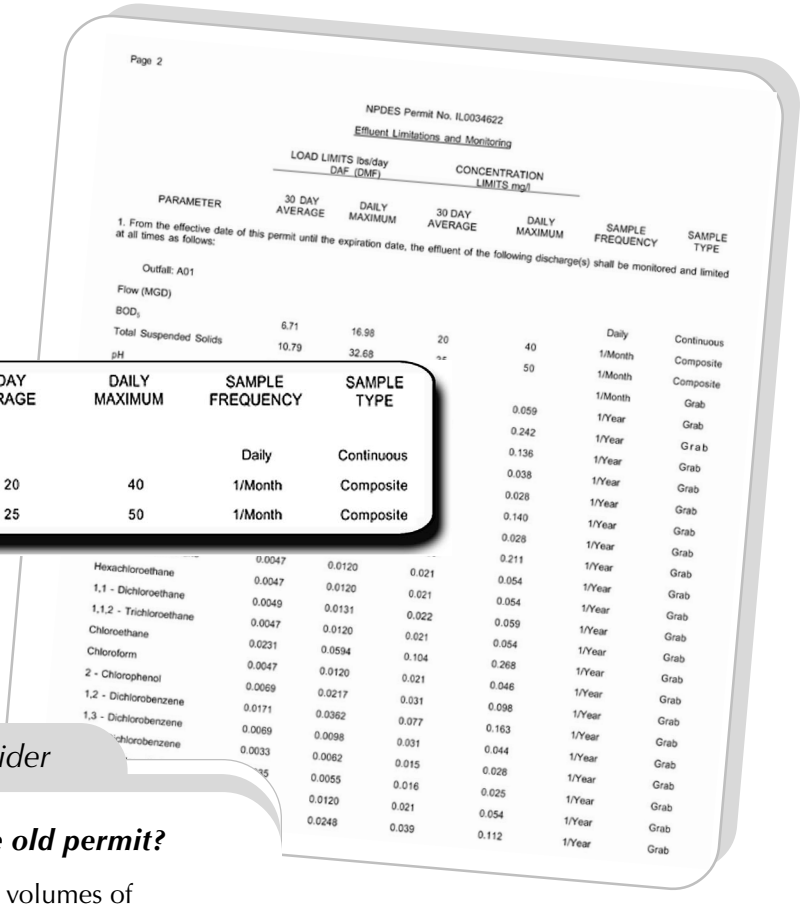
Do all outfalls still discharge to the same receiving waters?

Make sure outfalls are all going to the same places they used to. If they are discharging to different receiving waters, you should check the condition of the new receiving waters for any special concerns or uses that could be impacted.

Design Average Flow and Design Maximum Flow

The average and maximum amounts of wastewater in *millions of gallons per day* (MGD) that can be discharged from the outfall may be listed on the permit. Many states do not specifiy a design maximum and design average flow.

PARAMETER Outfall: A01	30 DAY AVERAGE	DAILY MAXIMUM	30 DAY AVERAGE	DAILY MAXIMUM	SAMPLE FREQUENCY	SAMPLE TYPE
Flow (MGD)					Daily	Continuous
BOD_5	6.71	16.98	20	40	1/Month	Composite
Total Suspended Solids	10.79	32.68	25	50	1/Month	Composite


Page 2

NPDES Permit No. IL0034622

Effluent Limitations and Monitoring

LOAD LIMITS lbs/day DAF (DMF) | CONCENTRATION LIMITS mg/l

PARAMETER | 30 DAY AVERAGE | DAILY MAXIMUM | 30 DAY AVERAGE | DAILY MAXIMUM | SAMPLE FREQUENCY | SAMPLE TYPE

1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:

