New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York, 12233-3505

John P. Cahill
Commissioner

*****N O T I C E*****

This document has been developed to provide Department staff with guidance on how to ensure compliance with statutory and regulatory requirements, including case law interpretations, and to provide consistent treatment of similar situations. This document may also be used by the public to gain technical guidance and insight regarding how the department staff may analyze an issue and factors in their consideration of particular facts and circumstances. This guidance document is not a fixed rule under the State Administrative Procedure Act section 102(2)(a)(i). Furthermore, nothing set forth herein prevents staff from varying from this guidance as the specific facts and circumstances may dictate, provided staff's actions comply with applicable statutory and regulatory requirements. This document does not create any enforceable rights for the benefit of any party.

Date: February 26, 1998

TO: Regional Water Engineers, Bureau Directors, Section Chiefs

SUBJECT: Division of Water Technical and Operational Guidance Series (1.2.1)

INDUSTRIAL PERMIT WRITING

(Originators - Angus Eaton, Joseph Kelleher, Joseph DiMura)

Purpose To provide guidance to NYSDEC staff responsible for writing SPDES permits for discharges of wastewater from industrial facilities and for writing requirements equivalent to SPDES permits for discharges from remediation sites.

Discussion In writing SPDES permits for industrial dischargers, NYSDEC permit writers must determine three basic aspects of each permit: parameters to be regulated, allowable discharge limitations and monitoring requirements to demonstrate compliance with discharge limitations. As well as these basic aspects of discharge permits, there are numerous additional considerations such as Antibacksliding/Antidegradation review and the Great Lakes Initiative requirements.

The basic permit development process is as chronologically as follows:

1. Review the permit application, consult with the facility inspector and assemble all relevant file information.
2. Tabulate and analyze applicable data.
3. Determine substances to be regulated.
4. Develop Technology Based Effluent Limits/Projected Effluent Quality (PEQ) (surface water discharges only).
5. Water Quality Limits Evaluation/Reasonable Potential Analysis.
6. Antidegradation/Antibacksliding review
7. Complete the permit fact sheet and develop final draft permit conditions.
8. Notice of availability for public review.
9. Allow for public and permittee comments (possible multiple iterations)

10. Respond to public and permittee comments; final permit issuance.

This document is written to follow the above chronology as much as possible. To the extent that the chronology is not followed in this document it is because of the iterations that can occur in the permit writing process and because the actual water quality/reasonable potential analysis is done by the water quality engineer using TOGS 1.3.1 - TOTAL MAXIMUM DAILY LOADS AND WATER QUALITY BASED EFFLUENT LIMITS as guidance.

Other TOGS used directly in industrial permit writing include:

TOGS 1.1.1 - AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES,

TOGS 1.1.2 - GROUNDWATER EFFLUENT LIMITATIONS,

TOGS 1.3.2 - TOXICITY TESTING IN THE SPDES PROGRAM,

TOGS 1.3.6 - PHOSPHORUS REMOVAL REQUIREMENTS FOR DISCHARGES TO LAKES AND LAKE WATERSHEDS

TOGS 1.3.7 - ANALYTICAL DETECTABILITY AND QUANTITATION GUIDELINES FOR SELECTED ENVIRONMENTAL PARAMETERS

TOGS 121 - INDUSTRIAL PERMIT WRITING

Table of Contents

TABLES

ATTACHMENTS

ACRONYMS LIST

40CFR	Title 40 of the Code of Federal Regulations
AD Policy	Antidegradation Policy
AL	Action Level
AWQC	Ambient Water Quality Criteria
BAT	Best Available Technology Economically Achievable
BCC	Bioaccumulative Chemicals of Concern
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BOD_5	Biochemical Oxygen Demand, 5 day
BPJ	Best Professional Judgement
BPT	Best Practicable Control Technology Currently Available
BWP	Bureau of Water Permits
CAS	Chemical Abstract Service
COD	Chemical Oxygen Demand
CWA	Clean Water Act
DA	Daily Average
DM	Daily Maximum
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
DOW	Division of Water
EBPS	Environmental Benefit Permit Strategy
EDP	Effective Date of Permit
EDPM	Effective Date of Permit Modification
EPA	U.S. Environmental Protection Agency
GC/MS	Gas Chromatography/Mass Spectroscopy
GC	Gas Chromatography
GLI	Final Water Quality Guidance for the Great Lakes System
GPD	Gallons Per Day
ICS	Industrial Chemical Survey
LC50	Concentration which causes mortality in 50% of test specimens in a 48 and 96 hour acute test
MDL	Method Detection Limit
ML	Minimum Level
NCCW	Noncontact Cooling Water
NOEC	No Observable Effect Concentration
NYCRR	New York State Codes, Rules, and Regulations
NYSDOH	New York State Department of Health
PCS	Permit Compliance System
PEQ	Projected Effluent Quality
PMP	Pollutant Minimization Program
POTW	Publicly Owned Treatment Works
PQL	Practical Quantitation Limit
PST	Permit Summary Table
QAPS	Quality Allocation/Plans Section
RCRA	Resource Conservation and Recovery Act
RREL	USEPA Treatability database
RWE	Regional Water Engineer
SIC codes	Standard Industrial Classification codes

SPCC	Spill Prevention, Control, and Countermeasure plan
SPDES	State Pollutant Discharge Elimination System
STHIM	Short Term High Intensity Monitoring
TMDL	Total Maximum Daily Load
TOGS	Technical and Operational Guidance Series
TSCA	Toxic Substances Control Act
UIC	Underground Injection Control program
UIR	Underground Injection/Recirculation
VOC	Volatile Organic Chemical
WET	Whole Effluent Toxicity
WQ	Water Quality
WQBEL	Water Quality Based Effluent Limit
WTC	Water Treatment Chemical

I. INDUSTRIAL DISCHARGES TO SURFACE WATERS

A. APPLICATION REVIEW AND SITE VISIT

Discussion

SPDES permit applications should be processed thoroughly, quickly and efficiently. Frequently application processing is delayed because the application is incomplete. It is also true that the application is sometimes no substitute for a site visit. Details that are not clear from the application may be more clear from an onsite inspection.

Guidance

The permit writer should review the application within two weeks (potentially longer for complicated facilities) of receipt to assure that the application includes:

1. Appropriate contact person, person responsible for signing DMRs and an appropriate signature on the application.

2. A process description that can be used to determine the applicability of federal regulations.

3. A site diagram that can be used to show monitoring points in the permit.

4. An outfall description that allows determination of the discharge location and mixing zone(s).

5. Substance usage information necessary to determine if adequate monitoring information has been provided in the application.

6. The monitoring information necessary to develop a permit (see the following guidance on SUBSTANCES CONSIDERED FOR EXPLICIT PERMIT LIMITS OR REQUIREMENTS).

7. If the proposed discharge includes a new or increased discharge of Bioaccumulative Chemicals of Concern (BCCs as listed in table 4, page 25), the permittee must provide the information necessary to make an antidegradation determination. This information is detailed in Section I.B.5 (pg. 20).

If any of this needed information is not included in the application, the permit writer should solicit the necessary information. The information can be obtained by declaring the application technically incomplete and notifying the Division of Environmental Permits. Alternatively, if the UPA time frames have been suspended, the information can be obtained directly from the permittee.

Once the permit writer has received a technically complete application, the permit writer should consider scheduling a site visit. In determining whether a site visit is appropriate, the permit writer should weigh the extent of potential permit changes (as shown on the EBPS scoring sheet) against permit writer familiarity with the site.

B. TECHNOLOGY/ PROJECTED EFFLUENT QUALITY ANALYSIS

1. Substances Considered for Explicit Permit Requirements

Discussion

The first decision in permit writing is determining what substances to explicitly regulate in the permit.

The technique most frequently used to determine substances for explicit permit conditions is to start with the most inclusive lists and, as objectively as possible, cull those lists until the permit writer has a list of the substances to explicitly regulate in the permit.

The most comprehensive list includes all known substances. As of April 4, 1992, the chemical abstract service (CAS) had assigned 11,645,634 numbers to known substances. The scope of permit development that includes review of all such substances is insurmountably large for both permittees and regulatory agencies. To provide for a manageable scope of regulation, regulatory authorities have chosen to explicitly regulate fewer substances individually while providing environmental protection from the remaining (effectively infinite) substances through broad indicators such as whole effluent toxicity or biochemical oxygen demand.

The first group of substances that are considered for regulation in SPDES permits are substances for which the Department has ambient criteria and standards as listed in TOGS 1.1.1. and 6 NYCRR Parts 700-705.

The next group of substances that are considered for regulation in SPDES permits are the 126 USEPA priority pollutants. These pollutants are listed in the Table 6 of Application Form NY-2C for Industrial Facilities. The priority pollutant list was developed by EPA to represent 'toxic pollutants'; the Clean Water Act requires that toxic pollutants be regulated by SPDES permits.

The Department also considers hazardous substances listed under TSCA and RCRA as representative of toxic pollutants for the purposes of determining substances that must be regulated in SPDES permits.

Guidance

Initially, the permit writer should tabulate substances reported on the Industrial Chemical Survey portion of the application that would be likely to contact wastewater or otherwise be discharged, but, for which the effluent was not monitored.

From this tabulation, the permit writer should determine the substances for which the permittee should be required to monitor their effluent(s). At the same time, the permit writer should determine which substances have been detected but for which additional monitoring is needed to develop a permit limit, Action Level or monitoring requirement. In general, the more effluent data that is available, the more likely permit requirements developed from that effluent data are appropriate.

If such additional monitoring information is necessary, the permit writer should decide whether it should be required as part of the application process (prior to permit issuance or modification) or whether it would be more appropriate to include a short term, high intensity monitoring program for the substance in the permit (see Attachment A, generic permit pages). In general, the permit writer should have between 10 and 30 sample results prior to developing statistically based limits (see the following discussion on DEVELOPING PROPOSED TECHNOLOGY LIMITS, Statistically based limits).

If the permit writer determines that additional monitoring (or other information) is necessary to complete the permit drafting process the permit writer should declare the application technically incomplete and notify the Division of Environmental Permits or, if UPA time frames have been suspended, contact the permittee directly for the information.

Once the permit writer has obtained all the effluent monitoring data considered necessary, he or she should tabulate the substances that were reported on the application as detected.

The permit writer should eliminate from consideration substances measured at levels not considered to be environmentally significant; substances that are considered to be at ubiquitous background concentrations (for which there is clearly no reasonable potential

to violate water quality standards), substances whose detections are considered to be analytical artifacts, and/or substances which will be
adequately limited by effluent limits or an indicator parameter.

For each of the substances not eliminated from consideration, the permit writer should propose a technology limit, an Action Level, 'monitor only' or simply prepare a projected effluent quality level to allow for a determination of whether such levels have a reasonable potential to cause a violation of water quality standards.

2. Developing Proposed Technology Limits/Projected Effluent Quality

Definitions

***Best Available Technology Economically Achievable (BAT)**: Authorized under CWA Section 301(b)(2)(A), 40 CFR 122.44(a)&(e)(1&2), 40 CFR 125.3(2)(iii), 40 CFR 406 to 471, ECL 17-0811 and 6 NYCRR the 750 series. Technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.*

***Best Conventional Pollutant Control Technology (BCT)**: Authorized under CWA Section 301(b)(2)(E), 40 CFR 122.44(a), 40 CFR 125.3(2)(ii), 40 CFR 406 to 471, ECL 17-0811 and 6 NYCRR the 750 series. Technology based standard for the discharge of conventional pollutants from existing industrial point sources including BOD_5, TSS, fecal coliform, pH, oil and grease. The BCT is established using a two-part "cost reasonableness" test which compares the cost for an industry to reduce its pollutant discharge with the cost to a POTW for similar levels of reduction of a pollutant loading. The second test examines the cost-effectiveness of additional industrial treatment beyond BPT. EPA must find limits which are reasonable under both tests before establishing them as BCT.*

***Best Practicable Control Technology Currently Available (BPT)** : Authorized under CWA Section 301(b)(2)(E), 40 CFR 122.44(a), 40 CFR 125.3(2)(ii), 40 CFR 406 to 471, ECL 17-0811 and 6 NYCRR the 750 series. The first level of technology-based standards established by the CWA to control pollutants discharged to waters of the U.S., BPT effluent limitations guidelines are generally based on the average of the best existing performance by plants within an industrial category or subcategory. Because BPT has been supplanted by BAT and BCT in all other instances, BPT is only applied when proposed BCT limits fail the cost comparison with secondary treatment regulations for POTWs.*

***Best Professional Judgement (BPJ):** Authorized under CWA 402(a)(1)(B), 40 CFR 122.44(e)(1&2), 40 CFR 125.3(a)(2)(I)(B)-(v), 40 CFR 414.11(h) and 501.15(b), ECL 17-0811 and 6 NYCRR the 750 series. The method used by permit writers to develop technology-based permit conditions on a case-by-case basis for pollutants and wastewaters not addressed by 40 CFR 406 to 471.*

Discussion

In accordance with 40 CFR 122.44, there are three requirements for inclusion of limits in permits.

One requirement is for limitations to control all pollutants which are or may be discharged at a level which will cause, or have the reasonable potential to cause, or contribute to an excursion above State water quality standards. Another requirement is for limitations in accordance with federal technology (ie. 'categorical') based standards. The third requirement is for limitations for all substances that are or may be discharged at a level greater than the level which can be achieved by the technology-based treatment requirements appropriate to the permittee in accordance with the permit writer's best professional judgement.

The NYSDEC Division of Water permit writer first develops proposed technology based limits in accordance with federal technology standards or the permit writer's best professional judgement or develops Action Level or other monitoring requirements where the discharge is expected to be well below technology standards.

Technology based limits are developed to reflect the level of treatment considered economically achievable using established and available treatment technologies, irrespective of the predicted effect on the receiving stream. For facilities subject to federal technology standards, the parameters addressed by the federal regulation and achievable limits are set forth in the regulation; the permit writer must interpret the federal regulation to apply the limitation. For facilities that are not subject to federal regulation, or for facilities that are subject to federal regulation but discharge substances not explicitly limited by the regulation, the permit writer must apply BPJ to determine proposed technology based permit limits.

While not always directly attributable to protection of water quality in individual circumstances, water pollution control history demonstrates the importance of technology based limitations in improving overall water quality. Water quality based laws have been in place since the Rivers and Harbors Act of 1899, yet demonstrable and widespread improvements in water quality did not come until the Clean Water Act of 1972 imposed technology based standards.

Upon completion of the proposed technology based limits a DOW water quality engineer then evaluates whether discharge at the proposed technology limits has a reasonable potential to cause or contribute to a violation of water quality standards.

Section I.B.1. and I.B.2

Guidance

a. FEDERAL STANDARDS (BAT, BCT, BPT)

The permit writer should determine the applicability of federal standards by review of the permit application form NY-2C. A preliminary determination can be made considering the SIC code(s) assigned to the facility and Table 1.

TABLE 1 - CATEGORICAL INDUSTRIES

Selected SIC Codes - Primary Industries are in Bold Type, and marked by the character ¶

SIC Code(s)	Industry	SIC Code(s)	Industry
1031	Ore Mining, Lead and Zinc Mining	**2911**	**¶Petroleum refining**
1422, 1442	Mining and Quarrying Non-metallic Minerals		
201,2077	Meat Products	2951	Paving and Roofing Materials
202, 5143	Dairy Products	3011, 3021, 3031, 3041, 3069	Rubber products
2033, 2034, 2037, 2038	Canned and preserved fruit and vegetables	**3081 to 3089, 3432**	**¶Plastics Molding & Forming**
204	Grain mill products	**3111**	**¶Leather tanning finishing**
2061	Raw cane sugar	3211, 3231	Flat glass and glass products made from purchased glass.
2062	Cane sugar refining	3241	Hydraulic cement
2063	Beet sugar	327	Concrete, gypsum, and plaster products.
2077	Animal and Marine Fats and Oils	3292	Asbestos products
2084	Wines, brandy, and brandy spirits	**3312, 3315, 3316, 3317**	**¶Coke making, Blast furnaces, Steelworks, Hot forming, Rolling and finishing mills**
2085	Distilled liquor, except brandy	**332**	**¶Iron and steel foundries**
2086	Bottled and canned soft drinks	**3321,3322,3324,3325,3363, 3364,3365,3366**	**¶Metal Molding & Casting**
2091, 2092	Sea foods	333	Primary smelting and refining of nonferrous metals
2211 to 2299	**¶Textiles**	**3331,3334,3339,3341**	**¶Non-ferrous Metals Manu.**
2421	Sawmills and planing mills	334	Secondary smelting and refining of nonferrous metals
2435, 2436	Veneer and plywood	**3351,3357,3398**	**¶Copper Forming**
2491	**¶Wood preserving**	**3353,3354,3355,3463**	**¶Aluminum Forming**
2492	Particle board	**3356,3357,3463,3497**	**¶Non-ferrous Metals Forming**
2611,2621,2631	**¶Pulp & Paper**	336	Non-ferrous foundries
2812, 2813, 2816, 2819	**¶Inorganic chemicals**	**3411,3479,3497**	**¶Coil Coating**
2821, 2823, 2824, 2891, 3079	Plastic materials and synthetics industry	**3431,3469,3264**	**¶Porcelain Enameling**
2822	Synthetic rubber (vulcanizable elastomers).	3465, 3711, 3714	Automobile manufacturing
283	Drugs and pharmaceuticals	**3471,3479,3679,3672**	**¶Metal Finishing**
2833,2834,2835,2836,2844	**¶Pharmaceuticals**	**3471,3479,3679,3672**	**¶Electroplating**
2841	Soap and detergents	**3671,3672,3674,3679**	**¶Electrical & Electronic Components**
2824,2865, 2869	**¶Organic chemicals**	**3691,3692**	**¶Battery Manufacturing**
2873, 2874, 2875	Fertilizer industry	**4911, 4931**	**¶Steam Electric**
2879	**¶Agricultural chemicals and pesticides**	4961	Steam supply

However, the correlation between the SIC code and the federal regulation is not always exact. Therefore, the preliminary SIC code based

determination should be confirmed by an examination of the applicable federal technology standards regulations contained in 40 CFR Parts 406 to 471, the USEPA Development Documents associated with each federal technology standard regulation, discussions with the USEPA offices responsible for development of categorical regulations and facility site visit(s).

If the permit writer determines that the facility is subject to a federal standard the permit writer must include the BPT, BCT and BAT limits included in those standards. In accordance with 40 CFR 122.45, limits from federal standards are intended to be expressed as mass limitations. The following guidance on concentration and production based standards is intended to assist the permit writer in deriving mass discharge limits using the federal standards.

b. PRODUCTION BASED FEDERAL STANDARDS

Discussion

The proper application of production-based categorical standards is related to the methodology that EPA uses to develop the standards. Categorical standards are developed in such a way that they are expected to be achievable; normal variation in day-to-day production rates and effluent quality not withstanding. When most standards are developed, a long-term average production value and its relationship to flow are determined for each industrial facility selected for in-depth study. Variability factors are developed using effluent concentration or mass data obtained by a field sampling program.

EPA's variability analysis yields a determination of the achievable maximum daily or maximum monthly average, concentration or mass per day. This effluent data is then combined with the long-term average production and flow rates to yield a production-based standard. When using equivalent limits to implement production-based standards, the objective is to determine a production rate that approximates the long-term average rate that can reasonably be expected to occur during the term of the permit. In this context, long-term average means an average based on the production over an extended period of time that captures a normal range of variation in production. Because of the way the standards are developed, using just the data for a short period of high production or low production is likely to result in equivalent limits that are unreasonably high or unreasonably low.

Guidance

Existing Facility

Production based limits should be based on a facility's actual production rate, not designed production capacity. Historical information, if available and representative, generally provides the best basis and should be given more weight than projections of future production. To determine a long-term average production rate, five years of production data should be examined, if possible. It is important to ask the applicant to explain any trends or outstanding features of the historical data, especially what the causes were and if they are likely to be repeated in the future. If some of the data are not representative of normal operation and are due to specific events which are not expected to recur, the data should be disregarded.

In the absence of category-specific EPA recommendations or anomalies that are not likely to be repeated during the upcoming permit term or trends not representative of future production rates, the highest annual average of daily production data in the available historical record should be used. A notable exception is the Dairy industry where limitations should be developed based on the highest production month in the previous year to correspond to the 'spring flush' when the most calves are born and the most milk is processed.