Outfall: A01

Flow (MGD) | | | | | Daily | Continuous

BOD_5 | 6.71 | 16.98 | 20 | 40 | 1/Month | Composite

Total Suspended Solids | 10.79 | 32.68 | 25 | 50 | 1/Month | Composite

pH | | | | | 1/Month | Grab

Hexachloroethane 0.0047 0.0120 0.021 0.059 1/Year Grab

1,1 - Dichloroethane 0.0047 0.0120 0.021 0.242 1/Year Grab

1,1,2 - Trichloroethane 0.0049 0.0131 0.022 0.136 1/Year Grab

Chloroethane 0.0047 0.0120 0.021 0.038 1/Year Grab

Chloroform 0.0231 0.0594 0.104 0.028 1/Year Grab

2 - Chlorophenol 0.0047 0.0120 0.021 0.140 1/Year Grab

1,2 - Dichlorobenzene 0.0069 0.0217 0.031 0.028 1/Year Grab

1,3 - Dichlorobenzene 0.0171 0.0362 0.077 0.211 1/Year Grab

[illegible]chlorobenzene 0.0069 0.0098 0.031 0.054 1/Year Grab

[illegible] 0.0033 0.0062 0.015 0.054 1/Year Grab

0.0055 0.016 0.028 1/Year Grab

0.0120 0.021 0.025 1/Year Grab

0.0248 0.039 0.054 1/Year Grab

0.112 1/Year Grab

In the permit to the right, no limits are specified.

Questions To Consider

Has flow rate increased from the old permit?

Expanding facilities put out larger volumes of wastewater, usually meaning the total amount of pollution is increasing. If the flow rate is increasing, make sure you ask the agency why and what alternatives to increasing the amount of pollution were considered (e.g., land treatment, waste reduction).

Effluent Limitations

Pay attention here; this is where most of your serious concerns will arise. There are two basic types of effluent limits, based on (the more stringent of either):

- minimum standards based on a certain level of treatment required for broad categories of dischargers (established assuming a certain performance can be met by the best available treatment technology), known as **technology-based effluent limits**,[17] or
- standards based on what is necessary to protect existing uses and water quality, known as **water quality-based effluent limits**, or WQBELs (established specificially to protect water quality in the receiving water because a concern about the impact of the discharge has been identified).[18]

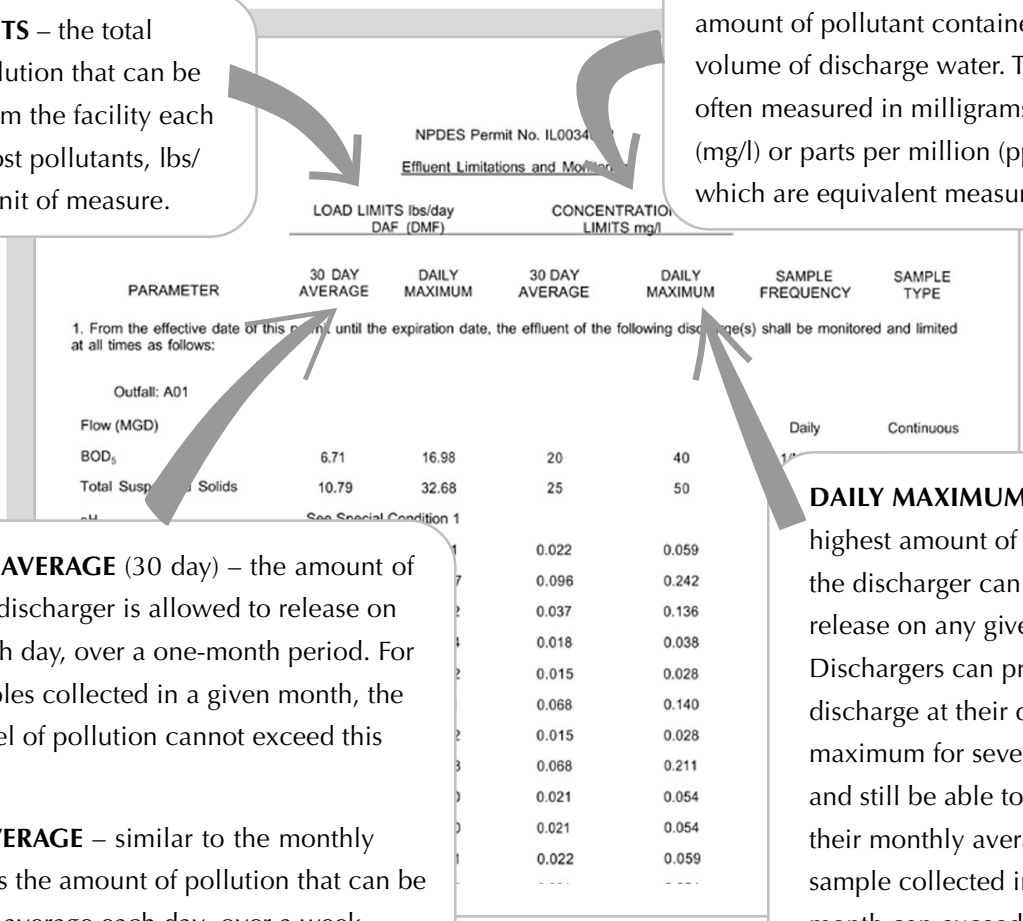
All dischargers must meet at least the technology-based effluent limits. Dischargers must also meet water quality-based effluent limits if they release pollution that may contribute to, cause or have the reasonable potential to cause violations of water quality standards. This is likely to happen in: 1) streams that have very low flows and very little dilution (due to small size, seasonal flow variations, water withdrawals, etc.), 2) waters that are almost or already violating water quality standards or 3) high-quality waters where new pollution should be restricted.

These effluent limits are established and enforced with the goal of meeting water quality standards, which establish the maximum amount of pollution allowed in our waters. Furthermore, these effluent limits should ensure the protection of existing uses.

In addition, there are two ways effluent limits are presented in permits — **load limits** and **concentration limits**. These specify the maximum levels of pollution a discharger can release over a given period of time.

LOAD LIMITS – the total mass of pollution that can be released from the facility each day. For most pollutants, lbs/day is the unit of measure.

CONCENTRATION LIMITS – the amount of pollutant contained in a volume of discharge water. This is often measured in milligrams per liter (mg/l) or parts per million (ppm), which are equivalent measures.



NPDES Permit No. IL0034

Effluent Limitations and Mo

PARAMETER	LOAD LIMITS lbs/day DAF (DMF) 30 DAY AVERAGE	LOAD LIMITS lbs/day DAF (DMF) DAILY MAXIMUM	CONCENTRATION LIMITS mg/l 30 DAY AVERAGE	CONCENTRATION LIMITS mg/l DAILY MAXIMUM	SAMPLE FREQUENCY	SAMPLE TYPE
1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitored and limited at all times as follows:						
Outfall: A01						
Flow (MGD)					Daily	Continuous
BOD_5	6.71	16.98	20	40		
Total Susp[illegible] Solids	10.79	32.68	25	50		
[illegible]	See Special Condition 1					
[illegible]	[illegible]	[illegible]	0.022	0.059		
[illegible]	[illegible]	[illegible]	0.096	0.242		
[illegible]	[illegible]	[illegible]	0.037	0.136		
[illegible]	[illegible]	[illegible]	0.018	0.038		
[illegible]	[illegible]	[illegible]	0.015	0.028		
[illegible]	[illegible]	[illegible]	0.068	0.140		
[illegible]	[illegible]	[illegible]	0.015	0.028		
[illegible]	[illegible]	[illegible]	0.068	0.211		
[illegible]	[illegible]	[illegible]	0.021	0.054		
[illegible]	[illegible]	[illegible]	0.021	0.054		
[illegible]	[illegible]	[illegible]	0.022	0.059		

MONTHLY AVERAGE (30 day) – the amount of pollution a discharger is allowed to release on average each day, over a one-month period. For all the samples collected in a given month, the average level of pollution cannot exceed this limit.

WEEKLY AVERAGE – similar to the monthly average, it is the amount of pollution that can be released on average each day, over a week.

DAILY MAXIMUM – the highest amount of pollution the discharger can legally release on any given day. Dischargers can probably discharge at their daily maximum for several days and still be able to meet their monthly average. No sample collected in a given month can exceed this limit.

For load and concentration, the level of pollution may be measured over different periods of time and may be different for each regulated parameter. These may be daily, weekly and/or monthly. Some states define these terms differently or use other measurements (e.g. four-day limits).

How do I know whether the limits are right?

Make sure all pollutants with discharge limits in the old permit are still addressed in the new permit. If pollutants are no longer in the permit, ask why. The easiest thing to do is make sure the permit regulates the same pollutants that were regulated in the old permit. If pollutants are being removed from the permit, find out why!