However, if it can be shown to the permit writers satisfaction by clear and convincing evidence that (1) production rates during the permit term are expected to vary from historic production rates and (2) production forecasts are reliable, future production forecasts should be used.

Tiered Permits

In some cases the permit writer may determine that historical production levels are not indicative of expected future production. When a significant change in average production is expected during the term of a permit, the permit writer may propose a tiered permit.

A tiered permit is structured so that the permittee is given one set of limits for the current production rate and another set of limits is specified to take effect when there is a significant predetermined change in the production rate. The alternate limits would either

become effective at a specific time, or triggered by notification that production has exceed a threshold value. Definitive guidance is

not available with regard to the threshold value which should trigger alternate limits. However, it is generally agreed that a 10 to 20 percent fluctuation over the long term is within the range of normal variability, while greater changes could warrant consideration of alternate limits.

The practicality of a tiered permit should be considered carefully before proposing tiered limitations. On the one hand, where a production increase is likely later in the permit term, a tiered permit can eliminate the need to reopen the permit at that time. On the other hand, if the production increase does not happen, the tiered permit unnecessarily encumbers the receiving water allocation.

If a tiered permit is being considered, the permittee should first be required to demonstrate that its actual average production rate is currently substantially below maximum production capability and that there is a reasonable potential for an increase above the actual rate during the term of the permit. A tiered permit may also be appropriate where a significant decrease in the average production rate is expected during the term of the permit. Since tiered permits generally require increased technical and administrative efforts on the part of the Department to ensure that permit conditions are not violated, the number of tiers in the permit should not exceed the number necessary to address the reliably anticipated range of production.

To provide for administration of a tiered permit, the permit should include a requirement for reporting production rate(s).

New Facilities

New industrial facilities or existing facilities that have changed to new processes will not have historical production information that can be used to develop equivalent limits. Furthermore, some facilities have historical data, but the quantity that was measured is not the same as the one specified in the standards and the two cannot be related by deriving a correlation. Without useable historical data, the permit writer will have to rely on the industrial user's projections of what the actual production rate is expected to be in the future.

Projections are often unreliable indicators of actual future production regardless of the method used in making them and the earnestness of the effort to make reasonable assumptions. Therefore, it may be most efficient to write a permit with limits based on the projected production rates. If actual production varies from the projected production by 20 % or more for a significant period, revise the limits in accordance with established Department priorities.

Mass Limits Based on Flow and Concentration

When determining a flow basis to be used with concentration limitations to calculate mass limits, the guidance to permit writers is very similar to that described for determining an appropriate production basis. The guidance can be summarized as follows:

Project the actual long-term average rate, neglecting contributions from non-categorical flows (e.g. non-contact cooling water and storm water); for example, the normal daily average during a representative year.

Use the actual rate rather than the design rate; emphasize historical data rather than future projections.

Use the same average rate to calculate both daily maximum and maximum monthly average alternate limits.

Establish a rate that is expected to be representative during the entire term of the permit or other control mechanism.

Avoid the use of data for too short a time period. In particular, estimating the average rate based on data from a few high days, weeks, or months is not appropriate.

Reevaluate limits periodically. If the actual average rate changes by more than 20 percent from the estimated rate used as the basis for mass limits, then the permit writer should consider revising the limits. The limits should not be revised where the

change is a reduction in levels due to proactive discharge minimization by the permittee.

c. LIMITS DEVELOPED IN THE ABSENCE OF FEDERAL STANDARDS (BPJ/BAT, BPJ/BCT, BPJ/BPT)

Discussion

Limits for toxic pollutants (BAT) and limits for conventional pollutants (BPT and BCT) developed for application to wastewaters or pollutants not subject to federal standards are derived in accordance with 40 CFR 125.3, (Permit Writer's Best Professional Judgement - BPJ).

40 CFR 125.3 sets forth criteria for setting BPJ/BCT limits. To set BPJ/BCT limits, 125.3 requires permit writers to consider:

(i) The reasonableness of the relationship between the costs of attaining effluent reduction and the effluent reduction benefits derived;

(ii) The comparison of the cost and level of reduction of such pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources;

(iii) The age of equipment and facilities involved;

(iv) The processes employed;

(v) The engineering aspects of the various types of control techniques;

(vi) Process changes; and

(vii) Non-water quality environmental impact (including energy requirements).

If the permit writer determines that BPJ/BCT limits would be unreasonable in accordance with (i), then BPJ/BPT limits are to be set in considering (ii) through (vii).

To set BPJ/BAT limits permit writers must consider (iii) - (vii) above as well as the cost of achieving effluent limitations.

BPJ limits may be set using any reasonable method that takes into consideration the criteria set forth in 40 CFR 125.3. The Division of Water has developed a summary of the concentrations achievable using different model technologies. These concentrations can be used along with the flow assigned for the facility to determine a mass based limit. Another method of setting BPJ limits is to accept the treatment process, treatment operation and/or waste minimization process employed at a facility as BAT, BCT or BPT, then set limits based on a statistical analysis of the historical dataset. The permit writer may accept proposed treatment technology as BAT, BCT or BPT, then set interim limits until a sufficient effluent data set can be generated to set limits based on statistical analysis.

Guidance

Model Technology

The Division of Water, Bureau of Water Permits maintains a summary, included in Attachment C, of the discharge concentrations achievable by model technologies. This summary is developed from sources that consider the criteria set forth in 40 CFR 125.3 and is the fastest way to develop BPJ effluent limits. Permit writers may also, on a case by case basis, consult:

NPDES Industrial Permit Abstracts (USEPA, 1993)

The EPA Treatability Database (RREL)

The Workbook for Determining Economic Achievability of NPDES Permits (USEPA, 1982)

Industry Experts within EPA Headquarters, Regions and other States

Effluent Guidelines Development Documents

Section I.B.2.b and I.B.2.c

Permit Compliance System (PCS) Data

The EPA Innovative and Alternative Technology Assessment Manual (USEPA, February, 1980)

Technical Journals or Textbooks

The Division of Water, Bureau of Water Permits maintains a library that contains most of the reference materials cited herein, with the exception of the lesser used development documents and technical journals and textbooks.

Just as limits from federal standards are generally expressed as mass limits, in accordance with 40 CFR 122.45, so too should BPJ limits. Wastewaters that are exceptionally variable, such as those that have a large storm water component or batch discharges should be transmitted for water quality/reasonable potential review as concentration limits.

Also different from implementation of federal standards, the permit writer has the latitude to use representations of the variability of wastewater flows (generally 95th percentile for Daily Average limits and 99th percentile for Daily Maximum limits) to calculate mass limits rather than the long term average flows required by federal standards.

Statistically Based Technology Limits

If the permit writer accepts the existing treatment process, treatment process operation and/or waste minimization processes employed at a facility as BAT, BPT or BCT, then the permit writer may set limits for discharges from the facility based on a statistical analysis of the historical monitoring data set. The algorithms the permit writer should use are contained in the Technical Support Document for Water Quality Based Toxics Control (USEPA, March, 1991) (hereafter referred to as the TSD), in Attachment D and in the spreadsheet associated with this TOGS. It would also be reasonable to use one of the commercially available statistical software packages that provide sufficiently powerful data analysis tools.

The statistical algorithms presented in Attachment D differ slightly from those presented in the TSD, in that each data point is transformed by adding the value of 1 to it prior to taking its natural logarithm. This value is subsequently subtracted prior to final determination of the effluent limit.
This transformation is employed because, for numbers less than 1 or when the data point is zero (such as with net limitations), the natural logarithm transformation returns a negative number or an indeterminate result, which can erroneously exaggerate the variability of the data set and thereby result in less accurate limit determinations.

Generally, Monthly Average limits are based on 95th percentile loadings and Daily Maximum limits are based on 99th percentile loadings. In calculating statistically based limits, the permit writer should determine what data to exclude from the analysis. The exclusion criteria can be based on statistics (e.g. excluding statistical outliers) or treatment technology (e.g. TSS levels exceeded 10 mg/l, pH was less than 7.0 SU or the datum is from a day when a process upset occurred, data not representative of normal operations).

It is also worthwhile to note that PCS data sets are often incomplete in that they only include monthly data points. When monitoring is more frequent than monthly, the daily maximum monthly data points will skew the data set upward. A full data set, including both concentration and mass loadings where appropriate, is the most accurate source for statistically based limits.

As a corollary to the notion that limits may be established based on a historical data set, the permit writer may also accept proposed treatment technology as BAT, BCT or BPT and establish interim limits until a sufficient effluent data set can be generated to set limits based on statistical analysis. This method of determining limits is best applied using more frequent effluent monitoring during the period when data that would be used to determine limits is to be collected. A minimum of 10 sample results should be used to calculate limits, with at least 30 sample results being the preferred basis for limit setting.

d. DAILY MAXIMUM AND DAILY AVERAGE LIMITS

Definitions

Daily Discharge *- the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated at the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the day.*

Daily Maximum (Maximum Daily Discharge Limitation) *- highest allowable daily discharge.*

Daily Average *- The highest allowable average of daily discharges of a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.*

Discussion

40 CFR 122.45(d) requires that, unless impracticable, continuous discharges from industrial facilities be limited on a maximum daily and average monthly basis.

The federal technology based effluent limitations guidelines contain both Daily Average (DA) and Daily Maximum (DM) limits for substances limited by those regulations. The BPJ model technology spreadsheet (Attachment C) also, in many instances includes both DA and DM limits. When calculated from historical data sets DM limits are usually 99th percentiles and DA limits are usually 95th percentiles. When calculated values are not available for both DA and DM limits, a good rule of thumb derived from countless studies of effluent data is that the DM to DA limit ratio varies from 1.5 to 2.0 for continuous discharges.

In cases where monitoring for a parameter will be once per month or less frequently, then a returned monthly sample result is equal to the calculated Daily Average and the Daily Maximum.

Where water quality standards are only promulgated to protect against acute effects, water quality based effluent limits (WQBELs) would generally be expressed as Daily Maximum limitations. If, the calculated Daily Maximum WQBEL is low enough, the daily average technology based limitation may be rendered moot. Similarly, where water quality standards are only promulgated to protect against chronic effects, water quality based limitations would only be Daily Average limitations. If, the calculated Daily Average water quality based limitation is low enough, the daily maximum technology limitation may be rendered moot.

Where a Compliance Levels based on the PQL as recommended in Section I.B.6 of this guidance, setting a daily average limit and a daily maximum limit could result a daily maximum limit equal to a daily average.

Guidance

The permit writer may propose a Daily Maximum limit and no Daily Average limit where the monitoring frequency is once per month or less frequently.

Where the calculated WQBEL is a daily maximum limit that is less than 1.5 times the calculated daily average technology based limit, the permit writer may propose the Daily Maximum WQBEL and no Daily Average limit.

Where the calculated water quality based effluent limit is a daily average limit that is less than half the calculated daily maximum technology base limit, the permit writer may propose only the Daily Average Water Quality Based limit.

Where the limit is based on the PQL and that limit would be less restrictive than either the calculated Daily Maximum or the calculated Daily Average, the permit writer may propose a Daily Maximum limit and no Daily Average limit.

e. METALS, TOTAL AND TOTAL RECOVERABLE LIMITS

Discussion

40 CFR 122.45(c) requires that limits for metals be written as limits on the total recoverable portion of metal in a sample, except for hexavalent chromium or as set forth in accordance with federal technology regulations. This provision prevents discharges of high concentrations of metals, limited only for dissolved metals,

from entering the receiving water with some portion of the insoluble metals being converted back to the soluble form.

Federal regulations for technology based metals limits are all expressed as total metal.

Guidance

Water quality based metals limits should be written on the total recoverable form. Additional monitoring for the dissolved form should be required when the standard is for the dissolved form.

Technology based limits for metals should be expressed as total metal.

f. LIMITS ON REQUIREMENTS FOR INSTALLATION OF NEW TECHNOLOGY

Discussion

Both the Clean Water Act and Environmental Conservation Law establish restrictions of one sort or another on the establishment of technology based limits that require installation of additional treatment technology. While there has been some disagreement about the exact interpretation of these restrictions, some restriction is necessary to allow for the amortization of pollution control equipment that is part of the technology analysis.

Guidance

If BPJ technology based effluent limits have been imposed in the last 10 years, the permit writer should not impose new BPJ technology based limits that require installation of additional treatment technology, unless the treatment technology is for reducing discharges of newly disclosed pollutants. The permit writer should, however, use a statistical analysis of effluent data from the operation of the facility to develop BPJ technology based permit limits that provide the most accurate representation of actual discharge rates.

3. Action Levels and Monitor Only Substances

Discussion

An Action Level is not an effluent limit. Action Levels may be developed for parameters reported present in the discharge at levels that currently do not warrant technology or water quality based limits. "Action Level" means that the parameter is specified in the permit with monitoring requirements and a numerical threshold. This numerical threshold differs from a limitation. If the threshold is exceeded, the permittee is required to conduct a confirmatory monitoring program for that parameter. If Action Levels are routinely or excessively exceeded, they will be reconsidered and adjusted or replaced by limits in accordance with established Department priorities. An Action Level exceedance .does not constitute a permit violation unless the confirmatory sampling is not performed in accordance with the requirements specified on the Action Level permit page. While an Action Level is not a limit, there is an incentive not to exceed it in order to avoid increased permit scrutiny and the cost of performing the confirmatory sampling.

There are two types of Action Level requirements in current use (see Attachment A). For type I requirements the permittee must perform the confirmatory sampling if the numerical threshold is exceeded. For type II requirements the permittee only need perform the confirmatory sampling if the numerical threshold is exceeded and certain statistical criteria are met. Typically, type I requirements are applicable when Action Levels are developed with non-statistical methods and type II requirements are applicable when Action Levels are developed with statistical methods.

Action Levels are intended to be representative of current discharge levels. Therefore, Action Levels should be set at a level which is representative of expected actual discharge. The permit writer must examine the available data and use their judgement to determine an Action Level. An Action Level cannot be substituted for a federal BPT, BCT or BAT requirement. An Action Level cannot be established equal to or greater than the calculated Water Quality Based Effluent Limit (WQBEL). An action level may be substituted for the calculated WQBEL when it has a lower value.

"Monitor Only" means that the parameter is specified in the permit with monitoring requirements but no effluent limitations or .Action Level. This is appropriate when the parameter is expected or confirmed in the effluent, there is some concern or interest for this parameter, there is insufficient data or justification to develop effluent limits or an , and, the data collected can be used later to make decisions. Also, monitor only requirements can also be useful for certain compliance schedule interim period situations.

Section I.B.2.e, I.B.2.f and I.B.3

Guidance

For discharges of substances that exceed one pound per day but would not be subject to a Technology or Water Quality Based Effluent Limit, the permit writer should develop an Action Level that, when exceeded, is a good indication that the quality of the effluent has changed and must be re-evaluated.

In developing Action Levels the permit writer may use the following table as a guide:

TABLE 2 - ACTION LEVEL DEVELOPMENT

# of Data Points	Action Level	A.L. Type
1 to 3	3 to 5 times the maximum reported discharge (or require additional monitoring prior to setting an Action Level)	Type I
3 to 9	2 times the maximum reported discharge	Type I
10 or greater	The calculated log normal 95th or log normal 99th percentile (see Attachment D)	Type II

If neither an effluent limit nor an Action Level is appropriate or if there is insufficient data to develop an Action Level or effluent limit but there is reason to collect discharge monitoring information for a substance, the permit writer should consider including the subject parameter in a effluent limits page with monitoring requirements, but no limits. Table 3 below provides guidance for what to recommend for water quality/reasonable potential review; technology limit, Action Level, monitoring only or no explicit permit requirement.

TABLE 3 - LIMIT, ACTION LEVEL, MONITOR ONLY, NO EXPLICIT REQUIREMENT

LIMIT	ACTION LEVEL	MONITOR ONLY	NO REQUIREMENT
PEQ is greater than one quarter to one half of Attachment C level	PEQ is less than one quarter to one half of Attachment C level	PEQ is less than one tenth of Attachment C level	Sporadic detections that are less than one tenth Attachment C level

4. Antibacksliding (Parts of this section also apply to WQBELs)

Discussion

Sections 402(O) and 303(d)(4) of the Clean Water Act restrict the circumstances under which permit limits already in effect may be made less stringent. The implementing regulations for these CWA provisions are at 40 CFR 122.44 (l) and are commonly referred to as antibacksliding provisions. The rules governing exceptions to the antibacksliding provisions are summarized below.

Antibacksliding for All Limitations

In accordance with 40 CFR 122.44 water quality and technology based limits may be made less stringent if:

(i) *Material and substantial alterations or additions to the permitted facility occurred which justify a less stringent limitation, or*

(ii) *The Department receives new information that supports a less stringent limitation and which was not available at the time of permit issuance, or*

(iii) *The permittee has not been able to comply with the permit limit and the limit was based on a federal standard or state water quality standard and the standard has been changed.*

In any case, if limitations are to be made less stringent, they must still assure compliance with federal technology standards and state water quality standards.

Additional Antibacksliding for BPJ Limitations

In addition to (i) to (iii) above, the antibacksliding regulations state that permit limits based on BPJ may be relaxed when one of the following conditions apply:

(i) *A less stringent limit is justified by changes to the permitted facility that occurred after permit issuance. Most commonly this provision would be invoked to increase a BPJ based limit to account for increases in production or*

(ii) *New information (other than revised regulations, guidance or test methods) became available which would have justified a less stringent limitation or*

(iii) *Technical mistakes or mistaken interpretation of law were made in issuing a BPJ permit limit or*

(iv) *Good cause exists due to events beyond the permittee's control and there is no reasonably available remedy or*

(v) *A variance has been granted under Section 402 of the Clean Water Act. In general, these variances are either obscure or the application deadlines have passed or*

(vi) *Properly selected, installed and operated treatment did not meet the limit. A good way to determine if a permit limit has been met is to compare statistical analysis of historical discharge data to the permit limits in effect. Under this exception, permit limits are intended to be relaxed only to the level that is already being achieved as indicated by the statistical analysis.*

Antibacksliding for Water Quality Based Limitations

In accordance with CWA Section 303(d)(4) Water Quality Based Effluent Limits may be made less stringent if:

(i) *For non-attainment waters (for that substance) if the limit is based upon a final or interim TMDL or other waste load allocation method and the TMDL is set to assure attainment of the water quality standard.*

(ii) *For attainment ("High Quality") waters (for the substance) if the revised limit has been subjected to an Antidegradation Review in accordance with the State's Antidegradation policy.*

Guidance

The permit writer should determine if the permittee is in compliance with effluent limits by comparing the 95th percentile of the historical effluent monitoring database with the existing daily average effluent limits and the 99th percentile of the historical effluent monitoring database with the existing daily maximum effluent limits.

For water quality based permit limits, permit writers should not set less stringent permit limits unless the permittee is not complying with existing permit limits and one of the above mentioned exceptions applies.

For technology based permit limits, permit writers should not set less stringent permit limits unless the permittee is not complying with existing permit limits and one of the above mentioned exceptions applies or a facility expansion is expected to cause future violations of the existing technology limits.

5. Antidegradation Applicability Criteria

Discussion

40CFR132.4 requires the state to adopt an Antidegradation policy consistent with (as protective as) Appendix E to Part 132. This Policy is applicable to all discharges to waters of the Great Lakes Basin and applies to all new or increased discharges of a Bioaccumulative Chemical of Concern (BCC) as listed in Table 4 on page 25 .

The protection of waters from the lowering of water quality is outlined in the NYSDEC Organization and Delegation Memorandum No. 85-40 Water Quality Antidegradation Policy (AD Policy) dated September 9, 1985. The AD Policy protects the existing quality of waters in New York State unless it is demonstrated that the allowing degradation of water quality is necessary to accommodate significant economic or social development in the affected area and the water quality will be adequate to meet the existing use after allowing the lowering of water quality.

Implementation of the NYSDEC Antidegradation Policy for all waters in New York State is based upon the AD Policy. For discharges to the Great Lakes Basin, determination of applicability will be based upon the Antidegradation TOGS.

Guidance

For any new or increased discharge of any pollutant, the Permit Writer should note the increase on the transmittal of the fact sheet to the Water Quality Engineer.

For any new or increased discharge into the Great Lakes Basin of any of the identified BCCs, the permit writer should assure that the applicant has provided the following information for antidegradation determination:

(i) A description of all Pollution Prevention and Waste Minimization Measures taken to reduce the proposed discharge,

(ii) A description of all available treatment alternatives and associated costs for the new or increased discharge of BCC(s) and

(iii) A description of all of the social and economic benefits associated with the increased discharge.

This information should be transmitted to the antidegradation analyst for antidegradation review.

Attachment I contains a supplement to the industrial permit application (NY-2C) that solicits the above information on BCCs.

6. Limits Based on Analytical Technologies (This section also applies to WQBELs)

Discussion

The Division of Water's Technical Services Section has published a manual entitled Analytical Detectability and Quantitation Guidelines for Selected Environmental Parameters (DEC Detectability Manual). This manual gives method detection limits (MDLs) and practical quantitation limits (PQLs) for almost 400 substances or groups of compounds using USEPA published analytical methods. The MDLs given in the manual represent the concentration at which a properly operated analytical laboratory can assure the presence of a substance in distilled water. Detection of a substance at the MDL represents a 99 percent probability that the substance is present. However, an analytical result at the method detection limit is considered to have an accuracy of plus or minus 100%. The PQLs given in the manual represent the concentrations at which a properly operated laboratory can accurately (within 30%) report a concentration for a substance in distilled water.

In addition to the PQLs predicted in the DEC Detectability Manual, 40 CFR Part 136 allows for calculation of effluent specific MDLs and PQLs through method detection limit (MDL) studies. In these studies known amounts of analyte are added to wastewater samples, the samples are subjected to repeated analysis and statistics are applied to the resultant multiple sample results to calculate the MDL.

The DEC published MDLs and PQLs may differ from effluent specific MDLs and PQLs calculated in accordance with 40 CFR Part 136. Effluent specific MDLs and PQLs vary with laboratory, laboratory technician, time and sample matrix.

It is now common practice to set water quality based effluent limits no lower than a level that can be reasonably enforced through monitoring with USEPA approved analytical procedures.

In the Great Lakes Water Quality Guidance for the Great Lakes System in 40 CFR Parts 9, 122, 123, 131, and 132 (the GLI), EPA includes requirements for using EPA Minimum Levels (MLs) as the lowest reasonable levels at which to set permit limits. EPA MLs are roughly equivalent to DEC PQLs.

Section I.B.5 and I.B.6

The Great Lakes Guidance also includes requirements for implementation of Pollutant Minimization Programs (PMPs) when limits are set based on USEPA approved analytical procedures. PMPs are permit conditions that require the permittee to perform wastewater collection system monitoring, reductions and reporting. PMPs are explained in more detail in Section I.E.4 of this guidance.

Another consideration in evaluation of analytical chemistry results is the reliability of the analytical procedure. Chemists use the term "robust" to describe analytical procedures that tend to provide more reliable results than other analytical procedures. It is important to balance lower detection limits of some analytical procedures against lower reliabilities. One example is Gas Chromatography (GC) versus Gas Chromatography/Mass Spectroscopy (GC/MS). GC tends to provide lower detection levels but GC/MS tends to be a more robust analytical procedure.

Although multiple sample results at or near the MDL are useful information that can and should be used to characterize effluents, permit writers should have low confidence in single sample results at or near the MDL. On the other hand it is reasonable to have higher confidence in single sample results at or near the PQL.

Guidance

Because single sample results are used to determine compliance with permit limits, **Compliance Levels should be set no lower than can be measured at the PQL as defined in the DEC Detectability Manual.**

When **Compliance Levels** are set at the PQL higher than the calculated Water Quality based effluent limit, three conditions should be applied by the permit writer as follows:

(i) include the **Compliance Level** and the water quality based effluent limit (the **Calculated Limit**) in the permit using the format shown in Attachment A, and

(ii) if recommended in accordance with Section I.E.4 of this guidance, include a PMP requirement and

(iii) include the lowest reasonable MDL and PQL that the permittee is 'to make all reasonable attempt to achieve' in the permit using the format shown in Attachment A.

Finally, the permit writer should consider, as an alternative to a PMP and setting a PQL based limit, setting the limit on an internal outfall (as an internal monitoring point for an end-of-pipe limit) as described in Section I.B.7 of this guidance.

If the Department is petitioned to base the limit on a PQL from an effluent specific MDL/PQL study rather than using the DEC Detectability Manual, the permit writer should only use the site specific PQL if it is approved by the Department and is far different from the PQL provided in the DEC Detectability Manual. Wherever practical, demonstration that the site specific PQL is dramatically different from the DEC Detectability Manual PQL should be made during the permit application period. Such demonstrations are reviewed for acceptability by the Division of Water Chemist.

Using PQLs from the DEC Detectability Manual as the basis for limits provides for consistent effluent limits. If effluent specific PQLs are used as the basis for limits, the basis is that much more subjective and the limits could change each time an MDL study is performed.

For a substance not covered by the DEC Detectability Manual and which the permit writer believes must be limited in the permit, the permit writer may require a distilled water MDL study as part of the application process. The results of the distilled water MDL study should then be reviewed by the DEC chemist. If the study was performed correctly the resulting PQLs can then be used to set permit limits. Alternatively, it may be expedient for the permit writer to require an effluent specific MDL study in the permit with monitor only requirements for the substance until the completion of the study.

Section I.B.6

7. Internal Limits

Discussion

End-of-pipe limits may not be a completely effective tool to control discharges of pollutants in cases where (i) the final discharge point is inaccessible, (ii) an internal point is the predominant source of a substance and wastewater would be diluted such that the end-of-pipe water quality based effluent limit could not be imposed due to analytical technology restrictions and/or (iii) an internal point is subject to technology based limits and the wastewater from that point would be diluted or disguised at the end-of-pipe such that compliance with technology limits could not be assured with end-of-pipe monitoring.

In addition, there are cases where monitoring internal outfalls will provide data necessary to track sources of non-compliance.

40 CFR Part 122.45(h) authorizes the imposition of limits on internal waste streams but also requires that the reasons for imposing such limits be described in the fact sheet.

This issue is confused by one court decision that states that setting internal water quality based effluent limits is not in authorized by the Clean Water Act while (two other court decisions state that setting internal limits is authorized by the Clean Water Act).

Guidance

Where limits on an internal outfall are necessary because:

(i) the final discharge point is inaccessible,

(ii) the internal point is the predominant source of a substance and wastewater would be diluted such that the end-of-pipe water quality based effluent limit could not be imposed due to analytical technology restrictions and/or

(iii) the internal point is subject to technology based limits and the wastewater from that point would be diluted or disguised at the end-of-pipe such that compliance with technology limits could not be assured with end-of-pipe monitoring. to adequately control discharge of a substance from a facility,

the permit writer should designate that outfall and set limits and monitoring on that outfall. Outfall designation should be as 0XA or 0XB, etc. where X is the end of pipe outfall number and A or B, etc. distinguish between multiple internal outfalls. For example, the first outfall internal to outfall 001 would be designated 01A. Additional examples may be found on the last page of the fact sheet format included in attachment E.

To avoid confusion over whether internal limits are authorized by the Clean Water Act and achieve the same water quality improvements as would be effected by internal limits, internal outfall water quality based effluent limits may be considered as end of pipe limits at an internal monitoring point.

8. Indicators For Technology-Based Controls

Discussion

40 CFR 122.44(e) requires that limitations control all toxic pollutants which the permit writer believes may be discharged at a level greater than can be achieved by the appropriate technology based treatment requirements. This does not mean that every toxic pollutant must have an individual limitation. Under 122.44(e)(2) the permit writer is allowed to determine that limiting one pollutant (or pollutants) will adequately control the discharges of other pollutants. Examples of pollutants with limits and other pollutants that could be determined to be adequately controlled are:

(1) Limits on oxygen demanding pollutants controlling the discharge of readily biodegradable substances (BOD is greater than one gram per gram of substance),

(2) Limits on pH controlling the discharge of acidic or basic compounds,

(3) Limits on Oil and Grease controlling the discharge of non-polar substances, and/or

(4) Limits on one or more substances from a wastewater treatment process designed to treat those substances, which will adequately control of other substances also treated by that wastewater treatment process.

Whenever the permit writer chooses to limit a substance through the use of an indicator, the permit writer is required, in accordance with 40 CFR 124.56(b)(1)(iii) to so note in the fact sheet.

Guidance

The permit writer may consider whether the discharge of a pollutant, that would otherwise be subject only to a technology based limit, will be adequately controlled by an indicator limit. If an indicator limit is used, include in the fact sheet all relevant information that went into the decision to use an indicator limit.

9. Intake Pollutants (Technology Limits)

Discussion

40 CFR Part 122.45(g) allows for technology based effluent limitations to be adjusted to reflect credit for pollutants in the intake water if the intake water is from the same body of water to which the discharge is directed.

Guidance

In the development of a technology based effluent limit for a substance present in the intake for a facility, where the intake is from the same body of water, the permit writer may consider adjusting the effluent limits to account for intake pollutants (i.e. net limits).

An intake is defined as being from the same body of water as the discharge if:

(i) The concentration of the pollutant in the intake is similar to the ambient background concentration of the pollutant in the receiving water; and

(ii) There is a direct hydrological connection between the source water (intake point) and the discharge point (eighth same drainage basin or sub-basin); and

(iii) For inorganic intake pollutants, the water quality characteristics of the intake water and receiving water are similar (e.g. hardness, pH, salinity).

When allowing for net limits from a single intake water source the permit writer should use the footnote contained in Attachment H for single intake source net limits.

There are also cases where the intake water may come from several bodies of water. In this case the permit writer may allow for a flow weighted net limit. For these cases the permit writer should use the footnote contained in Attachment H for multiple intake source net limits.

As an alternative to setting net limits, where the intake water is not excessively variable, the permit writer may choose to calculate the technology limit that includes an allowance for the pollutant in the intake water. Provided that there is sufficient intake database to be sure variability of intake water quality is low, this approach is preferable to intake credits in that determinations of compliance with the limit are simpler for both the permittee and the Department.

Section I.B.8 and I.B.9

C. WATER QUALITY/REASONABLE POTENTIAL ANALYSIS

1. Water Quality Analysis Request

Once the permit writer has prepared proposed technology limitations, the permit writer should complete the outfall summary and technology limits portions of the permit fact sheet as a prelude to water quality review. The format for the fact sheet is included in Attachment E and a discussion of fact sheets is included in the next section.

The partially completed fact sheet should be transmitted to the water quality engineer for review to determine if water quality based effluent limitations should be included in the permit and if Whole Effluent Toxicity (WET) testing should be considered. The transmittal should state:

(i) whether the permit action is subject the uniform procedures act and

(ii) whether any limits are to be made less stringent than existing limits or whether there is an increase in discharges that would be authorized under the proposed permit limits;

(iii) whether antidegradation review is triggered and/or how antibacksliding regulations have been interpreted and applied;

(iv) whether the permit writer is proposing to authorize discharge of Bioaccumulative Chemicals of Concern (see Table 4 below);

TABLE 4
BIOACCUMULATIVE CHEMICALS OF CONCERN

NAME	CAS NUMBER
Chlordane (also CAS # 12789-03-6)	57-54-9
4,4'-DDD; p,p'-DDD; 4,4'-TDE; p,p'TDE	72-54-8
4,4'-DDE; p,p'-DDE	72-55-9
4,4'-DDT; p,p'-DDT	50-29-3
Dieldrin	60-57-1
Hexachlorobenzene	118-74-1
Hexachlorobutadiene; hexachloro-1,3-butadiene	87-68-3
Hexachlorocyclohexane; BHC	608-73-1
alpha-Hexachlorocyclohexane; alpha-BHC	319-84-6
beta-Hexachlorocyclohexane; beta-BHC	319-85-7
gamma-Hexachloroxcyclohexane; gamma-BHC; LINDANE	58-89-9
delta-Hexachlorocyclohexane; delta-BHC	319-86-8
Mercury	7439-97-6
Mirex; dechlorane	2385-85-5
Octachlorostyrene	29082-74-4
Pentachlorobenzene	608-93-5
Photomirex	39801-14-4
Polychlorinated Biphenyls; PCBs	A21000-00-0
2,3,7,8-TCDD	1746-01-6
1,2,3,4-Tetrachlorobenzene	634-66-2
1,2,4,5-Tetrachlorobenzene	95-94-3
Toxaphene	8001-35-2

(v) whether the facility intakes any of the substances proposed for discharge.

A fact sheet transmittal format is also included in Attachment E.

When the water quality engineer receives the request for water quality review, he or she will conduct a reasonable potential/ TMDL review in accordance with TOGS 1.3.1 and determine whether or not toxicity testing is recommended in accordance with TOGS 1.3.2. The water quality engineer will then return the fact sheet with the WQ effluent limit section completed as well as any additional outfall and receiving stream information.

2. Return of Water Quality Analysis

Discussion

The return of the fact sheet with the water quality requirements included allows the permit writer to draft most of the permit, with the one exception being any necessary compliance schedules. Compliance Schedules should be prepared with the input of the facility inspector from the regional office.

Sufficiency of Data

In some instances, the permit writer proposes Action Levels based on several sample results and a multiplier. If the permit writer has used a sufficiently high multiplier making the proposed Action Levels high enough, the water quality engineer may recommend a water quality based effluent limit. Because the originally projected effluent quality (based on a multiplier) may never reach the levels proposed, it would be possible to trigger the inclusion of a water quality based limit when, upon examination of additional effluent data, the permit writer and water quality engineer could conclude that an Action Level is more appropriate.

Phased TMDL Effluent Limits

In accordance 6NYCRR 702.16(b) when setting a WQBEL, the water quality engineer and the permit writer may take into account such factors as treatability, analytical detectability, natural background levels and receiving waters waste assimilative capacity. Where these factors preclude development of Total Maximum Daily Loading (TMDL)/Wasteload Allocation (WLA)/Load Allocation (LA), a phased TMDL may be developed. A phased TMDL effluent limit is the calculated water quality-based effluent limit, when such a limits is available, and an achievable Compliance Level for the first phase. EPA interprets Section 301(a) of the Clean Water Act to require that the calculated limit be included in the permit and that the permit provide for eventual compliance with the calculated limit. 702.16 explicitly requires the permit writer to include biological monitoring requirements in the permit for WQBELs that protect aquatic life.

Reasonable Potential Undetermined due to absence of a Water Quality Standard or Guidance Value

40 CFR 132, Appendix F, Procedure 5, requires that, when the discharge is in the Great Lakes system, and a reasonable potential water quality analysis cannot be completed for a substance in Table 6 of Part 132 due to the absence of a water quality standard or guidance value, the permittee will be required to perform studies that can be used as a basis for setting water quality based limits. The studies to be required are based on the type of standard that is unavailable.

Intake Pollutants (Water Quality Based Effluent Limits)

40 CFR 132 Appendix F, Procedure 5.D. allows for WQBELs to be adjusted to reflect credit for pollutants in the intake water if the intake water is from the same body of water to which the discharge is directed.

Mass and Concentration Limits

40 CFR 132, Appendix F, Procedure 7 requires that Great Lakes States adopt procedures that are consistent with expressing Water Quality Based Effluent Limits as both a concentration value and a corresponding mass loading rate. The state procedure must be as protective as basing both the mass and concentration on the same permit averaging periods (daily, weekly, etc.) and should be developed using the same flow basis (average flow, design flow, 95% flow, etc.).

At the same time, 40 CFR 132.4 (e)(1) allows states to utilize different procedures for wet weather discharges.

Guidance

Upon return of the fact sheet with the water quality requirements included, the permit writer must prepare a complete fact sheet, a permit cover page with identifying information, prepare interim and final limits pages and any necessary action level pages, monitoring requirements, compliance schedules and additional conditions. Preparation of permit pages should be in accordance with the Bureau of Water Permits permit typing package. Guidance for preparing a fact sheet and developing additional permit conditions is included

in the sections I. D & E of this document.

a. SUFFICIENCY OF DATA

If the water quality engineer recommends a WQBEL for a substance that the permit writer had proposed as an Action Level based on 9 or fewer sample results, the permit writer should be circumspect about including such limitations without obtaining additional monitoring data that would verify that the discharge has the reasonable potential to cause a violation of water quality standards. Additional monitoring data may be obtained during the application process (by declaring the application technically incomplete or, if UPA time frames have been suspended, directly from the applicant) or by setting an interim requirement (limit, Action Level or monitoring) in the permit, with a short term high intensity monitoring requirement (example in Attachment A).

b. PHASED TMDL EFFLUENT LIMITS

The permit writer, in concert with the water quality engineer, may consider proposing a Phased TMDL under the following scenarios :

(i) The reasonable potential to violate water quality standards has been determined to exist but the sources are not quantified or identified adequately enough to establish a wasteload allocation., Under this scenario the permit writer should use the permit limits page in Attachment A to propose the **Compliance Level** at the technology limit and the **Calculated Limit** as 'To be determined'. Where it is reasonable to assume that the permittee may be responsible for such studies, a footnote should refer to a compliance schedule page that requires the permittee to collect the information necessary to set a wasteload allocation.

(ii) No technology is available and feasible that would meet the calculated WQBEL and there is no reasonable alternative to the discharge. Under this scenario the permit writer should use the permit limits page in Attachment A to propose a **Compliance Level** based on implementation of available and feasible technology and the **Calculated Limit** at the calculated WQBEL. Available and feasible technology should be defined as that technology that is in use and effective for treatment of water or wastewater that is the same or similar in character and volume to that to be discharged or can reasonably be expected to be effective and feasible for treatment of wastewater of the character and volume to be discharged as determined through pilot scale studies.

If the permittee has already implemented the available and feasible technology, and sufficient historical effluent data exists that reflects implementation of the available and feasible technology, the permit writer should propose the Compliance Level at the PEQ based on a statistical analysis of that effluent data.

If the permittee has not already implemented the available and feasible technology, the permit writer may apply Best Professional Judgement to develop a limit that reflects installation of available and feasible treatment technology. The permit writer may also propose installation of such technology, allow development of sufficient effluent data to develop a statistically based limit, and then propose a limit based on that data.

Under this scenario, the permit writer must include a footnote referring to requirements intended to meet the **Calculated Limit**. This footnote may refer to a compliance schedule for study and development of improved technology or a PMP page, a BMP page or any other reasonable requirement to reduce discharges such that the calculated WQBEL is met.

Section I.C.2.a and I.C.2.b

In accordance with 6NYCRR 702.16, when a phased TMDL WQBEL is derived from an aquatic standard or guidance value, the permit writer must include biological monitoring requirements in the permit. For these cases, the permit writer should include toxicity testing requirements in accordance with TOGS 1.3.2.

The permit writer should note in the fact sheet any permit limits that are proposed under a phased TMDL.

c. REASONABLE POTENTIAL UNDETERMINED DUE TO ABSENCE OF A WATER QUALITY STANDARD, GUIDANCE VALUE, OR SCREENING VALUE

When the reasonable potential analysis cannot be completed in accordance with TOGS 1.3.1 due to the absence of a water quality standard, guidance value or 'screening value', the technology limit should be specified in the permit and the permit should consider requiring a one - year WET testing program in accordance with guidance provided in TOGS 1.3.2.

Additional permit requirements or pollutant reduction strategies will be determined based on the results of the WET testing program.

Consistent with 40 CFR 132, Appendix F, Procedure 5, when the discharge is to the Great Lakes system, and the reasonable potential analysis cannot be completed due to the absence of a water quality standard or guidance value for a pollutant listed in 40 CFR TABLE 6. - A. [pollutants that are bioaccumulative chemicals of concern (BCCs)] (Appendix N), the technology limit should be included in the permit and the permit should contain a compliance schedule requiring the permittee to generate the data necessary to develop a water quality standard or guidance value.

If, after the submittal and review of such data and the adoption of a water quality standard or guidance value, the Department determines that there exists a reasonable potential to exceed water quality standards, the permit should be modified to include a WQBEL.

Consistent with 40 CFR 132 , Appendix F, Procedure 5, when the discharge is in the Great Lakes system, and the reasonable potential analysis cannot be completed due to the absence of a water quality standard, guidance value or 'screening value' for a pollutant listed in 40 CFR 132.6 TABLE 6. -B. (pollutants that are not bioaccumulative pollutants of concern)(Appendix O), the technology limit should be specified in the permit and the permit should require a one year WET testing program to determine if reasonable potential exists to cause acute or chronic toxicity.

Additional permit requirements or pollutant reduction strategies will be determined based on the results of the WET program.

In these cases, the receiving water in the vicinity of the discharge will be referred as a priority site for consideration of biological assessment for purposes of planning the activities under the Rotating Intensive Basin Studies (RIBS) and ranking under the Priority Water bodies List (PWL).

d. INTAKE POLLUTANTS (WATER QUALITY BASED EFFLUENT LIMITS)

Case I

The evaluation of intake pollutants is not necessary when the water quality evaluation establishes that there is no reasonable potential to exceed water quality standards and a WQBEL is not required.