If it is a new permit, you may want to find out if the proper technology-based and water quality-based effluent limits are being applied. You can find the appropriate **technology-based effluent limits** by looking up each standard industry classification in federal regulations (40 CFR 400 through 471), which can be found at *http://www.access.gpo.gov/nara/cfr/cfr-table-search.html*. These regulations spell out which pollutants are supposed to be limited and the allowed levels of pollutants for each industry.

If the receiving waterbody is threatened or impaired for any pollutant that will be in a proposed new or increased discharge, the permit must include **water quality-based effluent limits**. Under most circumstances, these limits will be more stringent than the technology–based limits.

Are load limits and concentration limits consistent?

Load limits and concentration limits normally should be related mathematically. The load limit is equal to the concentration limit times the flow from the facility, multiplied by a conversion factor to make the units of measurement for concentration, flow and load consistent. You can calculate load limits using the following formula:

Load (lbs/day) = Concentration (mg/l) x Flow (MGD) x 8.34[19]

It is usually a good idea to double-check the numbers in the permit. Even if you don't double-check the numbers yourself, ask the agency to explain its load and concentration assumptions and calculation.

Will the discharge cause the receiving water to violate water quality standards?

Federal regulations state that no NPDES permit may be issued "when the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States."[20] Look at your state's 305(b) report and other sources of water quality data. If any standards are close to being violated, you may also want to find out if there are other dischargers of the same pollutant in the area.

Here's how the formula works using the numbers from the permit on page 20. We can determine what the flow from the facility must be to meet the permit limits. Using the daily maximum load and concentration limits for BOD_5 (biochemical oxygen demand) we have:

16.98 lbs/day = 40 mg/l x Flow (MGD) x 8.34

16.98 = (40)(Flow)(8.34)

$$\text{Flow} = \frac{16.98}{(40)(8.34)}$$

Flow = 0.50 MGD

Given the daily maximum limits, the maximum discharge is 0.50 MGD.

Questions to Consider, cont.

TIM PALMER

Have effluent limits increased from levels in the previous permit?

Sometimes dischargers will try to increase the amount of pollution they can release. They may seek to increase concentration limits, load limits or both. Dischargers may seek to increase these limits because the facility is expanding or because they cannot comply with existing limits. Instead of improving their treatment, it is often easier to increase the amount of pollution they can legally release.

Is the receiving water already experiencing problems with the pollutants whose limits are being increased?

Regulations prohibit the issuance of permits that allow a new or increased discharge that "will cause or contribute to the violation of water quality standards" in the receiving waterbody.[21] The state's 305(b) report and 303(d) will help you determine whether and which pollutants are impairing the waterbody.

Backsliding

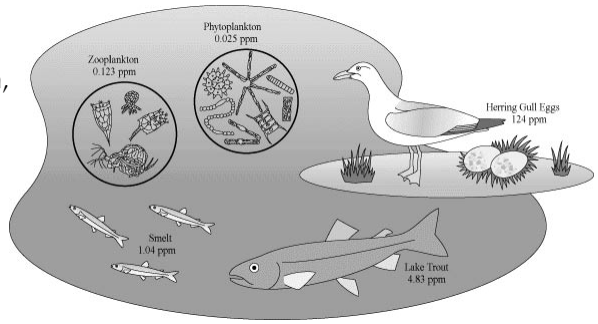
Increasing, or weakening, effluent limits is known as backsliding. According to the anti-backsliding provisions of the Clean Water Act, no permit will "contain effluent limitations which are less stringent than the comparable effluent limitation in the previous permit."[22] Backsliding is generally illegal under the Clean Water Act, but there are circumstances where it may be allowed by law such as:

- ***when a facility must expand in order to increase production or to increase the population it serves and no viable alternative exists, or***
- ***when water quality standards have been relaxed.***

If the discharge would cause or contribute to a violation of water quality standards, or if the receiving waters are otherwise impaired, you should certainly not allow backsliding. The increased pollution only adds to the existing problem.

Are load limits increasing for toxic chemicals and metals that may be bioaccumulative?