Section I.C.2.b, I.C.2.c and I.C.2.d

Case II

When the water quality analysis recommends a WQBEL, a reasonable potential to exceed water quality standards does not exist and the WQBEL is not required if the intake is from the '*same body of water*' and the following two criteria are met:

(i) the permittee can demonstrate that no mass of the pollutant is added, and

(ii) the permittee can demonstrate that the ambient concentration of the pollutant is not increased in the effluent/receiving water mixing zone.

Case III

When a TMDL has been established, due wholly or in part to high ambient background concentrations of the pollutant, and the two criteria in Case II are not met, it may become necessary to evaluate the contribution of intake pollutants to the effluent loadings for establishing WQBELs, if the intake is from the "*same body of water*" as the discharge. When the Reasonable Potential analysis indicates that the ambient background concentration of the pollutant in the receiving water exceeds the applicable water quality standard or guidance value and the qualifying criteria for the "*same body of water*" are met, the WQBEL should be based on "no-net-addition" of the pollutant.

Same Body of Water

An intake pollutant can be considered from the "*same body of water* " as the discharge if: it is determined that the intake pollutant would have reached the vicinity of the outfall location had it not been removed by the permittee. This may be determined based on the following criteria:

(i) The concentration of the pollutant in the intake is similar to the ambient background concentration of the pollutant in the receiving water; and

(ii) There is a direct hydrological connection between the source water (intake point), (which can be groundwater), and the discharge point; and

(iii) For pollutants with standards based on water quality characteristics, the water quality characteristics of the intake water and the receiving water are similar (e.g. hardness, pH, salinity)

e. MASS AND CONCENTRATION LIMITS

Wastewater discharges - when the water quality engineer recommends a water quality based effluent mass limit for a parameter in a wastewater discharge to the Great Lakes Basin, the permit writer should include both a mass and concentration limit in the permit for that parameter unless the variability of the wastewater discharge flow is negligible compared to the low flow of the stream. Variability may be determined as the difference between the mean and the high (e.g. 95% or 99%) wastewater discharge flow data set. The concentration should be derived from the mass limit recommended by the water quality engineer and the appropriate wastewater flow included in the fact sheet (e.g. average flow for average limitations and peak flow for maximum limitations).

Storm water dominated discharges - when the water quality engineer recommends a concentration based effluent limit for a parameter in a Storm water dominated discharge to the Great Lakes Basin, the permit writer should include a concentration limit for that parameter in the permit and, if the discharge includes any process wastewater, the permit writer should include a mass limit. The mass limit should be based on the appropriate flow included in the fact sheet and should include a footnote that states that the mass limit does not apply above the high flow level. The high flow level should be set, in accordance with the best professional judgement of the permit writer, to be sufficient to represent a wet weather flow scenario developed in consultation with the water quality engineer.

Section I.C.2.d and I.C.2.e

D. SPDES PERMIT FACT SHEETS AND FACILITY DESCRIPTION

Discussion

Federal and State regulations specify the circumstances under which a statement of basis or permit fact sheet must be developed and the minimum requirements for adequacy. These regulations are contained in 40 CFR 124.7 (statement of basis in lieu of fact sheet), 124.8, 124.56 and 125.3, and, 6 NYCRR 750 series.

The fact sheet must adequately describe the facility, discharge(s), draft permit requirements, draft permit basis, and, availability for public comment/appeal. Currently the regulatory requirements for fact sheet content are satisfied by three separate Department documents: the public notice, the draft permit fact sheet and the draft permit.

Following below is a summary of the minimum requirements specified in the regulations:

Description of Facility and Discharge.

- *Facility type or activity which will be regulated.*
- *A sketch or detailed description of the discharge location.*
- *Discharge frequency and volume, if continuous provide average daily flow.*
- *Average summer and winter temperatures for thermal discharges.*
- *The average daily discharge in #/d of any regulated pollutants.*
- *Receiving water classification.*

Description of Draft Permit Requirements, Basis and Decisions.

- *Proposed effluent limitations and monitoring requirements.*
- *Any calculations or other necessary explanation of how effluent limitations and conditions were developed, including a citation to the applicable law, regulation, effluent limitation guideline, water quality standard, performance standard or other appropriate reference, and, reasons why they are applicable.*
- *An explanation of BPJ limitations, internal waste stream limitations, use of indicator pollutants under 125.3(h), schedules of compliance, and the development of alternate effluent limitations.*
- *Reasons why any requested variances or alternatives do or do not appear justified.*
- *For privately owned treatment works an explanation of why and how users are being regulated, or, why they are not being regulated.*
- *A brief explanation of any other proposed special conditions.*

Availability for Public Comment/Appeal.

- *Name and telephone number of a person to contact for additional information.*
- *Comment period beginning and ending dates and the address where comments will be received.*
- *Procedures for requesting a hearing and the nature of that hearing.*
- *Any other procedure by which the public may participate in the final decision*
- *The fact sheet and draft permit must be sent upon request to any person.*

Section I.D

- *A fuller description, where necessary, of the procedures for the formulation of final determinations than that given in the public notice.*

A fact sheet is a companion document to the SPDES permit. When the permit is in the draft stage, the fact sheet and supporting documentation serve to explain to the permittee and the general public the rationale and assumptions used in determining draft permit requirements. After permit issuance, the fact sheet serves to avoid uncertainty concerning how requirements were determined and is helpful when the permit is being reissued (modified). A good fact sheet often reduces the number of draft permit comments by answering the potential questions up front.

Guidance

A model fact sheet, instructions and fact sheet transmittal memo can be found in Attachment E.

E. ADDITIONAL PERMIT CONDITIONS

1. Monitoring

Discussion

All significant-class SPDES permits require the permittee to periodically monitor the discharge volume and the discharge quality and submit DMRs. The Department's authority to establish monitoring requirements in SPDES Permits can be found in CWA 308 and 402, 40 CFR 122, ECL 17 Title 8, 6 NYCRR 754 and 756.

It is essential that each discharger measure and report the quality and quantity of wastewater they discharge accurately and reliably. The information collected must be representative of the discharge to be useful. This information is used for many purposes, including: calculating mass loadings (lbs/day), determining compliance with water quality and technology based effluent limits, performing water quality analyses and waste load allocations, ensuring effective treatment system operation, and, establishing appropriate SPDES permit fee system charges.

a. Monitoring of Discharge Volume

While it is essential that discharge volume be monitored, the most appropriate measurement method will vary depending on the situation. A discussion of the design of specific flow measurement methods/systems is beyond the scope of this document. Permit writers must use their judgment in determining the method appropriate to a specific outfall.

Standard flow monitoring sample types for use in SPDES Permits and what they imply:

- Recorder - *This is a flow measurement system that continuously measures and displays the instantaneous flow rate, and records the cumulative discharge volume versus time on paper and/or electronically. This system provides the highest possible level of information. The measurement frequency is always continuous.*

- Totalizer - *This is a flow measurement system that continuously measures and displays the instantaneous flow rate and the cumulative discharge volume. Data on flow variability is limited by the measurement frequency which must be specified by the permit writer. An example of a flow totalizer is a typical household water meter.*

- Instantaneous - *This is essentially a grab sample of flow rate. Measurement typically consists of a manual reading of the head produced by an engineered hydraulic structure such as a weir or flume. The flow rate can then be calculated using appropriate conversion formulas. Other methods such as California pipe or bucket and stopwatch also fall under this category but they tend to be less reliable and therefore their application is often restricted to special cases. Instantaneous monitoring generally provides the poorest quality data. Measurement frequency must be specified by the permit writer.*
- Calculated - *This method applies well to batch discharges of a known tank volume. It can also apply to precipitation/storm water runoff correlations and other special cases.*

- Pump Record - *This method applies when pump characteristics and time are used to determine flow.*

The required flow measurement method and frequency will greatly influence the accuracy and usability of the data to make decisions. In order to determine the flow monitoring method appropriate to an outfall one must first determine how important the information to be collected is. This level of importance will depend on many factors, including: whether the permit contains mass limits, discharge flow rate variability and intermittency, discharge size vs. receiving stream size, the pollutants involved, the type of wastewater, etc.

b. Monitoring of Quality

The permit writer must decide which parameters to include in the permit with explicit monitoring requirements, how often they should be monitored, what analytical constraints there may be and the appropriate method of sample collection. Wastewater variability must be considered when determining which sample type and monitoring frequency to specify. Variability can result from both raw wastewater and treatment process dynamics

Selection of Parameters - *This topic is covered in section I.B.1.*

Monitoring frequency - *Frequency should depend upon the characteristics and potential impact of the discharge. It is appropriate for monitoring frequencies to vary from permit to permit, and between different parameters within a permit. However, some effort should be made to maintain consistency between permits and outfalls when the discharges are substantially equivalent. The permit writer must balance the need for adequate wastewater characterization and control with the cost of collecting and analyzing wastewater samples.*

Analytical Methods, Detectability and Quantitation - *The analytical methods appropriate to specific pollutants can be found in the DEC Detectability Manual. Also, please see section I.B.6 and the SPDES Permit General Conditions (Part II), Section 10.4.*

Sample Types - *There are three different types of samples: grab, composite and recorder. Their definitions can be found in the DOW Sampling Manual, March 1989. Section 10.1b of the SPDES Permit General Conditions (Part II) also includes some pertinent information concerning sample type.*

Typical compositing periods include the range from 4 to 12 hours, and 24 hours. Composite sample collection may be automated (e.g. ISCO sampler) or manual, and flow proportional or time proportional. Flow proportional samples are more representative of effluent quality and practically require automated equipment. Time proportional samples are generally best used for shorter periods, such as 4-8 hours. They fill the gap in cases where grabs will provide insufficient information and the complexity of flow proportional sampling equipment and procedures in the permit writer's judgment are unwarranted. Certain parameters cannot be collected as composites (e.g. DO and VOCs). However, in the case of VOCs, a laboratory can combine several grab samples into one composite sample for analysis. Recorders are only available for a limited number of parameters including DO, pH and temperature. Sample type is always continuous when using recorders.

Guidance

a. Monitoring of Discharge Volume:

Method - **A recorder is generally recommended** for most treatment system effluents and other wastewaters where complete information on flow rate is desired. A totalizer is acceptable when flow variability information is less important. Instantaneous monitoring generally provides the poorest quality data, therefore, its use should be limited to effluents of the lowest importance and/or frequent measurements should be collected to improve discharge quantification. It may be appropriate to include a footnote in the permit detailing the required method of flow measurement, especially when something other than a recorder or totalizer is being used.

Monitoring Frequency - For a recorder the frequency is always continuous. For the other methods daily to weekly is recommended (monthly monitoring should be reserved for the least consequential dischargers). For batch discharges it is appropriate to require monitoring the volume of each batch.

b. Monitoring of Quality

Monitoring Frequency - Following is a table summarizing guidance developed by EPA on monitoring frequencies. This table can be found in several of the EPA Development Documents, for example - page 343 of the Development Document for Effluent Limitations Guidelines and Standards for the Nonferrous Metals Manufacturing Point Source Category, Volume I General.

Section I.E.1.a and I.E.1.b

TABLE 5
Wastewater Sampling Frequencies (EPA)

Discharge Volume (GPD)	Frequency
0 - 10,000	Monthly
10,000 - 50,000	2/Month
50,000 - 100,000	Weekly
100,000 - 250,000	2/Week
250,000 - and above	3/Week

SPDES permits can include more or less frequent monitoring than suggested by the EPA guidance. Monitoring frequency can vary from continuous to yearly. Generally, the recommended frequencies are daily to monthly depending on the specific situation and parameter. It is recommended that quarterly be the minimum, anything less than four samples per year provides very little useful information.

Factors which justify an increase or decrease in monitoring frequency: compliance history, pollutants involved, discharge volume, receiving water size, wastewater variability, treatment system type, frequencies required of similar permittees, type of monitoring requirement, etc.

Example - A large process wastewater discharge to a small receiving stream should be monitored much more frequently than a small noncontact cooling water discharge to a large receiving stream.

Example - Monitoring frequencies that may be appropriate to a treated 50,000 gpd metal finishing wastewater discharge to a large receiving stream: flow-continuous, pH-daily, TSS and TDS-weekly, oil & grease-weekly to 2/month, high use metals-weekly to 2/month, lower use metals-monthly to quarterly.

Analytical Methods and Detectability - As described in section I.B.6, effluent limitations should not be established at levels below the PQL for the most sensitive approved analytical method. In certain permits it may be necessary to require that the permittee make all reasonable attempts to achieve the most sensitive MDL and PQL available. The permit format in Attachment A provides for such a requirement By doing so, the permit writer helps to ensure the collection of usable, conclusive data. Analytical detection problems are also sufficient justification to include monitoring requirements and limitations on internal waste streams. Please refer to section I.B.7. which addresses internal waste stream monitoring.

Example - A permit has a 0.10 ug/l WQBEL for benzo(a)pyrene. It is appropriate to specify an MDL of 0.03 and a PQL of 0.09 (based on EPA Method 610, HPLC in the DEC Detectability Manual.

Example - A permit has a 22 ug/l cadmium WQBEL. Review of the DEC Detectability Manual indicates that of the five approved analytical methods for cadmium, four have PQLs which are below 22 ug/l. However, of these four methods, three have PQLs equal to 20 ug/l and one, GFAA, has a PQL equal to 0.4 ug/l. In this case, considering the close proximity of three of the four acceptable PQLs to the permit limit, it is recommended that the permit specify an MDL of 0.1 and a PQL of 0.4 µg/l.

The above examples assume that there are no significant effluent-specific interferences. These interferences must be successfully demonstrated by the permittee in order to be considered by the permit writer (see section I.B.6).

Sample Types - Except for sample type, it should not be necessary to specify the sampling technique in the permit. Composite samples are recommended for wastewaters which may be variable. In accordance with 6NYCRR Part 750 series, composite samples are composed of a minimum of 8 grab samples, collected over the specified collection period (usually 8 to 24 hours), either at a constant sample volume for a constant flow interval or at a flow-proportioned sample volume for a constant time interval, unless otherwise specified in the permit. The permit writer may specify time proportioned composite samples when the complexity of flow proportioned sampling equipment and procedures are, in the permit writer's judgment, unwarranted (usually for 4 to 8 hour composites). Certain parameters cannot be automatically field composited (e.g. Temperature, DO, pH, Oil and Grease, Cyanide and VOCs). For VOCs, Cyanide and Oil and Grease, a laboratory can combine several grab samples into one composite sample for analysis. Due to the additional cost and maintenance requirements, recorders are only recommended for parameters that may have substantial variability and importance as in the case of pH at acid plants or temperature at power plants. For effluents which are expected to be fairly consistent such as noncontact cooling water, grabs should be sufficient.

It may be best to measure effluents with some variability such as the effluent from a physical/chemical treatment system using 4-12 hour composites. The effluent from a biological system used to treat process wastewater may be more highly variable justifying the collection of 8-24 hour composite samples. Likewise, compositing periods can be linked to production variability.

> Example - The wastewater of greatest concern is consistently generated between the hours of 8 A.M. and 4 P.M. each day. Therefore, require collection of 8 hour composite samples starting at 8 A.M.

***Reporting* - It is strongly recommended that all SPDES permits require the reporting of both concentration and mass regardless of which measure is limited.** A generic footnote is included in Attachment H which the permit writer should use to require reporting of both concentration and mass.

Short-Term, High-Intensity Monitoring Programs.

Use when very limited data is available to confirm the presence or absence of a parameter in an outfall. For example, a short term high intensity monitoring program can be used if an application contains one data point which is questionable, or the one data point was nondetect but the ICS or SARA Title III reporting indicates significant use of that parameter at the facility and additional samples are desired, or if the one sample result reflects an unsatisfactory detection limit. Common practice has been to require the collection of three samples. However, the permit writer may wish to ask for more or less than three samples depending on the situation. Generally, a minimum of three to five samples is recommended. Appropriate sampling locations for these programs include effluents, influents and other internal waste streams. These programs must be included on the schedule of compliance permit page. An example of one of these programs is included in Attachment A.

Generally, a *better alternative* is to request additional sample collection during the permit application phase. This can be accomplished through a notice of incomplete application and is in accordance with the Department's regulatory authority. By doing so the permit writer gets the necessary information "up front", prior to draft permit development. Otherwise the data is generated after the permit is issued and any necessary permit adjustments must wait for a formal permit modification.

Action Levels

Action Levels are less important than effluent limitations and therefore should generally be monitored less frequently. The recommended range of monitoring frequencies is 2/month to quarterly for Action Levels.

"Monitor Only" Requirements

"Monitor only" monitoring is less important than effluent limitations and generally less important than Action Levels. Therefore, less frequent monitoring is justified. The recommended range of monitoring frequencies is 2/month to quarterly.

2. Compliance Schedules

Discussion

A permit compliance schedule is most commonly used when a permittee would not be in compliance with a permit requirement at the time of permit issuance or modification. If the permit requirement is an effluent limit, the permit sets an interim limit that applies while the permittee is moving toward compliance with the final limit. The permit also includes a compliance schedule with reasonable milestones. It is the intention of compliance schedules to attain compliance with permit requirements as soon as is reasonably possible. Judgements about how long it would take to attain compliance with permit requirements are best made by the staff person with the most intimate knowledge of the facility, with input from the permit writer. In the Division of Water, the person who is most familiar with a discharging facility is usually the facility inspector from the regional office.

Allowances for compliance schedules in permits are contained in 40 CFR Part 132 Attachment F, Procedure 9, 40 CFR 122.47 and 6NYCRR 750 series. Schedules of compliance are intended to, in the shortest reasonable time, achieve compliance with applicable effluent standards and limitations, water quality standards, and other applicable requirements.

40 CFR 122.47 requires that:

(i) Compliance schedules in permits do not extend beyond statutory deadlines. The statutory deadline in the Clean Water Act for technology based limitations is contained in Section 301 (b)(2) and requires compliance as expeditiously as practicable but in no case later than three years after the date such limitations are promulgated under section 304(b), and in no case later than March 31, 1989.

(ii) New sources must meet limits upon discharge unless the requirements for limits were issued or revised after construction was commenced.

(iii) Compliance schedules must be written with less than one year between milestones.

(iv) Within 14 days of each milestone date, the permittee will notify the permitting agency of compliance or non-compliance with the milestone.

40 CFR Part 132, Attachment F, Procedure 9 requires that, for discharges to the Great Lakes Basin:

(i) Permits that contain Water Quality Based Effluent Limits may allow up to 5 years to comply with the limits.

(ii) When a 5 year compliance schedule goes beyond the term of the permit, the permit should include an interim permit limit that is effective upon the expiration date of the permit.

(iii) Compliance schedules must be written with less than one year between milestones.

(iv) For permits where development of permit limits depends upon the permittee providing addition studies to develop a new criterion of to modify an existing criterion, the permit may allow up to 2 years to provide those studies. Upon development or modification of the appropriate criterion the permit may allow up to five years to comply with the final limit.

(v) A reopener clause is to be included to allow for modification of permits to include such final permit limits.

(vi) Where necessary, permit compliance schedules may extend beyond the expiration date in the permit.

While the 40 CFR Part 132, Attachment F, Procedures for Compliance Schedules are intended only for discharges to the Great Lake Basin, they are also the most recently EPA promulgated regulations applying to water quality based permitting. As such they provide up to date insight into EPA's position on application of compliance schedules for water quality based permit limits.

Under New York State permitting regulations, a reopener clause is not necessary to modify a permit to include additional restrictions.

Section I.E.2

6NYCRR the 750 Series requires:

(I) Compliance schedules must be written with less than 9 months between milestones,

(ii) Plans for construction be approved by the Department prior to construction, and

(iii) Within 14 days of the each milestone date, the permittee will notify the permitting agency of compliance or non-compliance with the milestone.

Guidance

Schedules for Compliance with Effluent Limits

When a permittee cannot comply with a water quality based effluent limit at the time of permit issuance, the permit writer should include a compliance schedule using milestone and final compliance dates in conjunction with the facility inspector (where possible, the permit writer should defer to the facility inspector in setting compliance schedules). The term of the compliance schedule should be as short as can reasonably be achieved but no longer than five years to the final compliance deadline.

In accordance with state regulation, compliance milestones must be less than 9 months apart and the permittee must be required to notify the Department within 14 days of each milestone date of compliance or non-compliance with the milestone.