Bioaccumulative substances are taken up by organisms (fish, crawfish, shellfish, humans, etc.) and do not get flushed out of the body. Examples of bioaccumulative substances are lead, mercury and dioxin. Even if concentrations of these pollutants in the discharge remain constant, an increase in the load of pollution means more total pollution will be released to the environment. These contaminants accumulate in the bodies of fish and animals, so the more pounds that reach the water, the more that will eventually contaminate all levels of the food chain, including humans.

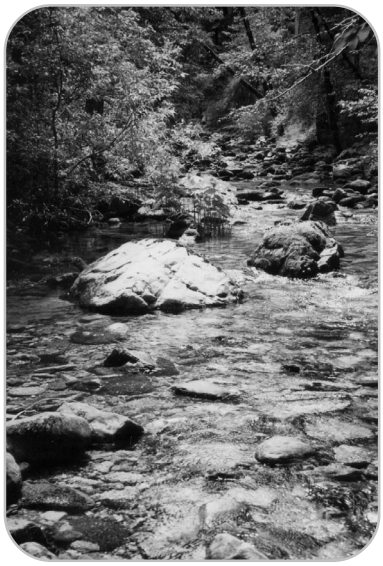


Persistent Organic Chemicals such as PCBs bioaccumulate. This diagram shows the degree of concentration in each level of the Great Lakes aquatic food chain for PCBs (in parts per million, ppm). The highest levels are reached in the eggs of fish-eating birds such as herring gulls.

Source: Center for Technology and Pollution Prevention at Purdue University and U.S. EPA Region 5

Are other dischargers in the area releasing the same pollutants?

If this is the case, you need to make sure that the agency took it into account. If they did not, the cumulative effects increase the likelihood water quality standards may be violated. If the agency established permit limits assuming no other local sources of pollution are present, they may also be assuming there is more dilution than is truly available. This might be particularly problematic if the waterbody in question is impaired or close to violating water quality standards. Find out about other dischargers by visiting the Surf Your Watershed web site at *http://www.epa.gov/surf*. See Appendix C for directions on how to use the site and a description of the information you can find there.



GAYLE KILLAM

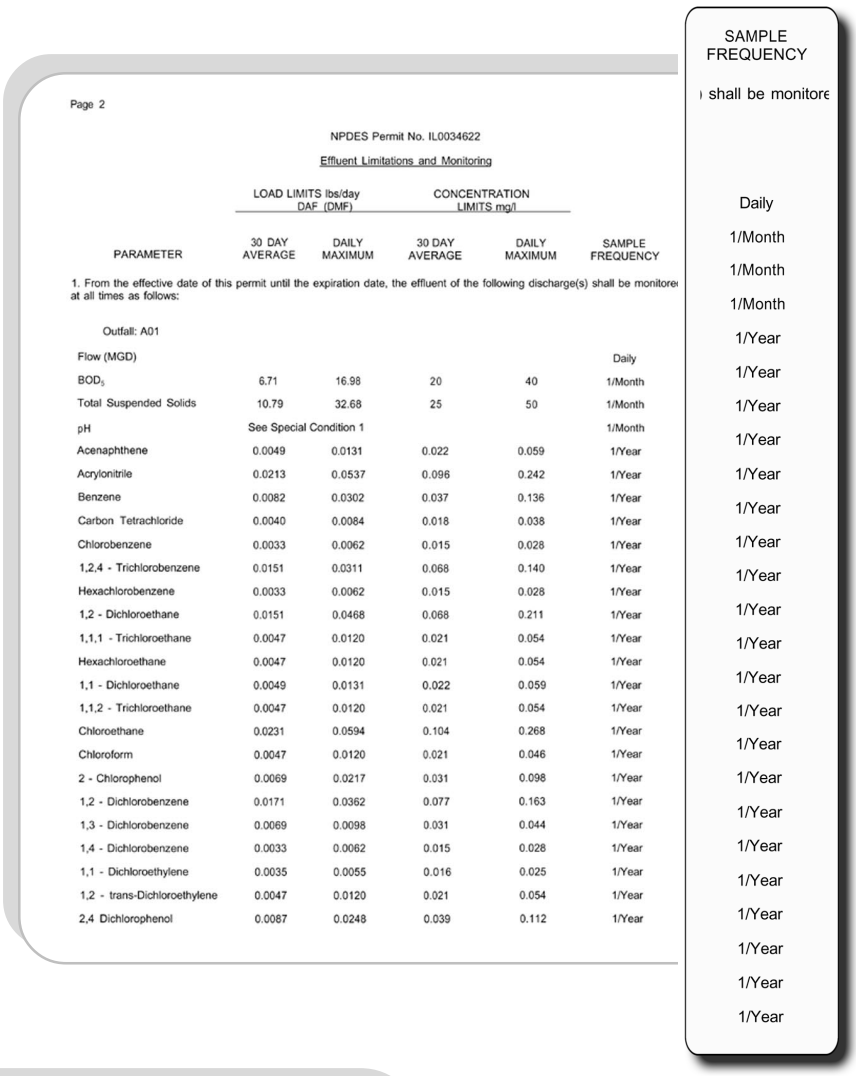
Is the stream receiving the pollution a high quality waterway?