If the permittee will not be able to comply within the five year maximum for water quality based permit limits, the compliance schedule and interim limits should be included in a consent order rather than a permit.

When a permittee cannot comply with a technology based effluent limit at the time of permit issuance, a compliance schedule should be implemented by consent order attached to the permit.

A generic compliance schedule page for installation of treatment is included in Attachment A.

For either technology based permit limits or water quality based permit limits, the permit writer should also prepare interim permit limit pages with achievable interim limits for inclusion in the consent order or permit, whichever is applicable. Achievable limits can be determined using the methods specified in section I.B.2.c., statistically based effluent limits.

Non-Effluent Limit Compliance Schedules

The permit writer may prepare compliance schedule pages to implement permit requirements that are not effluent limits. Examples of those are Best Management Practices and Pollutant Minimization Plans as discussed section I.E. Milestone and final compliance dates should be provided by the facility inspector.

3. Best Management Practices (BMP) Plans

Definitions

Standard BMP Permit Page *- This is the generic permit page containing the full complement of Best Management Practices Special Conditions described above, as well as storm water BMP requirements such as erosion and sediment control measures. The BMP Permit Page is for use with EPA Major and Significant Minor industrial facilities, as well as any other facilities where the release of toxic or other pollutants to the waters of the State via wastewater or storm water is an issue. The BMP Permit Page is available in Attachment A (Standard BMP Permit Page) and in the diskette included with this TOGS.*

Small Facility BMP Permit Page *- This is a generic permit page containing a subset of the above described BMP Special Conditions, for use with smaller facilities and those facilities where the chances of the release of pollutants to the waters of the State due to industrial activity is minimal. The Small Facility BMP Permit Page primarily includes requirements for secondary containment and storm water management. Other Best Management Practices are included by reference to the specific USEPA Guidance Manual for a facility's industrial category. The Small Facility BMP Permit Page is available in Attachment A (Small BMP Permit Page) and in the diskette included with this TOGS.*

Section I.E.2 and I.E.3

Site Specific BMP Plans *- These include any specialized plans or conditions developed to minimize the discharge of pollutants from a given facility, or from specific activities at a given facility. Site Specific BMP Plans are developed by each permit writer based on their assessment of a facility, the need to control a given activity or area at a facility, and their best professional judgement. Site Specific BMP Plans may be developed either in lieu of or in addition to the Special Conditions listed on either the BMP Permit Page or the Small Facility BMP Page.*

Discussion

Best Management Practices (BMP) Plans are authorized for inclusion in NPDES permits pursuant to Sections 304(e) and 402 (a)(1) of the Clean Water Act. The regulations pertaining to BMPs are promulgated under 40CFR Part 125, Subpart K. These regulations specifically address surface water discharges. No promulgated regulations directly require BMP Plans for groundwater discharges. The inclusion of BMP Plans for facilities with groundwater discharges can, however, be justified under Title 6, Section 754.4.c, which requires that "the permittee shall at all times maintain in good working order and operate as efficiently as reasonably possible any facilities, including systems of control installed by the permittee to achieve compliance with the provisions of the permit, covered by the permit."

BMP Plans can include almost any pollution control measure or practice that controls the generation of pollutants and their release to the waters of the State. The topics to be covered by BMPs include plant site runoff, storm water, spillage or leaks, sludge or waste disposal, waste minimization, and drainage from raw material storage and from activities which are associated with or ancillary to industrial manufacturing or treatment processes. BMP Plans are generally submitted to and reviewed by regional Division of Water staff, with plan approval subject to the Regional Water Engineer's discretion.

As of June 5, 1996 EPA had promulgated the "One Plan" option for consolidation of a single plan for controlling substance release from facilities subject to a wide variety of federal regulation; EPA, RSPA, USCG and OSHA requirements. Although all of the effects of this one plan option have not been determined, BMPs required under EPA regulation and implemented under SPDES permits are not required to be "stand alone" documents. The format of BMPs are less important than the coverage provided by them. If a BMP addresses the relevant issues, it is acceptable that it be integrated to satisfy other regulatory requirements; whether as single document or by reference to other documents.

Guidance

The permit writer should review the permit file to determine whether the facility has been required to prepare a BMP Plan in the past, and the due date of such plan. The permit writer should also contact the facility inspector to determine the facility's history with respect to compliance, spills, and site management (e.g. housekeeping, chemical handling practices) and whether site inspections have identified specific areas of concern with respect to chemical use, handling, and disposal practices. The permit writer should also ask the facility inspector whether the facility submitted any previously required BMP Plan in a timely manner, and the adequacy of the submitted plan.

a. EPA MAJOR AND OTHER LARGE INDUSTRIAL FACILITIES

For all EPA Major and other large industrial facilities that have not yet submitted an acceptable BMP plan, the permit writer should:

(i) Include the Standard BMP Permit Page (see example in Attachment A) in the permit prior to the Definitions and Monitoring Locations page.

(ii) When these facilities have areas of special concern, include a compliance schedule page for completion of site-specific structural and non-structural BMPs to address those areas. A sample compliance schedule is included in Attachment A (BMP Compliance Schedule Page).

b. SMALLER FACILITIES WITH LOW RISKS OF POLLUTANT RELEASES

For smaller facilities with low risks of pollutant releases that have not yet submitted an acceptable BMP plan, the permit writer should include the Small Facility BMP Permit Page (example in Attachment A) in the permit prior to the Definitions and Monitoring

Locations page. This page should include a reference to the appropriate USEPA BMP Guidance Manual (see list included in Attachment F) for the facility's industry type.

c. NEGLIGIBLE RISK FACILITIES

For facilities that discharge only noncontact cooling water, remediation discharges of finite time period, and other facilities where pollutant releases to the waters of the State due to industrial activity are essentially nonexistent: The inclusion of BMP Plans for these types of facilities and discharges is generally not appropriate. The permit writer may choose to include a BMP Plan for these facilities if his/her evaluation of the facility's history indicates the need for such a plan based on professional judgement.

d. FACILITIES THAT HAVE ALREADY SUBMITTED A BMP PLAN

The permit writer should include the BMP annual review note (example in Attachment H) for permittees that have already submitted an acceptable BMP plan.

References

A. Section 304(e) of Federal Clean Water Act
B. Section 402(a)(1) of Federal Clean Water Act
C. 40 CFR Part 125, Subpart K
D. USEPA Region 10 Guidance: Best Management Practices (BMP) Plans in NPDES Permits, June 1992.

4. Pollutant Minimization Programs (PMPs)

Discussion

When an end-of-pipe limit is set at the PQL in lieu of a calculated water quality based effluent limit (WQBEL) because discharges at the lower WQBEL would not be quantifiable, the chance that the permitted discharge could cause a violation of water quality standards increases. In this case, because of uncertainties associated with analytical technology, the permit does not provide complete protection against violation of the water quality standard.

To strengthen the permit, the permit writer has several options. The permit writer can set a limit on (with monitoring at) an internal outfall as described in Section I.B. 7. The permit writer can include whole effluent toxicity testing requirements in the permit as described in TOGS 1.3.2. Or, the permit writer can include a pollutant minimization program (PMP) in the permit as described below.

Prescriptive PMP requirements are included in the Final Water Quality Guidance for the Great Lakes System at 40 CFR 132, Appendix F, Procedure 8 (GLI). Those prescriptive requirements include (i) annual review and semi-annual monitoring of potential sources of the pollutant, (ii) quarterly monitoring of treatment plant influent for the pollutant, (iii) submittal of a control strategy, (iv) implementation of cost-effective control strategy measures and (v) annual status reports. The goal of these requirements is to achieve the calculated WQBEL.

Several of the Prescriptive PMP requirements in the GLI are already contained in the SPDES boiler plate Best Management Practices Plan requirements. While the remaining prescriptive requirements contained in the GLI may be supplanted by requirements that are 'as protective as' the GLI requirements, it is clear that pollutant minimization programs can be very effective if applied to the appropriate circumstances.

By the same token, PMP requirements can be ineffective and wasteful if applied in appropriately, such as when the source of contamination is atmospheric deposition or when the untreated wastewater matrix would not allow for detections in the process of source track down.

Section I.E.3.b, I.E.3.c, I.E.3.d and I.E.4

Guidance

Except as noted below, a requirement for submission of a PMP or a PMP plan should be included in the permit for substances limited at the PQL in lieu of a more stringent calculated WQBEL for:

(i) Discharges to the Great Lakes Basin

(ii) Discharges to receiving waters outside of the Great Lakes Basin for which the classified use is impaired or precluded by that substance.

PMPs requirements should be written as follows:

(i) For WQBELs developed to protect aquatic life from acute or chronic toxicity, the permit writer should include toxicity testing language from TOGS 1.3.2. as the PMP, including monitoring, trackdown and toxicity reduction evaluation requirements.

(ii) For WQBELs other than those developed to protect aquatic life from acute or chronic toxicity, the permit writer should include the PMP permit page in Attachment A.

The permit writer should not include a requirement for a PMP or PMP plan to address discharges of substances where the department has determined that the substances are ubiquitous and not subject to effective reduction strategies.

The permit writer should also not include a requirement for a PMP or PMP plan if the permittee provides a compelling demonstration that the discharge of a substance limited at the PQL in lieu of a more stringent WQBEL is reasonably expected to be in consistent compliance with the WQBEL at the point of discharge to the receiving water. This demonstration may include:

(i) treatment information, including information derived from modeling the destruction or removal of pollutants in the treatment process;

(ii) mass balance information, including inferred mass balance information based on knowledge about the processes and raw materials; and/or

(iii) fish tissue studies or other biological studies.

If there is ongoing remediation at the site of an existing or proposed discharge and the remediation addresses those substances that would be limited at the PQL in lieu of a WQBEL and a remedial work plan for the site, including but not limited to any operation and maintenance plan, meets the substantive requirements of a PMP plan, the permit writer should refer to ongoing remediation efforts as equivalent to the PMP requirements in 40 CFR Part 132.

5. Water Treatment Chemicals (WTCs)

Discussion

Many facilities use and discharge WTCs. WTCs often contain ingredients which have the potential to harm water quality. In response, the Department has developed Ambient Water Quality Criteria (AWQC) for several WTC ingredients. However, there are many ingredients which have not been investigated by the Department. Fortunately, toxicity testing data is often available to partially fill this data gap.

Any new or increased use of a WTC requires prior review and authorization by the Department. There are two methods by which the permittee may request

the proposed change: (1) submission of written notification, or (2) submission of a traditional permit modification application. In accordance with 6NYCRR Part 754.4(h) and (I), the first method does not require a permit modification if it is determined that the discharge will not be toxic or exceed AWQC and the permit does not need to be modified to add any effluent limitations, monitoring or other appropriate requirements.

Water Cooling, Boiler and WTC Technology

Water used to cool a manufacturing process or product constitutes the largest source of wastewater discharge in New York State. Water is also used in boilers to produce steam for electricity generation (power plants) or other process needs.

There are two types of cooling waters: contact and noncontact. Contact cooling waters pick up contaminants from the product and usually fall under one of the EPA BAT categories. Noncontact cooling waters do not pick up contaminants from the product unless the barrier separating them fails. This failure is uncommon but does occasionally happen. The majority of cooling waters are noncontact.

There are three general types of cooling water systems: once-through, open recirculating and closed recirculating. Once-through systems are self-explanatory and discharge relatively large volumes of water. Open recirculating systems are exposed to the atmosphere to reduce heat and typically employ cooling towers for this purpose. Closed recirculating systems are not exposed to the atmosphere, and therefore must be cooled by another system such as once-through, open recirculating or air cooling. Recirculating systems discharge relatively low volumes of water with closed systems discharging much less than open systems. Boilers also discharge relatively low volumes of water.

The discharge from recirculating systems and boiler systems is often referred to as blowdown. Blowdown is necessary to reduce contaminant levels which have built up over time. In the case of boilers for instance, because the steam produced is fairly pure, contaminants contained in the feedwater and condensate return may be quickly concentrated in the boiler water. Blowdown frequency may be continuous or intermittent and may contain significant levels of inorganic and organic contaminants as well as WTCs. Make up water is added to the system to offset the volume lost to blowdown, evaporation, and other system losses and to reduce system contaminant concentrations. Periodically, cooling water and boiler systems may be completely flushed or cleaned to remove sludge and persistent contaminants.

WTCs are added to most cooling water and boiler systems to prevent or reduce scaling, corrosion and fouling. These problems cause reduced heat transfer efficiency and equipment damage. WTCs act to protect cooling water systems by providing protective films, reacting with and dispersing contaminants, and killing microorganisms. Specific WTC ingredients and their functions are too numerous to mention here. Those interested in further information can refer to the various water handbooks, such as the Nalco Water Handbook and Drew Principles of Industrial Water Treatment.

Phosphorus - Many WTCs contain phosphorus. The water quality of lakes, ponds and reservoirs can be adversely affected by inputs of phosphorus. For this reason the State restricted the phosphorus content of household cleansing products in the early 1970's. The Great Lakes Water Quality Agreement of 1978 and the 1987 amendment further addressed phosphorus pollution. Since that time the Department has developed phosphorus water quality criteria and guidance, phosphorus treatment requirements have been instituted at municipal and industrial wastewater treatment plants, and nonpoint source reduction programs have been implemented. To further comply with the goal of eliminating phosphorus-based pollution this most recent guidance recommends that the incidental discharge of phosphorus (tributary to ponded waters or the Great Lakes Basin) resulting from WTC use be eliminated, if feasible.

Guidance

New or increased use of a WTC requires Department review and authorization before it can be used and discharged. It is recommended that the permittee submit written notification of its intent to change WTC use rather than requesting a formal permit modification. By utilizing the notification process, the permittee is likely to receive a quicker response because the notification is made directly to the permit writer rather than in and out via the Division of Environmental Permits. The majority of WTC authorizations do not require formal SPDES permit modification. WTC requests are to be handled by the office that drafted the facility's existing SPDES permit.

Notification requirements and instructions for submitting WTC requests are specified in Attachment B. Also, included in Attachment B is an explanatory algorithm of the WTC review and authorization process. Essentially, the permittee completes a form, faxes (or mails) it to the permit writer and receives a review decision by fax (or mail) from the permit writer on the same form. Therefore, any confusion concerning what WTCs are involved and what has been authorized is eliminated. Included in Attachment A is a generic permit page which may be used in permits which address WTC discharges.

Section I.E.5

A sufficient understanding of the WTC review and approval process should be obtained by using the algorithm and four page fax form as guidelines. However, some items which may not be completely self-explanatory are detailed below:

BPJ Limit Development - As with any other types of wastewater discharge, permit writers may develop technology limits, Action Levels or "monitor only" requirements. See section I.E.1.

Applicable AWQC - The permit writer compares the WTC parameters and degradation products to the list of parameters in TOGS 1.1.1 and TOGS 1.1.2 (GW only). For surface water discharges, if there is Water Quality standard or guidance value for a WTC parameter, and that parameter would be measurable in the effluent, the notification should be transmitted to the WQ engineer for review. Also, if the WTC has a high BOD a WQ review may be appropriate. Groundwater discharges are handled completely by the permit writer in accordance with section II of this TOGS.

Adequate Analytical Methods - The permit writer determines if approved analytical methods exist to confirm compliance with a recommended WQBEL. If WTC use is predicted to be at or near the WQBEL and there are no acceptable analytical methods or indicator parameters to allow confirmation of effluent levels, it is appropriate to prohibit the proposed use.

Toxic in Effluent - To do the 100% effluent analysis, the permit writer must be provided with toxicity data for both a vertebrate and an invertebrate species. If only acute data is provided (48 or 96 hour LC 50 or EC 50), the permit writer should apply a safety factor of 100 to 1. If chronic data is provided (NOEC) the permit writer should apply a safety factor of 10 to 1. For example:

1. Chemical XYZ is proposed to be used at 10 lbs/d in a 0.50 MGD outfall, the effluent concentration would be 2.4. The NOEC is provided for both a vertebrate and an invertebrate species and the NOEC is 20 mg/l for the most sensitive species. Applying the 10 to 1 safety factor, then pure effluent may be rendered toxic by use of the WTC (2.4 is higher than 2.0). The permittee's submittal should be forwarded to the WQ engineer along with any other pertinent information for assimilative capacity review.

2. Chemical WXY is proposed to be used at 10 lbs/d in a 0.50 MGD outfall, the effluent concentration would be 2.4. Only the LC 50 is provided for both a vertebrate and an invertebrate species and the LC 50 is 250 mg/l for the most sensitive species. Applying the 100 to 1 safety factor, then pure effluent should not be rendered toxic by use of the WTC (2.4 is lower than 2.5). The permittee's should be notified (using the fax form in Attachment E) that the use of the WTC is acceptable without permit modification.

A WTC may not be authorized for use and discharge if the Department's review indicates any of the following:

- the notification/application is incomplete,
- the notification/application contains errors or misrepresentations,
- the WTC is a biocide and it is not registered for use in New York State,
- the WTC contains phosphorus, the discharge is tributary to ponded waters or is in the Great Lakes Basin, and, the permittee has not clearly demonstrated that no acceptable alternative exists (this includes both surface water and groundwater discharges),
- the proposed discharge may be toxic (based upon review of toxicity information),
- human health or aquatic AWQC may be exceeded,
- use is predicted to be at or near toxicity or AWQC thresholds and there are no acceptable analytical methods or indicator parameters to allow confirmation of effluent levels,
- Other valid water quality or technology reason to deny authorization.

Using the notification process, the permit writer should communicate one of the four following results to the permittee within 30 days: (1) the proposed use may proceed, (2) insufficient information is available to reach a decision, (3) a SPDES permit modification is necessary before use can proceed, or, (4) the proposed use is prohibited. The WTC Usage Requirements in Attachment B have been summarized in the model permit page included in Attachment A. It is recommended that this page be added to permits in accordance with established Department priorities.

Example - The permittee wishes to increase use and discharge of chlorine through outfall 001. The existing permit limit for chlorine is 1.0 mg/l, the discharge is consistently below 0.30 mg/l and the increase is predicted to be less than 0.20 mg/l. A permit modification is unnecessary, and a letter authorization should be provided using the four page fax form.

Process wastewaters resulting from the flushing or cleaning of cooling water or boiler systems may have an extreme pH and contain high levels of pollutants. Therefore, these wastewaters are generally unsuitable for direct discharge unless adequately treated.

Phosphorus (WTC discharges tributary to ponded waters or the Great Lakes Basin) - Phosphorus can be eliminated from a WTC discharge by simply not using any WTCs which contain phosphorus. Therefore, **new or increased phosphorus-containing WTC discharges to ponded waters or the Great Lakes Basin should be prevented to the maximum extent feasible. Likewise, currently authorized phosphorus-containing WTC discharges should be eliminated if possible.** It is recognized that there may be situations where no acceptable alternative to the use of phosphorus exists. In those cases use is permissible. However, the permittee must clearly demonstrate to the permit writer that all alternatives have been investigated and that none of these alternatives is feasible. Factors which must be considered include the need for water treatment, system compatibility, pollutants in alternative WTC(s), engineering alternatives and cost. **If the permittee successfully demonstrates the need to discharge a phosphorus-containing WTC, and Phosphorus would be measurable in the effluent, then the permit should be modified to limit and monitor the amount of phosphorus in the discharge.** The permit writer must prepare a fact sheet and submit it for WQ review. Fact sheet Existing Effluent Quality for phosphorus should be determined using conservative calculations of the WTC usage rate and percent by weight of phosphorus in the WTC. A BPJ limit, Action Level or "monitoring only" should be specified in the fact sheet Technology Based Effluent Limit section in accordance with section I.E.1. and the fact sheet instructions. Upon return of the fact sheet from the WQ engineer, draft the permit modification and include the model WTC permit page (see Attachment A) limiting WTC use if it is not already in the permit. Compliance with a WQBEL can be delayed (in accordance with a schedule of compliance) for existing discharges but not for proposed discharges.

6. Miscellaneous Notes

Numerous additional notes have been appropriately included in SPDES permits. Attachment H contains some examples of notes that may be useful in permit drafting. The example notes are for requirements to:

BMP Complete
Report Mass and Concentration
Approvable
Flow Monitoring
Annual Effluent Data Summary
Single Intake Source Net Limits
Multiple Intake Source Limits

Section I.E.5. and I.E.6.

II. Groundwater Discharges

Guidelines for components of this strategy are found in the following companion TOGS and guidance:

TOGS 1.1 .2	*Groundwater Effluent Limitations*
TOGS 1.3.7	*Analytical Detectability & Quantitation Guidelines for Selected Environmental Parameters*
TOGS 2.1.1	*Groundwater Contamination Remediation Strategy*
TOGS 2.1.2	*Underground Injection/Recirculation (UIR) at Groundwater Remediation Sites*

Purpose

Under the NPDES program, all facilities which discharge pollutants from any point source directly into waters of the United States are required to obtain a NPDES permit. The term "waters of the United States" defined by EPA does not include discharges to groundwater. Therefore, NPDES program does not cover facility discharging its effluent to groundwater. In New York State, Article 8 of ECL 17 requires a SPDES permit for an industrial facility discharging process wastewater to groundwater. This section of the Industrial SPDES Permit Drafting Strategy provides guidance on the development of permit effluent limits and monitoring requirements for industrial point source discharges to groundwaters. This section does not apply to surface water or municipal discharges.

Definitions

***Recharge Basin** - Any man-made surface pond, lagoon, sump, or basin, not designed specifically as an effluent treatment system, which is designed to allow the percolation of treated effluent into the saturated or unsaturated zones; i.e. discharge to groundwater of the state.*

***Soil Absorption System** - Any subsurface disposal system, not designed specifically as an effluent treatment system, which allows the discharge of treated effluent to groundwater; including seepage pits, leach fields, absorption trenches/beds, fill systems, and mound systems*

***Land Treatment System** - Any lined or unlined man-made surface or subsurface basin which is designed specifically as an effluent treatment system and in which the final treated effluent is discharged to groundwater via percolation into the saturated or unsaturated zones. Examples include constructed wetland treatment systems, spray irrigation systems, and unlined settling lagoons or basins.*

***Underground Injection Control (UIC) Program** - Authorized by the Safe Drinking Water Act, the UIC program regulates underground injections into five classes of wells. Operation of injection wells are subject to EPA permit and must comply with UIC permit requirements.*

***Geothermal Discharges** - The discharge of groundwater that has been passed through a heat exchanger without the admixture of water treatment or other chemicals.*

Guidance

The review of the permit application to determine which substances should be limited or monitored for discharges to groundwater should be the same as the review for discharges to surface water. However, development of technology and water quality limits are quite different. Technology is only applied in limited circumstances and water quality limits are excerpted directly from TOGS 1.1.2 and do not require a separate review by a water quality engineer.

Effluent limits for Remediation Discharges should be set after consideration of guidance contained in TOGS 2.1.1 Groundwater Contamination Remediation Strategy.

Effluent limits for Land Treatment Discharges should be set after consideration of guidance contained in the State Guidelines for the Use of the Land Treatment of Wastewater.

Effluent limits for nominal subsurface discharges that are within 100 feet of surface waters (classified waters of the state) should be evaluated for surface water discharge limitations as well as groundwater limitations. Surface water requirements should also be considered when the discharge is less than 100 feet from surface waters or site specific circumstances indicate there will be close communication between the discharge and surface water (e.g. karst formations). Upon completion of the evaluation, the most restrictive

effluent limits should be imposed.

A SPDES permit would not be required if there is no point source discharge. Thus, a SPDES permit would not be required for the uncollected passive migration of previously released pollutants migrating via non-point source flow (e.g. sheet or diffuse or otherwise non-point overland flow and/or sheet or diffuse or otherwise non-point flow through the saturated and/or the unsaturated zone) to surface or groundwater.

A. Development of Effluent Limits

1. All groundwater effluent limits and Action Levels will generally be expressed in terms of concentration.

2. The permit writer should establish final effluent limits based on the water quality criteria from Part 703 and/or TOGS 1.1. 1.

3. The development of Technology-Based Effluent Limits or Action Levels should only be applied to substances without ambient groundwater quality standards or guidance values. If technology based limits or action levels are developed, the permit writer should consider requesting that the water quality engineer initiate development of an effluent standard or guidance value for the parameter in question.

4. The permit writer should set limits no lower than the Practical Quantitation Limit (PQL) for the most sensitive approved analytical methodology available as set forth in Section the document entitled Analytical Detectability and Quantitation Guidelines for Selected Environmental Parameters (DEC Detectability Manual).

5. Aquatic Criteria and WET Testing are not applicable to groundwater discharges

B. Monitoring Requirements

1. Acceptable sampling locations are normally at the last access point prior to discharge to groundwater (refer to Section 703.3).

2. Sample types and frequency should be required as recommended in guidance on monitoring for surface water discharges in Section I.E.1.

3. Aquatic Criteria and WET Testing are not applicable to groundwater discharges.

C. Additional Conditions

Effluent limits contained in previous permits, indicator parameters, short-term high intensity monitoring programs to confirm the presence of substances of concern, compliance schedules, and Best Management Practices (BMP) Plans are developed in a similar manner to that described in Section I for surface water discharges.

Section II.A, II.B. and II.C.

D. Special Cases of Groundwater Discharges

1. Ambient Limited Discharge:

An ambient limitation is the application of an ambient standard or guidance value to samples of ambient groundwater. Permit limitations should be based on ambient groundwater quality standards or guidance values in this situation and applied at representative down gradient monitoring well(s). The permit writer should require monitoring wells placed so as to determine groundwater flow and gradient into and out of the area beneath the discharge. The monitoring wells should be constructed to allow for representative sampling of the discharge plume at the top surface of the groundwater, while at the same time preventing the entrance of precipitation and surface runoff. Typically, a minimum of three monitoring wells are necessary to determine the direction of groundwater flow. However, the location, number and depth of the wells is site dependent and therefore is left to the permit writer's best professional judgement. Guidance on the use of ambient limitations and monitoring is as follows.

a. Ambient limitations and monitoring should be considered where this document suggests case-by-case determinations of effluent limitations.

b. Ambient limitations and monitoring should be considered where effluent standards may not be sufficiently stringent to achieve the groundwater standards. This situation could exist where the department obtained a more stringent groundwater standard by a prior reference to the regulations of the Department of Health but where the effluent standard has not been revised, e.g. bis(2-ethylhexyl)phthalate.

c. Ambient limitations and monitoring can be considered in lieu of effluent limitations.

d. Ambient monitoring can be considered to confirm the effectiveness of effluent limitations.

e. Ambient limitations with monitoring or monitoring alone should be considered where the discharge may affect a water supply.

f. Ambient limitations with monitoring or monitoring alone should be considered where modifications of or exceptions to groundwater effluent limitations have been allowed and confirmation of compliance is judged necessary.

g. Ambient monitoring should be considered where effluent monitoring may be ineffective in characterizing the discharge. Such situations include highly variable discharges or where surreptitious discharges are suspected.

2. Limits Modifications or Exceptions

Gross or Net Limitations, Modifications to Effluent Limitations, and Exceptions to Effluent Limitations may be developed as described below.

a. Gross or Net Effluent Limitations

Effluent limitations as listed in TOGS 1.1.1 are defined as gross limitations, i.e., without mathematical subtraction of

the amounts present in intake water. These gross effluent limitations, however, may not be appropriate where the concentration of a substance in the receiving aquifer exceeds the effluent limitation or the discharger is not responsible for the pollution in the intake water. General guidance for these situations is provided below. Application of this guidance requires professional judgement in the evaluation of case-specific facts and data.

i. Discharger Determined to be Responsible for Pollution

Where the discharger is responsible for concentrations in the receiving aquifer exceeding the effluent limitations or ambient values, effluent limitations for the continuing discharge should be established in conjunction with a program for restoration of the aquifer. Department policy (TOGS 2.1.1 and 2.1.2) for clean-up should be consulted for determining appropriate effluent limitations.

ii. Discharger Determined Not to be Responsible for Pollution

This situation should be considered during the permit writer's application of the inherent flexibility found in this TOGS. The two situations described below are just two examples of flexibility that should be applied where the discharger is not responsible or legally liable for concentrations in the receiving aquifer exceeding effluent limitations.

(1) Same Water Body for Intake and Discharge

A permit limitation for a substance can be written as "no net addition" when all of the following conditions are present:

- The concentration of a substance in the discharge results from its presence in the intake water,

- The intake and discharge are from and to the same aquifer and vicinity, and

- The concentration of the substance in the aquifer exceeds the effluent limitation in TOGS 1.1.1.

A "no net addition" limitation allows computational subtraction of the intake concentration. Although in this situation the gross discharge may exceed an effluent limitation, this permit condition results in no increase of the pollutant in the receiving aquifer.

Where it can be reliably determined that the permittee's operations will not affect the concentration of the substance, it may be unnecessary to require monitoring, e.g., non-contact cooling water. If, however, the permittee's operation could affect the concentration of the substance, monitoring would be appropriate to determine compliance with "no net addition," e.g., process addition of the substance followed by treatment.

(2) Different Water Body for Intake and Discharge

Where the concentration of a substance in the receiving aquifer exceeds an effluent limitation specified in this document and the intake water is from a source other than the receiving aquifer, the permit effluent limitation should usually be written as the (gross) effluent limitation in TOGS 1.1.1. A permit effluent limitation greater than the effluent limitation in TOGS 1.1.1. but not greater than the concentration in the receiving aquifer can be considered where the substance occurs naturally in the receiving aquifer.

b. Modifications of Effluent Limitations

Section 702.19 allows, under certain conditions, modification of a groundwater effluent standard or an effluent limitation established according to paragraph 702.16(c)(1). Such modifications may be allowed where the applicant demonstrates that a less restrictive effluent limitation will be sufficient to prevent groundwater concentrations from exceeding the ambient standard or guidance value. SPDES applications for such modifications are governed by the Uniform Procedures Act and require public notice of the proposed modification.

c. Exceptions to Effluent Limitations

The water quality regulations, section 702.21, provide exceptions for three activities to the requirement to impose the numerical effluent standards and effluent limitations in TOGS 1.1.1. Effluent limitations for the two point source activities, i.e., certain sewage and land application systems, should be determined on a case-by-case basis to achieve or maintain ambient standards and guidance values.

3. Activities that may require a SPDES permit:

a. Underground Injection Control (UIC) Program - Deep Well Injection Brine

i. DEC allows discharge (deep well injection) of brine (saltwater) to saltwater aquifers; this is regulated under a SPDES permit. Brine injected to the same aquifer by the same operator does not require a SPDES permit.

ii. EPA does have permitting authority under the UIC program. New York State has not been delegated this program and therefore the permittee for a deep injection well discharge should be informed that they must apply for an EPA UIC permit and groundwater discharge permit (if required as described above) in addition to any well permits from the Division of Mineral Resources.

b. Remediation Discharges: Guidance for discharges from Hazardous Waste Remediation Activities and for discharges from Spill Clean-up Sites are provided in TOGS 2.1.1 and 2.1.2.

4. Underground Injection Control (UIC) Program Activities that do not require a SPDES permit:

a. Solution Mining Activities (example: salt production). EPA does have permitting authority under the UIC program. The DEC has not been delegated this program and therefore the permittee of a solution mining well should be informed that they must apply for an EPA UIC permit in addition to any required well permits from the Division of Mineral Resources. DEC considers this a "closed-loop production" process and does not require a SPDES permit.

b. Enhanced Recovery (Oil Well Field Production). Typically, this is the pumping of either untreated ground or surface water into oil bearing strata to increase petroleum recovery. EPA does have permitting authority under the UIC program. The DEC has not been delegated this program and therefore the permittee of an enhanced recovery well should be informed that they must apply for an EPA UIC permit in addition to any required well permits from the Division of Mineral Resources. Typically, this is the pumping of either untreated ground or surface water into oil bearing strata to increase recovery of petroleum product. This activity does not require a SPDES permit.

Section II.D2, II.D.3 and II.D.4

c. Geothermal Discharges: These consist of the discharge of heated groundwater, such as when groundwater is passed through a heat exchanger and returned to the same groundwater stratum that meet the following criteria: (i) there is not admixture of water treatment or other chemicals to the discharge and the heat that is added is not significant enough to be considered a pollutant or (ii) the discharge is from single residence household usage that is less that one thousand gallons per day. If a discharge does not meet either of these criteria, it would be considered a SPDES regulated wastewater discharge to groundwater if chemical alteration of the water is proposed. EPA does have permitting authority under the UIC program. The DEC has not been delegated this program and therefore the permittee of a geothermal well should be informed that they must apply for an EPA UIC permit in addition to any required well permits from the Division of Mineral Resources.

References

A. 6 NYCRR Parts 700-705 (Water Quality Regulations)
B. 10 NYCRR Subpart 5-1 (DOH Drinking Water Standards)
C. 10 NYCRR Part 170 (DOH Standards for Raw Water Quality)
D. Safe Drinking Water Act
E. 40 CFR Part 141
F. NYSDEC Division of Water Guidance Manuals:
   Car washing Category
   Laundromat Category
   Oil Storage Facilities
G. NYSDOH Memorandum, "Deep Well Injection," 5/29/69
H. "State Guidelines for the Use of Land Treatment of Wastewater," T. Hullar and A. Adamczyk, NYSDEC, August 1978.

N.G. Kaul, Director
Division of Water

Section II.D.4

Attachment A - GENERIC PERMIT PAGES

Recommended Permit Organization and Details

Permit Limits, Levels and Monitoring Definitions Page

Permit Limits, Levels and Monitoring Page

Final Treatment System Compliance Schedule

Short Term High Intensity Monitoring (STHIM) Page

Standard BMP Permit Page

BMP Page for Small Facilities

Sample BMP Compliance Schedule Page

Standard Pollutant Minimization Program Page

Water Treatment Chemicals Permit Page

Attachment A - RECOMMENDED PERMIT ORGANIZATION AND DETAILS

Transmittal

When the permit and supporting documentation are complete they should be transmitted to the Regional Water Engineer (Central Office drafted permits) or the Regional Permit Administrator (Regional Office drafted permits). The completed transmittal package consists of the transmittal memo, a separate DEC staff response (labeled by commentor and date of comments) to comments received on the previous draft permit, the fact sheet and the permit. A copy (copies) of the transmittal with the fact sheet attached should be sent to the Quality Allocation Section and, when WET testing is required, the Biological Assessment specialist.

Typical Permit Organization and Details (The pages that are included in every permit are capitalized and underlined)

Page 1 PERMIT ADDRESS PAGE (EVERY PERMIT)

Next page Table of contents (optional, recommended for permits of 20 pages or more);

Next page List of additional outfalls, with type, receiving water and location (optional);

Next page PERMIT LIMITS, LEVELS AND MONITORING DEFINITIONS (EVERY PERMIT)

Next page PERMIT LIMITS, LEVELS AND MONITORING (EVERY PERMIT)

Parameter Grouping - When there are sufficient parameters on this page, they should be grouped for readability. In the past parameters have been grouped under water quality limited parameters and technology limited parameters. Subgroupings to these have been conventionals, metals and cyanide, organics (with subgroupings of volatiles, acid extractables, base neutral extractables, pesticides and PCBs and 2,3,7,8 TCDD). Alphabetizing within each subgrouping makes finding parameters easier.

Significant Figures - Limits should be written to two significant figures.

Calculated Limits - Should be filled out only when different from the compliance level

MDL and PQL - Should be filled out only when analytical sensitivity is necessary to determine compliance or assess effluent data.

Dates - The permit writer should be cognizant of how dates will be perceived when a permit undergoes short form renewal In other words, if the effective and expiration date for interim limitations is listed as the Effective Date of Permit (EDP), then, when the permit undergoes short form renewal, the permit could be interpreted to, once again, invoke the interim limits. For interim limits it is more appropriate to list the effective and expiration dates as and actual date. By the same token, the expiration date for final limits (that are intended to be the same after short form renewal) should be listed as EDP + 5 years.

Next page Notes and footnotes;

Where practical, footnotes should be on the page in which they are used. Where same page listing is not practical, footnotes should be put on a page dedicated to notes and footnotes. For consistency, notes should be alpha listed (A., B., C., etc.) and footnotes should be listed numerically (1., 2., 3., etc.)

Next page WET testing requirements;

Dates - As with effective dates for Permit limits, levels and monitoring, actual dates should be used when WET testing is intended as a one time event. When additional WET testing is to be required based on some judgement by Department staff it should be triggered by a letter from the Regional Water Engineer. When WET testing is to be activated by short form renewal or to be consistent throughout the permit life, the trigger should be in relation to the EDP.

Next page Best Management Practices (BMP) Plans;

Dates - Because a BMP plan should generally only be prepared once, in almost every case BMP development dates should be listed as actual dates. Because BMP implementation should be ongoing, implementation dates should be listed in relation to the EDP.

Next page Pollutant Minimization Programs;

Dates - Because a PMP plan or program should generally only be prepared once, in almost every case PMP development dates should be listed as actual dates. Because PMP implementation should be ongoing, implementation dates should be listed in relation to the EDP.

Next page Other Compliance Schedules;

Dates - Generally deadlines should be actual dates.

Next page MONITORING LOCATIONS PAGE (EVERY PERMIT)

This page should include both a written description of the required monitoring locations and a drawing showing the monitoring locations.

Last page REPORTING, RECORDING AND ADDITIONAL MONITORING REQUIRMENTS PAGE (EVERY PERMIT)

Attachment A

91-20-2a (1/98)

SPDES PERMIT NUMBER NY	Part I, Page of

PERMIT LIMITS, LEVELS AND MONITORING DEFINITIONS

OUTFALL	WASTEWATER TYPE	RECEIVING WATER	EFFECTIVE	EXPIRING
	This cell describes the type of wastewater authorized for discharge. Examples include process wastewater, storm water, non-contact cooling water.	This cell lists classified waters of the state to which the listed outfall discharges.	The date this page starts in effect.	The date this page is no longer in effect

PARAMETER	MINIMUM	MAXIMUM	UNITS	SAMPLE FREQ.	SAMPLE TYPE
pH	The minimum level that must be maintained at all times.	The maximum level that may not be exceeded at any time.	SU		

PARA-METER	CALCULATED LIMIT	COMPLIANCE LEVEL	ACTION LEVEL	UNITS	MDL AND PQL	SAMPLE FREQUENCY	SAMPLE TYPE
	Daily Avg. and Daily Max. are defined below. The calculated limit is the limit that has been derived based on the assumptions and rules in place at the time the permit is written. Examples of these assumptions include receiving water hardness, pH and temperature; rates of other discharges to the receiving stream; conservatism of substances in the environment; etc. If the assumptions or rules change, the calculated limit may, after due process, change. The Calculated Limit is developed without consideration of what level is technologically achievable or what can be quantitated analytically. If a calculated limit is not included in this column, but a compliance level is included in the next column, the calculated limit is the compliance level.	Daily Max. and Daily Avg. are defined below. All determinations of compliance with substance specific discharge limits are made by comparing monitoring results to the compliance level. The compliance level is developed considering what can be quantitated analytically or what level is technologically achievable in the permittee's discharge at the time the permit is written.	Type I or Type II Action Levels are monitoring requirements, as defined below, that trigger additional monitoring and permit review when exceeded.	This can include units of flow, pH, Temperature, mass or concentration. Examples include SU, °F, µg/l, lbs/d, etc.	The method detection limits and practical quantitation limits that the permittee must make all reasonable efforts to achieve when measuring the parameter in the wastewater, Including using a more sensitive approved analytical procedure.	Examples include Daily, 3/week, weekly, 2/month, monthly, quarterly, 2/yr and yearly.	Examples include grab, 24 hour composite and 3 grab samples collected over a 6 hour period.

DAILY DISCHARGE.: The discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for the purposes of sampling. For pollutants expressed in units of mass, the 'daily discharge' is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the 'daily discharge' is calculated as the average measurement of the pollutant over the day.

DAILY MAX.: The highest allowable daily discharge.

DAILY AVG.: The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

ACTION LEVELS: Routine Action Level monitoring results, if not provided for on the Discharge Monitoring Report (DMR) form, shall be appended to the DMR for the period during which the sampling was conducted. If the additional monitoring requirement is triggered as noted below, the permittee shall undertake a short-term, high-intensity monitoring program for the parameter(s). Samples identical to those required for routine monitoring purposes shall be taken on each of at least three consecutive operating and discharging days and analyzed. Results shall be expressed in terms of both concentration and mass, and shall be submitted no later than the end of the third month following the month when the additional monitoring requirement was triggered. Results may be appended to the DMR or transmitted under separate cover to the same address. If levels higher than the Action Levels are confirmed, the permit may be reopened by the Department for consideration of revised Action Levels or effluent limits. The permittee is not authorized to discharge any of the listed parameters at levels which may cause or contribute to a violation of water quality standards.