Is it a stream or lake that is of exceptional recreational or ecological value? Does it harbor threatened or endangered species? Are its waters nearly pristine or pollution free? If the answer to any of these questions is yes, then it is a waterway that should be afforded special protections. The federal and state antidegradation policies grant these waters additional protections to ensure they are maintained and remain clean.[23] But in most states, the antidegradation policy has not been adequately implemented. (See Chapter 4 for a more detailed discussion of antidegradation.)

Sample Frequency

The frequency of sampling is very important. Does the permittee have to sample for various pollutants daily, weekly or monthly? The fewer samples they take, the less information you have on potential environmental effects.

Often, the reissued or modified permit will require sampling less often than the old permit. If the discharger is monitoring less often, there is less chance a violation of the permit will be detected. There are sometimes good reasons for a decrease in monitoring frequency, such as when a discharger demonstrates consistent performance and long-term compliance with existing permit conditions. However, if monitoring frequency is reduced, always ask why. The agency should have a sound explanation for this action.



Page 2

NPDES Permit No. IL0034622

Effluent Limitations and Monitoring

PARAMETER	LOAD LIMITS lbs/day DAF (DMF) 30 DAY AVERAGE	LOAD LIMITS lbs/day DAF (DMF) DAILY MAXIMUM	CONCENTRATION LIMITS mg/l 30 DAY AVERAGE	CONCENTRATION LIMITS mg/l DAILY MAXIMUM	SAMPLE FREQUENCY
1. From the effective date of this permit until the expiration date, the effluent of the following discharge(s) shall be monitore at all times as follows:					
Outfall: A01					
Flow (MGD)					Daily
BOD_5	6.71	16.98	20	40	1/Month
Total Suspended Solids	10.79	32.68	25	50	1/Month
pH	See Special Condition 1				1/Month
Acenaphthene	0.0049	0.0131	0.022	0.059	1/Year
Acrylonitrile	0.0213	0.0537	0.096	0.242	1/Year
Benzene	0.0082	0.0302	0.037	0.136	1/Year
Carbon Tetrachloride	0.0040	0.0084	0.018	0.038	1/Year
Chlorobenzene	0.0033	0.0062	0.015	0.028	1/Year
1,2,4 - Trichlorobenzene	0.0151	0.0311	0.068	0.140	1/Year
Hexachlorobenzene	0.0033	0.0062	0.015	0.028	1/Year
1,2 - Dichloroethane	0.0151	0.0468	0.068	0.211	1/Year
1,1,1 - Trichloroethane	0.0047	0.0120	0.021	0.054	1/Year
Hexachloroethane	0.0047	0.0120	0.021	0.054	1/Year
1,1 - Dichloroethane	0.0049	0.0131	0.022	0.059	1/Year
1,1,2 - Trichloroethane	0.0047	0.0120	0.021	0.054	1/Year
Chloroethane	0.0231	0.0594	0.104	0.268	1/Year
Chloroform	0.0047	0.0120	0.021	0.046	1/Year
2 - Chlorophenol	0.0069	0.0217	0.031	0.098	1/Year
1,2 - Dichlorobenzene	0.0171	0.0362	0.077	0.163	1/Year
1,3 - Dichlorobenzene	0.0069	0.0098	0.031	0.044	1/Year
1,4 - Dichlorobenzene	0.0033	0.0062	0.015	0.028	1/Year
1,1 - Dichloroethylene	0.0035	0.0055	0.016	0.025	1/Year
1,2 - trans-Dichloroethylene	0.0047	0.0120	0.021	0.054	1/Year
2,4 Dichlorophenol	0.0087	0.0248	0.039	0.112	1/Year

Questions to Consider

Are the sample frequencies changing?