TYPE I : The additional monitoring requirement is triggered upon receipt by the permittee of any monitoring results in excess of the stated Action Level.

TYPEII: The additional monitoring requirement is triggered upon receipt by the permittee of any monitoring results that show the stated action level exceeded for four of six consecutive samples, or for two of six consecutive samples by 20% or more, or for any one sample by 50% or more.

Attachment A

91-20-2a (1/98)

SPDES PERMIT NUMBER NY	Part I, Page of

INTERIM OR FINAL

PERMIT LIMITS, LEVELS AND MONITORING

OUTFALL NUMBER	WASTEWATER TYPE	RECEIVING WATER	EFFECTIVE	EXPIRING

PARAMETER	MINIMUM	MAXIMUM	UNITS	SAMPLE FREQUENCY	SAMPLE TYPE	FOOTNOTES
pH			SU			

PARAMETER	CALCULATED LIMIT		ENFORCEABLE COMPLIANCE LEVEL		MONITORING ACTION LEVEL		UNITS	MDL (µg/l)	PQL (µg/l)	SAMPLE FREQ.	SAMPLE TYPE	FOOT-NOTES
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.	TYPE I	TYPE II						
Flow												

FOOTNOTES:

Attachment A - FINAL TREATMENT COMPLIANCE SCHEDULE

91-20-2C (2/91)

SPDES Number NY	Part 1, Page of

SCHEDULE OF COMPLIANCE

a) The permittee shall comply with the following schedule.

Action Code	Outfall Number(s)	Compliance Action	Due Date
53599	001	The permittee shall submit an approvable engineering report, signed and stamped by a professional engineer licensed to practice engineering in New York State, detailing the design basis, treatment unit type and sizing that will be used to comply with final effluent limitations at outfall 001.	[9 MONTHS FROM THE START DATE]
01799	001	The permittee shall submit final plans and specifications certified to conform to the approved engineering report by a professional engineer, licensed to practice engineering in New York State.	[15 MONTHS FROM THE START DATE]
03099	001	The permittee shall begin construction of the treatment system.	[18 MONTHS FROM THE START DATE]
04599	001	The permittee shall complete construction of the treatment system	[27 MONTHS FROM THE START DATE]
05699	001	The permittee shall comply with final effluent limitations	[30 MONTHS FROM THE START DATE]

b) The permittee shall submit a written notice of compliance or non-compliance with each of the above schedule dates no later than 14 days following each elapsed date, unless conditions require more immediate notice under terms of the General Conditions (Part II), Section 5. All such compliance or non-compliance notification shall be sent to the locations listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS. Each notice of <u>non-compliance</u> shall include the following information:

1. A short description of the non-compliance;
2. A description of any actions taken or proposed by the permittee to comply with the elapsed schedule requirements without further delay and to limit environmental impact associated with the non-compliance;
3. A description or any factors which tend to explain or mitigate the non-compliance; and
4. An estimate of the date the permittee will comply with the elapsed schedule requirement and an assessment of the probability that the permittee will meet the next scheduled requirement on time.

c) The permittee shall submit copies of any document required by the above schedule of compliance to NYSDEC Regional Water Engineer at the location listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS, unless otherwise specified in this permit or in writing by the Department.

Attachment A - SHORT TERM HIGH INTENSITY MONITORING

91-20-2C (2/91)

SPDES Number NY	Part 1, Page of

SCHEDULE OF COMPLIANCE

a) The permittee shall comply with the following schedule.

Action Code	Outfall Number(s)	Compliance Action	Due Date
96299	001	The permittee shall submit the results of 6 months of weekly monitoring for: (SUBSTANCE XYZ) Volatile organic pollutant monitoring shall be obtained from a composite of 3 grab samples, one taken each 8 hours. Pesticides and PCBs monitoring shall be by grab sample. All toxic pollutants shall be monitored using 24 hour composite samples The monitoring results will be provided in mg/l along with the recorded flow for the day each sample was collected.	[BY 7 MONTHS FROM THE PERMIT MOD]

b) The permittee shall submit a written notice of compliance or non-compliance with each of the above schedule dates no later than 14 days following each elapsed date, unless conditions require more immediate notice under terms of the General Conditions (Part II), Section 5. All such compliance or non-compliance notification shall be sent to the locations listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS. Each notice of non- compliance shall include the following information:

1. A short description of the non-compliance;
2. A description of any actions taken or proposed by the permittee to comply with the elapsed schedule requirements without further delay and to limit environmental impact associated with the non-compliance;
3. A description or any factors which tend to explain or mitigate the non-compliance; and
4. An estimate of the date the permittee will comply with the elapsed schedule requirement and an assessment of the probability that the permittee will meet the next scheduled requirement on time.

c) The permittee shall submit copies of any document required by the above schedule of compliance to NYSDEC Regional Water Engineer at the location listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS, unless otherwise specified in this permit or in writing by the Department.

Attachment A - STANDARD BMP PAGE

Form 91-20-2k (1/96)

SPDES Number NY	Part 1, Page of

SPECIAL CONDITIONS - BEST MANAGEMENT PRACTICES

1. The permittee shall develop a Best Management Practices (BMP) plan, within one year of EDP to prevent, or minimize the potential for, release of significant amounts of toxic or hazardous pollutants to the waters of the State through plant site runoff; spillage and leaks; sludge or waste disposal; and storm water discharges including, but not limited to, drainage from raw material storage. Completed BMP plans shall be submitted by [WITHIN 6 MONTHS OF EDP] to the Regional Water Engineer at the address shown on the Recording, Reporting and Additional Monitoring Requirements. The BMP plan shall be implemented within 6 months of submission, unless a different time frame is approved by this Department.

2. The permittee shall review all facility components or systems (including material storage areas; in-plant transfer, process and material handling areas; loading and unloading operations; storm water, erosion, and sediment control measures; process emergency control systems; and sludge and waste disposal areas) where toxic or hazardous pollutants are used, manufactured, stored or handled to evaluate the potential for the release of significant amounts of such pollutants to the waters of the State. In performing such an evaluation, the permittee shall consider such factors as the probability of equipment failure or improper operation, cross-contamination of storm water by process materials, settlement of facility air emissions, the effects of natural phenomena such as freezing temperatures and precipitation, fires, and the facility's history of spills and leaks. For hazardous pollutants, the list of reportable quantities as defined in 40 CFR, Part 117 may be used as a guide in determining significant amounts of releases. For toxic pollutants, the relative toxicity of the pollutant shall be considered in determining the significance of potential releases.

   The review shall address all substances present at the facility that are listed as toxic pollutants under Section 307(a)(1) of the Clean Water Act or as hazardous pollutants under Section 311 of the Act or that are identified as Chemicals of Concern by the Industrial Chemical Survey.

3. Whenever the potential for a significant release of toxic or hazardous pollutants to State waters is determined to be present, the permittee shall identify Best Management Practices that have been established to minimize such potential releases. Where BMPs are inadequate or absent, appropriate BMPs shall be established. In selecting appropriate BMPs, the permittee shall consider typical industry practices such as spill reporting procedures, risk identification and assessment, employee training, inspections and records, preventive maintenance, good housekeeping, materials compatibility and security. In addition, the permittee may consider structural measures (such as secondary containment and erosion/sediment control devices and practices) where appropriate.

4. Development of the BMP plan shall include sampling of waste stream segments for the purpose of toxic "hot spot"* identification. The economic achievability of effluent limits will not be considered until plant site "hot spot" sources have been identified, contained, removed or minimized through the imposition of site specific BMPs or application of internal facility treatment technology.

5. The BMP plan shall be documented in narrative form and shall include any necessary plot plans, drawings or maps. Other documents already prepared for the facility such as a Safety Manual or a Spill Prevention, Control and Countermeasure (SPCC) plan may be used as part of the plan and may be incorporated by reference. USEPA guidance for development of storm water elements of the BMP is available in the September 1992 manual "Storm Water Management for Industrial Activities," USEPA Office of Water Publication EPA 832-R-92-006 (available from NTIS, (703)487-4650, order number PB 92235969). A copy of the BMP plan shall be maintained at the facility and shall be available to authorized Department representatives upon request. As a minimum, the plan shall include the following BMP's:

   a. BMP Committee
   b. Reporting of BMP Incidents
   c. Risk Identification & Assessment
   d. Employee Training
   e. Inspections and Records
   f. Preventive Maintenance
   g. Good Housekeeping
   h. Materials Compatibility
   i. Security
   j. Spill prevention & response
   k. Erosion & sediment control
   l. Management of runoff

6. The BMP plan shall be reviewed annually and shall be modified whenever changes at the facility materially increase the potential for significant releases of toxic or hazardous pollutants or where actual releases indicate the plan is inadequate.

* A "hot spot" is a segment of an industrial facility; including but not limited to soil, equipment, material storage areas, sewer lines etc.; which contributes elevated levels of problem pollutants to the wastewater and/or storm water collection system of that facility. For the purposes of this definition, problem pollutants are substances for which treatment to meet a water quality or technology requirement may, considering the results of waste stream segment sampling, be deemed unreasonable. For the purposes of this definition, an elevated level is a concentration or mass loading of the pollutant in question which is sufficiently higher than the concentration of that same pollutant at the compliance monitoring location so as to allow for an economically justifiable removal and/or isolation of the segment and/or B.A.T. treatment of wastewaters emanating from the segment.

Attachment A - BMP PAGE FOR SMALL FACILITIES

Form 91-20-2sk (1/96)

SPDES Number NY	Part 1, Page of

SPECIAL CONDITIONS - BEST MANAGEMENT PRACTICES (SMALL FACILITIES)

1. The permittee shall develop a Best Management Practices (BMP) plan to prevent, or minimize the potential for, release of significant amounts of toxic or hazardous pollutants to the waters of the State through plant site runoff; spillage and leaks; sludge or waste disposal; and storm water discharges including, but not limited to, drainage from raw material storage. Completed BMP plans shall be submitted by [WITHIN 6 MONTHS OF EDP] to the Regional Water Engineer at the address shown on the Recording, Reporting and Additional Monitoring Requirements page. The BMP plan shall be implemented within 6 months of submission.

2. The BMP plan shall be documented in narrative form and shall include any necessary plot plans, drawings or maps. Other documents already prepared for the facility such as a Safety Manual or a Spill Prevention, Control and Countermeasure (SPCC) plan may be used as part of the plan and may be incorporated by reference. USEPA guidance for development of the BMP is available in the manual entitled ***(insert appropriate guidance document name from Attachment F here).*** USEPA guidance for development of storm water elements of the BMP is available in the September 1992 manual "Storm Water Management for Industrial Activities," USEPA Office of Water Publication EPA 832-R-92-006 (available from NTIS, (703)487-4650, order number PB 92235969). A copy of the BMP plan shall be maintained at the facility and shall be available to authorized Department representatives upon request. The BMP plan shall include the following BMP's:

a. BMP Committee	e. Inspections and Records	i. Security
b. Reporting of BMP Incidents	f. Preventive Maintenance	j. Spill prevention & response
c. Risk Identification & Assessment	g. Good Housekeeping	k. Erosion & sediment control
d. Employee Training	h. Materials Compatibility	l. Management of runoff

Note that for some facilities, especially those with few employees, some of the above BMP's may not be applicable. It is acceptable in these cases to indicate "Not Applicable" for the portion(s) of the BMP plan that do not apply to your facility, along with an explanation.

3. The BMP plan shall be reviewed on an annual basis, and modified whenever changes at the facility materially increase the potential for significant releases of toxic or hazardous pollutants or where actual releases indicate the plan is inadequate.

Attachment A - SAMPLE BMP COMPLIANCE SCHEDULE PAGE

Form 91-20-2C (2/91)

SPDES Number NY	Part 1, Page of

SCHEDULE OF COMPLIANCE

a) The permittee shall comply with the following schedule.

Action Code	Outfall Number(s)	Compliance Action	Due Date
05889	All	Submit site specific Best Management Practices (BMP) Plan to address: (1) Infiltration and Exfiltration from the industrial sewer. (2) Storage tank improvement and (3) Solvent Pipeline Inspection Program.	[START DATE + mos.]
	All	Implement non-structural measures specified by the site specific BMP Plan.	[START DATE + mos.]
	All	Complete construction of structural measures specified by the site specific BMP Plan.	[START DATE + mos.]

b) The permittee shall submit a written notice of compliance or non-compliance with each of the above schedule dates no later than 14 days following each elapsed date, unless conditions require more immediate notice under terms of the General Conditions (Part II), Section 5. All such compliance or non-compliance notification shall be sent to the locations listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS. Each notice of non-compliance shall include the following information:

1. A short description of the non-compliance;
2. A description of any actions taken or proposed by the permittee to comply with the elapsed schedule requirements without further delay and to limit environmental impact associated with the non-compliance;
3. A description of any factors which tend to explain or mitigate the non-compliance; and
4. An estimate of the date the permittee will comply with the elapsed schedule requirement and an assessment of the probability that the permittee will meet the next scheduled requirement on time.

c) The permittee shall submit copies of any document required by the above schedule of compliance to NYSDEC Regional Water Engineer at the location listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS, unless otherwise specified in this permit or in writing by the Department.

Attachment A - STANDARD PMP PAGE

Form 91-20-2PMP (1/98)

SPDES Number NY	Part 1, Page of

SPECIAL CONDITIONS - POLLUTANT MINIMIZATION PROGRAM

1. The permittee shall develop and implement a Pollutant Minimization Program (PMP). The goal of this program will be to meet the calculated water quality based effluent limit for the following substances:

By [WITHIN 6 MONTHS OF THE EDP(M)], the completed, approvable PMP plan shall be submitted to the Regional Water Engineer at the address listed under the section of this permit entitled RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS.

2. The PMP plan shall be documented in narrative form and shall include any necessary plot plans, drawings or maps. Other documents already prepared for the facility such as a Safety Manual or a Spill Prevention, Control and Countermeasure (SPCC) plan or Best Management Practices Plan (BMP) may be used as part of the plan and may be incorporated by reference. As a minimum, the plan shall include:

a. An on-going potential source identification, evaluation and prioritization program;

b. Periodic monitoring designed to quantify and, over time, track the reduction of discharges of the substances noted above;

[FOR USE WHEN THE SOURCES ARE MORE EASILY FOUND AND ADDRESSED]
c. An approvable control strategy (including a schedule for implementation) for reducing discharges via cost-effective control measures, which may include but is not limited to site treatment or remediation for the substances noted in (1.) above. The schedule for implementation and the control strategy will become enforceable under this permit; and

[FOR USE WHEN THE SOURCES AND SOLUTIONS ARE LESS EASILY FOUND AND ADDRESSED]
c. An approvable schedule for submission of an approvable control strategy for reducing discharges via cost-effective control measures, including but not limited to site treatment or remediation for the substances noted in (1.) above. The schedule for submission of a control strategy will become enforceable under this permit. The schedule the control strategy and the schedule for implementation of the control strategy will become enforceable under this permit; and

d. An annual status report that summarizes all source monitoring and all control measures implemented during the previous calendar year shall be prepared and submitted to the Regional Water Engineer by March 1 of each year.

3. The PMP plan shall be modified whenever changes at the facility increase the potential for discharge of the substance(s) noted in (1.) above or where ongoing monitoring indicates that the plan is ineffective.

Attachment A - WATER TREATMENT CHEMICAL REQUIREMENTS

Form WTCpermt (1/98)

SPDES Number NY	Part 1, Page of

WATER TREATMENT CHEMICAL (WTC) Requirements

New or increased use of a WTC requires Department review and authorization before it can be used and discharged. At a minimum, the permittee must notify the Department in writing of its intent to change WTC use. The Department will review that submittal and determine if a formal SPDES permit modification is necessary or whether WTC review and authorization may proceed outside of the formal permit administrative process. **The majority of WTC authorizations do not require formal SPDES permit modification.** WTCs which are used in closed systems and cannot contact wastewater effluents or WTCs which are discharged to municipal STP are not subject to SPDES permit review. WTCs include, but are not limited to, conditioners, corrosion or scale inhibitors, flocculants, biocides, fungicides, molluscicides, and sequestrants. **Questions** concerning the use in discharge of a new WTC or increased levels of an authorized WTC should be directed to the Department staff person who developed your SPDES permit. If you are not sure who that is, contact the Department staff person who normally inspects your facility.

Generic WTC Usage Requirements

- WTC usage shall not exceed the usage rate reported by the permittee or authorized below, whichever is less.
- The permittee shall maintain a logbook of all WTC use, noting for each chemical the time, amount and location of each dosage. Additional guidance concerning necessary logbook content and other applicable requirements can be found in the general conditions (Part II) of the SPDES permit. The logbook must also document that adequate process controls are in place to ensure that excessive levels of WTCs are not used and subsequently discharged.
- The permittee shall provide an annual report, attached to the December DMR, containing the following information for each outfall: the current list of WTCs authorized for use and discharge by the Department, for each WTC the amount in pounds used during the year, and any other pertinent information.
- The discharge shall not cause or contribute to a violation of water quality or an exceedance of AWQC.

Generic Prohibitions

WTCs which contain measurable levels of phosphorus are not permitted for discharge within the Great Lakes Basin or tributary to ponded waters outside the Basin unless the permittee can clearly demonstrate that no acceptable alternative exists. WTCs containing microorganisms cannot be approved unless a formal SPDES permit modification application is submitted.

List of WTCs Authorized for Use and Discharge*

WTC Manufacturer, Name & Function:	
Affected Outfall(s):	Avg/Max Daily Dosage: / lbs/day

WTC Manufacturer, Name & Function:	
Affected Outfall(s):	Avg/Max Daily Dosage: / lbs/day

WTC Manufacturer, Name & Function:	
Affected Outfall(s):	Avg/Max Daily Dosage: / lbs/day

WTC Manufacturer, Name & Function:	
Affected Outfall(s):	Avg/Max Daily Dosage: / lbs/day

WTC Manufacturer, Name & Function:	
Affected Outfall(s):	Avg/Max Daily Dosage: / lbs/day

WTC Manufacturer, Name & Function:	
Affected Outfall(s):	Avg/Max Daily Dosage: / lbs/day

* - Authorized WTCs must either be identified above or in a letter sent to the permittee by the Department. In cases where a WTC is listed above and in a letter from the Department, the more recent document will control.

ATTACHMENT B - WATER TREATMENT CHEMICAL DOCUMENTS

WTC USAGE NOTIFICATION REQUIREMENTS FOR SPDES PERMITTEES

WTC REVIEW AND AUTHORIZATION ALGORITHM

Attachment B - WTC Usage Notification Requirements

Form WTCFX (1/98)

NYSDEC - Division of Water

Water Treatment Chemical (WTC) Usage Notification Requirements for SPDES Permittees

Instructions Page

Purpose

New or increased use of a WTC requires Department review and authorization before it can be used and discharged. At a minimum, the permittee must notify the Department in writing of its intent to change WTC use. The Department will review that submittal and determine if a formal SPDES permit modification is necessary or whether WTC review and authorization may proceed outside of the formal permit administrative process. **The majority of WTC authorizations do not require formal SPDES permit modification.** Notification requirements are summarized below to ensure the submission of complete information. WTCs which are used in closed systems and cannot contact wastewater effluents or WTCs which are discharged to municipal STP are not subject to Division of Water review. WTCs include, but are not limited to, conditioners, corrosion or scale inhibitors, flocculants, biocides, fungicides, molluscicides, and sequestrants.

Notification Requirements/Instructions

For **each** new or increased use of a **WTC please complete items 1a, and 2 - 13 on the attached 3 page form, entitled Water Treatment Chemical Usage Notification Requirements for SPDES Permittees attach a copy of the product label and MSDS sheets** and Fax or Mail the information to:

Permit writer:	Telephone:	Fax:
Address:		

Alternatively, the permittee may, at a minimum, complete items 1a, 2 - 8 and 13 then forward the form to the WTC manufacturer who must then complete the remaining items (9 - 12) and items 1b and 14. The manufacturer must then send the completed form directly to the permit writer. This alternative method may be necessary because the WTC manufacturer may be reluctant to reveal trade secret product formulations to the permittee.[1] For completion of question 9 Toxicity Information, please use the EPA toxicity Manual[2] and assure that the results are for the appropriate receiving water (i.e. fresh water testing for discharges to fresh water, salt water testing for discharges to marine waters). After reviewing the submittal **the permit writer will complete items 15 and 16** and fax or mail a copy of the completed form to the person identified in item 2.c.