Check the discharger's compliance history. If they have had violations in the past, they should not be allowed to monitor less, they should monitor more often (see p. 33, Compliance History for more information). Also, if the facility is expanding, installing new treatment technologies or changing manufacturing processes, it is probably not a good idea to reduce monitoring frequencies. The discharger should continue monitoring at the same frequency until it is demonstrated these changes have not made effluent quality deteriorate.

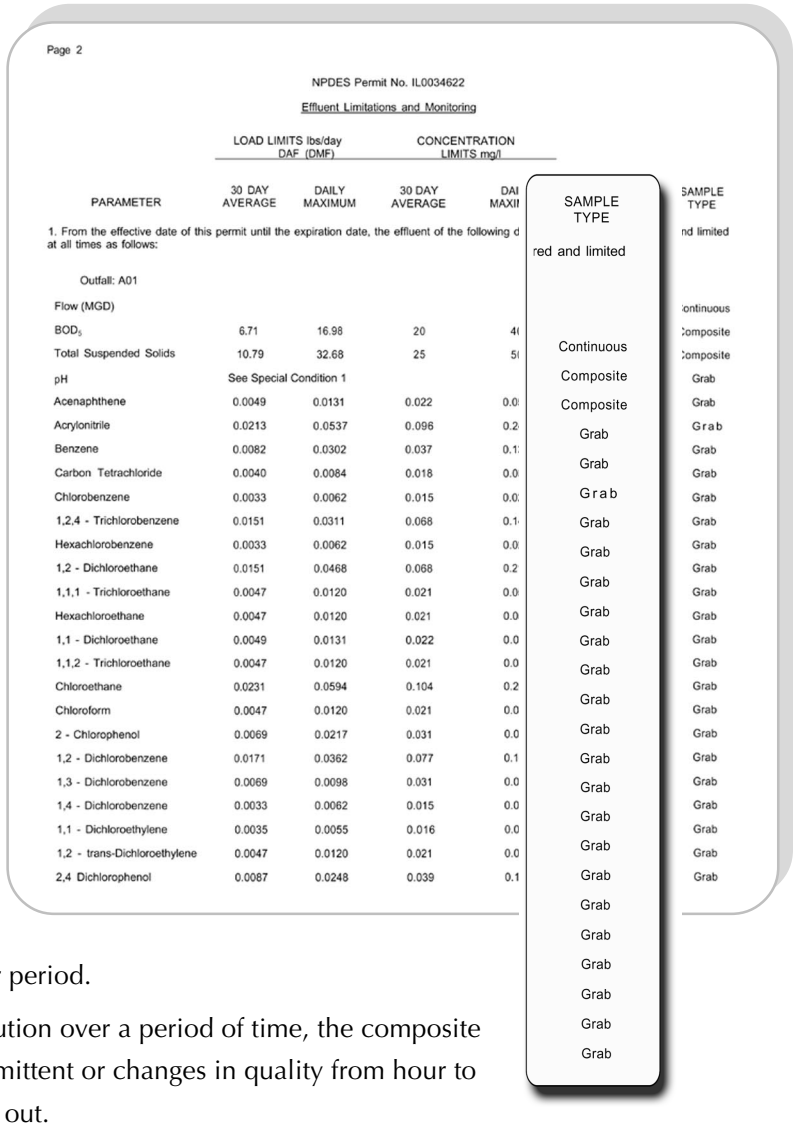
Does the sampling frequency make sense?

For instance, are there monthly average effluent limits when the discharger is only required to collect one sample per month? This won't provide enough data to calculate a reliable average, and the discharger could sample on a day of the month when they know their effluent is of sufficient quality.

Sample Type

Three sample types are used to monitor effluent quality for each parameter in a permit – continuous, grab and composite.

- CONTINUOUS: must be monitored constantly. For example, flow, temperature and pH may be selected for continuous monitoring.
- GRAB: must be a single sample collected at a given moment. Picture this as someone dipping a bottle into the effluent to collect a sample. Grab samples give an instant "snap-shot" of effluent quality.
- COMPOSITE: like collecting several individual grab samples and combining them in a bottle. Essentially, the result measures the average level of pollution over a given time. **Composite samples** are usually collected over an 8- or 24- hour period.



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NPDES Permit No. IL0034622

Effluent Limitations and Monitoring

PARAMETER	LOAD LIMITS lbs/day DAF (DMF) 30 DAY AVERAGE	LOAD LIMITS lbs/day DAF (DMF) DAILY MAXIMUM	CONCENTRATION LIMITS mg/l 30 DAY AVERAGE	CONCENTRATION LIMITS mg/l DAI MAXII	SAMPLE TYPE	SAMPLE TYPE
1. From the effective date of this permit until the expiration date, the effluent of the following d at all times as follows:					red and limited	nd limited
Outfall: A01						
Flow (MGD)						ontinuous
BOD_5	6.71	16.98	20	4(	Continuous	Composite
Total Suspended Solids	10.79	32.68	25	5(	Composite	Composite
pH	See Special Condition 1				Composite	Grab
Acenaphthene	0.0049	0.0131	0.022	0.0	Grab	Grab
Acrylonitrile	0.0213	0.0537	0.096	0.2	Grab	Grab
Benzene	0.0082	0.0302	0.037	0.1	Grab	Grab
Carbon Tetrachloride	0.0040	0.0084	0.018	0.0	Grab	Grab
Chlorobenzene	0.0033	0.0062	0.015	0.0	Grab	Grab
1,2,4 - Trichlorobenzene	0.0151	0.0311	0.068	0.1	Grab	Grab
Hexachlorobenzene	0.0033	0.0062	0.015	0.0	Grab	Grab
1,2 - Dichloroethane	0.0151	0.0468	0.068	0.2	Grab	Grab
1,1,1 - Trichloroethane	0.0047	0.0120	0.021	0.0	Grab	Grab
Hexachloroethane	0.0047	0.0120	0.021	0.0	Grab	Grab
1,1 - Dichloroethane	0.0049	0.0131	0.022	0.0	Grab	Grab
1,1,2 - Trichloroethane	0.0047	0.0120	0.021	0.0	Grab	Grab
Chloroethane	0.0231	0.0594	0.104	0.2	Grab	Grab
Chloroform	0.0047	0.0120	0.021	0.0	Grab	Grab
2 - Chlorophenol	0.0069	0.0217	0.031	0.0	Grab	Grab
1,2 - Dichlorobenzene	0.0171	0.0362	0.077	0.1	Grab	Grab
1,3 - Dichlorobenzene	0.0069	0.0098	0.031	0.0	Grab	Grab
1,4 - Dichlorobenzene	0.0033	0.0062	0.015	0.0	Grab	Grab
1,1 - Dichloroethylene	0.0035	0.0055	0.016	0.0	Grab	Grab
1,2 - trans-Dichloroethylene	0.0047	0.0120	0.021	0.0	Grab	Grab
2,4 Dichlorophenol	0.0087	0.0248	0.039	0.1	Grab	Grab

If you are interested in the average level of pollution over a period of time, the composite sample is preferred. But if the discharge is intermittent or changes in quality from hour to hour, you may miss violations that get averaged out.

If there are critical times that sampling should be conducted (such as for an intermittent discharge or the "first flush" from a storm sewer), you would want grab samples to be collected at the critical time when pollutant levels may be highest.

Questions to Consider

Are the sample types appropriate?

For instance, it doesn't make sense to require only a composite sample when you must comply with a daily maximum effluent limit. If you are taking a composite of several grab samples, you will average out the highest recorded value. It might make more sense to collect a grab sample at a time you suspect pollution levels are highest to measure your true daily maximum. At a minimum, make sure sampling requirements are sufficient to guarantee the enforceability of the permit.