Generic Prohibitions

WTCs which contain measurable levels of phosphorus are not permitted for discharge within the Great Lakes Basin or tributary to ponded waters outside the Basin unless the permittee can clearly demonstrate that no acceptable alternative exists and the permit is modified to regulate phosphorus. WTCs containing microorganisms cannot be approved unless a formal SPDES permit modification application is submitted.

Common Reasons Which Prevent Letter Authorization of a WTC

- Submission of incomplete or inaccurate information.
- High WTC toxicity compared to available receiving stream dilution or predicted exceedance of AWQC.
- Department review indicates that a SPDES permit modification is necessary.

Footnotes:

(1) If requested, the Department will restrict access to trade secret information to the extent authorized by law.

(2) The manufacturer should be able to supply this information. As of January 1998, the current **EPA protocols require acute (48 or 96 hour LC50 or EC50) and chronic (NOEC) testing using both a vertebrate and invertebrate species.** Refer to the following three manuals: Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fourth Edition, EPA/600/4-90/027F (1993); Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Third Edition, EPA/600/4-91/002 (1994); Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Marine and Estuarine Organisms, Second Edition, EPA/600/4-91/003 (1994).

Attachment B - WTC Usage Notification Requirements

Form WTCFX (1/98)

NYSDEC - Division of Water

Water Treatment Chemical (WTC) Usage Notification Requirements for SPDES Permittees

Permittee completes items 1a and 2 - 13. Alternatively, the permittee may complete items 1a, 2 - 8 and 13 if the WTC manufacturer completes items 1b, 9 - 12 and 14. See instructions.

1.a. Date Signed by Permittee :	1.b. Date Signed by WTC Manufacturer :
2.a. Permittee Name :	2.b. SPDES No. :
2.c. Contact Name :	
3.a. WTC Name :	
3.b. WTC Manufacturer :	
4. WTC Function :	
5. Affected Outfall(s) :	
6.a. WTC Avg/Max Daily Dosage : /	lbs/day
6.b. Dosage Frequency : hrs/day,	days/week
7.a. Outfall Avg/Max WTC Concentration : /	mg/l
7.b. Outfall Avg/Max Flow Rate : /	MGD
8. List measures in place to ensure that excessive levels of WTC are not used and subsequently discharged:	

9.a. WTC Composition - Ingredients/Impurities	9.b. %	9.c. CAS#	9.d. Outfall Concentration
			mg/l
			mg/l
			mg/l
			mg/l
			mg/l
			mg/l
			mg/l
9.e. Known Degradation Products :			

10.a. Is WTC a NYS registered biocide?	10.b. Registration Number :
11. WTC BOD and COD (lb/lb) :	

Attachment B - WTC Usage Notification Requirements

Form WTCFX (1/98)

NYSDEC - Division of Water

WTC Usage Notification Requirements for SPDES Permittees

1.a. Date Signed by Permittee :			1.b. Date Signed by WTC Manufacturer :		
2.b. SPDES No. :			3.a. WTC Name :		
12. WTC Toxicity Info (most sensitive species) - Attach description of endpoint for each EC50 and LOEC.					
12.a. Vertebrate Species	LC50	EC50	NOEC	LOEC	Other -
	mg/l	mg/l	mg/l	mg/l	
12.b. Vertebrate Species	LC50	EC50	NOEC	LOEC	Other -
	mg/l	mg/l	mg/l	mg/l	
12.c. Invertebrate Species	LC50	EC50	NOEC	LOEC	Other -
	mg/l	mg/l	mg/l	mg/l	
12.d. Invertebrate Species	LC50	EC50	NOEC	LOEC	Other -
	mg/l	mg/l	mg/l	mg/l	
12.e. Species	LC50	EC50	NOEC	LOEC	Other -
	mg/l	mg/l	mg/l	mg/l	

13. Permittee Certification - I certify under penalty of law that this notification and all attachments are, to the best of my knowledge and belief, true, accurate and complete. The generic WTC usage requirements noted below will be adhered to.

PRINT NAME_____ SIGNATURE_____

TITLE/COMPANY_____

TELEPHONE_____ FAX_____

14. WTC Manufacturer Certification - I certify under penalty of law that this notification and all attachments are, to the best of my knowledge and belief, true, accurate and complete.

PRINT NAME_____ SIGNATURE_____

TITLE/COMPANY_____

TELEPHONE_____ FAX_____

Attachment B - WTC Usage Notification Requirements

Form WTCFX (1/98)

NYSDEC - Division of Water

WTC Usage Notification Requirements for SPDES Permittees

1.a. Date Signed by Permittee :	1.b. Date Signed by WTC Manufacturer :
2.b. SPDES No. :	2.c. Contact Name :
3.a. WTC Name :	

Generic WTC Usage Requirements

- WTC usage shall not exceed the usage rate reported in this notification submittal.
- The permittee shall maintain a logbook of all WTC use, noting for each chemical the time, amount and location of each dosage. Additional guidance concerning necessary logbook content and other applicable requirements can be found in the general conditions (Part II) of the SPDES permit. The logbook must also document that adequate process controls are in place to ensure that excessive levels of WTCs are not used and subsequently discharged.
- The permittee shall provide an annual report, attached to the December DMR, containing the following information for each outfall: the current list of WTCs authorized for use and discharge by the Department, for each WTC the amount in pounds used during the year, and any other pertinent information.
- The discharge shall not cause or contribute to a violation of water quality or an exceedance of AWQC.

Items 15 - 16 must be completed by NYSDEC permit writer.

15. Review Decision (check the appropriate box).

☐ The proposed WTC usage may proceed as proposed without permit modification subject to the conditions noted above.

☐ The proposed WTC usage may not proceed for one of the following three reasons:

- ☐ As noted below, the information provided is insufficient to complete our review.
- ☐ As noted below, the SPDES permit must first be modified to add new requirements.
- ☐ As noted below, the proposed use is prohibited.

_____

_____

_____

16. Permit Writer Information:

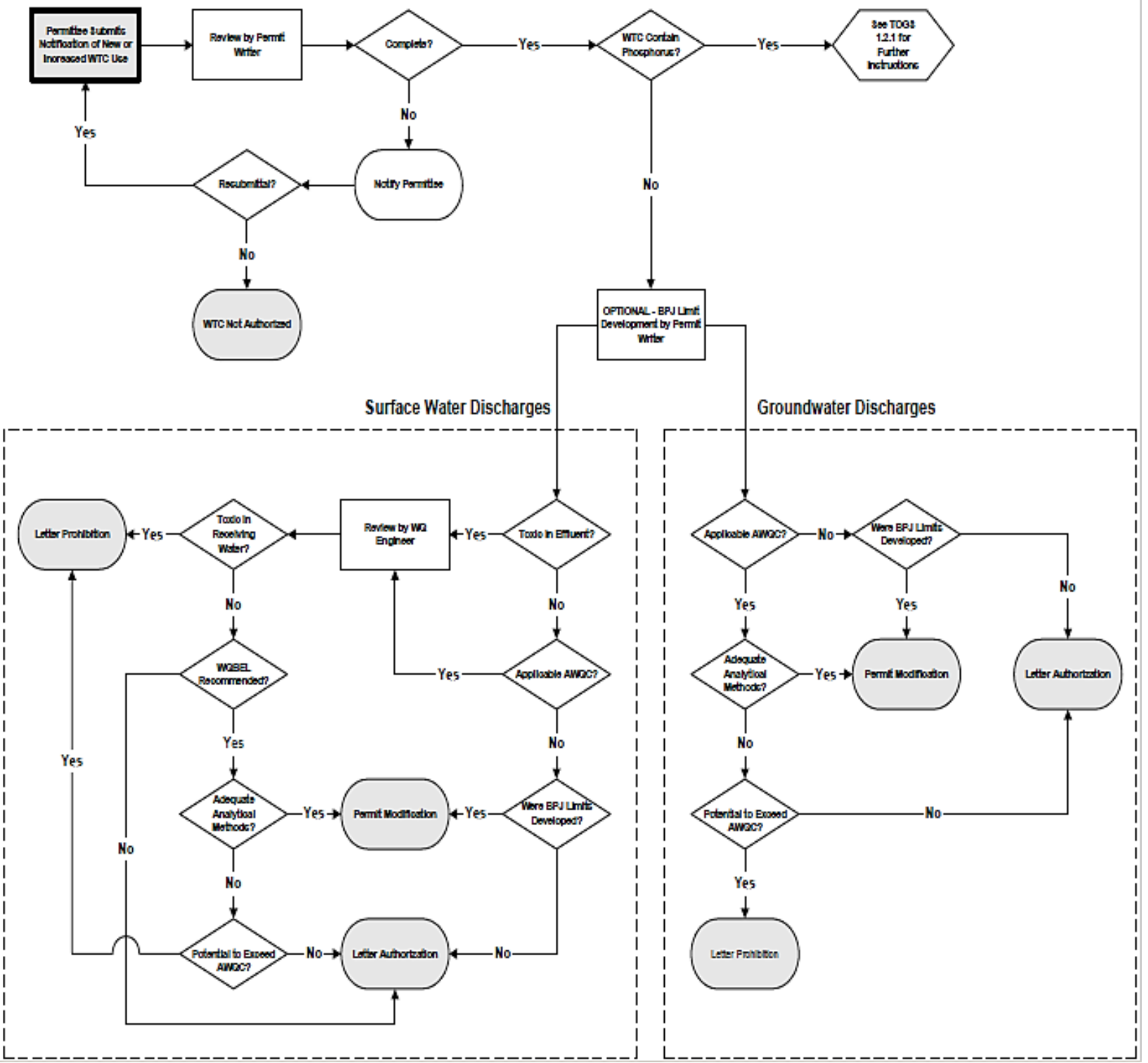
PRINT NAME_____ SIGNATURE_____

TITLE_____ DATE_____

ADDRESS _____

TELEPHONE_____ FAX _____

ATTACHMENT B: WTC Review and Authorization Algorithm



ATTACHMENT C - MODEL TECHNOLOGY BPJ LIMITS (1/98)

Attachment C - MODEL TECHNOLOGY BPJ LIMITS (1/98)

Parameter	(A) L&S	(B) L,S&F	(C) S,S&F	(D) Chemical	(E) Biological	(F) OCPSF-Bio	(G) OCPSF-Nonbio	(H) Carbon	(I) Air Strip	(J) Misc.	(K) LDRs	(L) MDL/POL
mg/l												mg/l
Ammonia (N)	130/59	130/59								20/10, 20		0.02/0.06
BOD					45/30	48/18, 160/65	48/18, 160/65	**		20		2/2
CBOD					40/25			**				2/2
Oil & Grease	20/12	10						**		15		3/10
pH (su)					(6.0-9.0)					(6.0-9.0)		
Settleable Solids (ml/l)					0.30					0.10		0.2/0.8
Surfactants (MBAS)										17/11, 20		0.1/0.4
TKN												0.02/0.06
Total Dissolved Solids												10/40
Total Suspended Solids	41/20	15/12			45/30	120/36, 220/67	120/36, 220/67	**		20, 40/20		4/20
ug/l												ug/l
Aluminum	6400/3200	6100/2700		4000/2000								2/8
Antimony	2900/1300	1900/860									1900	3/10
Arsenic	2100/930	1400/620		150, 100/50							1400	1/4
Barium	5600/2500	1200/510		4000/2000							1200	0.3/1
Beryllium	1200/550	820/370									820	0.2/0.8
Boron	1800/840	1800/840										5/20
Cadmium	340/150	200/80	40/20	200/100							690	0.1/0.4
Cesium	510/230	510/230										
Chlorine, Free Available										500/200		
Chlorine, Total Residual					2000					200		3/10
Chromium, Hexavalent				200, 100/50				100				8/30
Chromium	440/180	370/150	210/90	500		2800/1100	2800/1100				2800	1/4
Cobalt	210/90	140/70										1/4
Copper	1900/1000	1300/610	210/90	500		3400/1500	3400/1500				1300	1/4
Cyanide, Free (amen. or wad)				200, 100/50							860	20/60
Cyanide	290/120	200/80		1100, 800/400		1200/420	1200/420			4500/2000	1200	20/60
Fluoride	35/20 mg/l	35/20 mg/l		30/15 mg/l						60/26 mg/l		30/100
Gallium	440/180	370/150										
Germanium	440/180	370/150										

Attachment C - MODEL TECHNOLOGY BPJ LIMITS (1/98)

Parameter	(A) L&S	(B) L S&F	(C) S S&F	(D) Chemical	(E) Biological	(F) OCPSF-Bio	(G) OCPSF-Nonbio	(H) Carbon	(I) Air Strip	(J) Misc.	(K) LDRs	(L) MDL/POL
Gold	100	100		100/50								1/4
Hafnium	29/14 mg/l	20/9.0 mg/l										
Indium	440/180	370/150										30/100
Iron	1200/610	1200/610		4000/2000					***			1/4
Lead	420/200	280/130	40/20	400/200		690/320	690/320				690	1/4
Magnesium												0.2/0.8
Manganese	680/290	300/230		2000/1000								0.2/0.8
Mercury	250/100	150/60	130/60	100/50				0.25-20		15	150	0.2/0.8
Molybdenum	6600/3400	5000/2200										1/4
Nickel	1900/1300	550/370	210/90	1300,2000/1000		4000/1700	4000/1700				4000	1/4
Osmium												20/80
Palladium	100	100										5/20
Platinum	100	100										20/80
Phosphorus	17000/6800	11000/4600										10/40
Rhenium	6600/3400	5000/2200										200/800
Rhodium												5/20
Rubidium	510/230	510/230										
Ruthenium												20/80
Selenium	1200/550	820/370									820	1/4
Silver	410/170	290/120	210/90	350, 100/50	200						430	0.2/0.8
Sodium												0.2/0.8
Sulfate												1000/4000
Sulfide				2000/1000	2000/1000							100/400
Sulfite												2000/8000
Tantalum	450	450										
Thallium	2100/910	1400/610									1400	1/4
Tin	380/220	380/220										5/20
Titanium	940/410	530/230										10/40
Tungsten	7000/2800	3500/1600										
Uranium	6500/4700	4300/3100										
Vanadium	100	100									4300	2/8
Zinc	1500/610	1000/420	40/20	1000/500, 400		2600/1100	2600/1100				2600	0.05/0.2

Attachment C - MODEL TECHNOLOGY BPJ LIMITS (1/98)

Parameter	(A) L&S	(B) L S&E	(C) S S&E	(D) Chemical	(E) Biological	(F) OCPSF-Bio	(G) OCPSF-Nonbio	(H) Carbon	(I) Air Strip	(J) Misc.	(K) LDRs	(L) MDL/PQL
Zirconium	29000/14000	20000/9000										
ug/l												µg/l
Acenaphthene					40	59/22		10			59	1.8/7
Acenaphthylene					10, 40	59/22		10			59	2.3/9
Acetone											280	20/100
Acetonitrile											5600	20/100
Acetophenone											10	2/10
Acetylaminofluorene, 2-											59	
Acrolein								100			290	0.7/3
Acrylamide											19000	
Acrylonitrile					100	240/96	230/94	10			240	0.5/2
Aldrin								1		8	21	0.004/0.01
Aminobiphenyl, 4-											130	2/10
Aniline											810	2/10
Anthracene					1.0, 40	59/22		10		8	59	0.66/3
Aramite											360	3/10
Aroclor 1016								0.065		0.3		0.065/0.3
Aroclor 1221								0.065		0.3		0.065/0.3
Aroclor 1232								0.065		0.3		0.065/0.3
Aroclor 1242								0.065		0.3		0.065/0.2
Aroclor 1248								0.065		0.3		0.065/0.3
Aroclor 1254								0.065		0.3		0.065/0.3
Aroclor 1260								0.065		0.3		0.065/0.3
Aroclors, sum of											100	
Benz(a)anthracene					5.0, 40	59/22		10		30	59	0.013/0.05
Benzal chloride											55	
Benzene					50, 40	140/37	130/57	5	5		140	0.2/0.8
Benzene hexachlorides (See BHCs)												
Benzidine								10				0.08/0.3
Benzo(a)pyrene					5.0, 40	61/23		10		10	61	0.023/0.09
Benzo(b)fluoranthene					40	61/23		10		20	110	0.018/0.05
Benzo(e)pyrene												

Attachment C - MODEL TECHNOLOGY BPJ LIMITS (1/98)

Parameter	(A) L&S	(B) L S&F	(C) S S&F	(D) Chemical	(E) Biological	(F) OCPSF-Bio	(G) OCPSF-Nonbio	(H) Carbon	(I) Air Strip	(J) Misc.	(K) LDRs	(L) MDL/POL
Benzo(ghi)perylene					40			10		20	5.5	0.076/0.3
Benzo(k)fluoranthene					40	59/22		10		20	110	0.017/0.07
Benzofluoranthene, 3,4- (See B(b)F)												
Benzpyrene, 1,2- (see B(e)P)												
Benzpyrene, 3,4- (see B(a)P)												
Benzyl dichloride (see benzal chloride)												
BHC, alpha-								10		10	0.14	0.003/0.01
BHC, beta-								10		20	0.14	0.006/0.02
BHC, delta-								10		10	23	0.009/0.02
BHC, gamma-								10		10	1.7	0.004/0.01
Bis(2-chloroethoxy)methane								10			36	0.5/2
Bis(2-chloroethyl)ether								10			33	0.3/1
Bis(2-chloroisopropyl)ether								10			55	0.8/3
Bis(2-ethylhexyl)phthalate					200*	280/100		10			280	2/8
Bis(chloromethyl)ether								10				
Bromoform								50			630	0.2/0.8
Bromomethane								10			110	1.2/5
Bromophenyl phenylether, 4-								10		20	55	1.9/8
Butanol, 1- (see butyl alcohol, N-)												
Butanone, 2- (see MEK)												
Butyl alcohol, N-											5600	
Butylbenzyl phthalate					200*			1.0-10			17	0.34/1
Butyl-4,6-dinitrophenol, 2-Sec											66	
Carbon disulfide											3800	1/5
Carbon hexachloride (see hexachloroethane)												
Carbon tetrachloride						38/18	380/140	10-50	10		57	0.12/0.5
Chlordane								10		10	3.3	0.014/0.05
Chloroaniline, P-											460	5/20
Chlorobenzene					30	28/15		10-25			57	0.32/1
Chlorobenzilate											100	0.2/0.8
Chloro-1,3-butadiene, 2-											57	1/5
Chlorodibromomethane								100			57	0.09/0.2
Chloroethane						270/100	300/110	10			270	0.52/2

Attachment C - MODEL TECHNOLOGY BPJ LIMITS (1/98)

Parameter	(A) L&S	(B) L S&F	(C) S S&F	(D) Chemical	(E) Biological	(F) OCPSF-Bio	(G) OCPSF-Nonbio	(H) Carbon	(I) Air Strip	(J) Misc.	(K) LDRs	(L) MDL/POL
Chloroethylene (see vinyl chloride)												
Chloroethylvinyl ether, 2-								10			62	0.13/0.5
Chloroform					200	46/21	330/110	100			46	0.05/0.2
Chloro-M-cresol, P-								50			18	0.36/1
Chloromethane						190/86	300/110	10	10		190	0.08/0.2
Chloro-3-methylphenol, 4- (see chloro-M-cresol, P-)												
Chloronaphthalene, 2-								10			55	0.94/4
Chlorophenol, 2-					50	98/31		10-50			44	0.31/1
Chlorophenyl phenylether, 4-								10		20		3.9/10
Chloroprene (see chloro-1,3-butadiene, 2-)												
Chloropropylene, 3-											36	
Chlorotoluenes, Mono								10				
Chrysene					10, 40	59/22		1.0-10		10	59	0.15/.6
Cresol (M or P)											770	2/10
Cresol (O)											110	2/10
Cyclohexanone											360	
D, 2,4-											720	0.05/0.2
DDD								10		10	23	0.011/0.02
DDE								10		20	31	0.004/0.01
DDT								10		20	3.9	0.012/0.05
DEHP (see bis(2-ethylhexyl)phthalate)												
Dibenz(ah)anthracene					40			10		10	55	0.03/0.1
Dibenzo(ae)pyrene											61	
Dibromo-3-chloropropane,1,2-											110	0.04/0.2
Dibromoethane, 1,2-											28	1/5
Dibromomethane											110	1/5
Dichlorobenzene, 1,2-					30	160/77	790/200	10-50			36	0.15/0.6
Dichlorobenzene, 1,3-					30	44/31	380/140	10			88	0.32/1
Dichlorobenzene, 1,4-					30	28/15	380/140	10			90	0.24/1
Dichlorobenzidine, 3,3'-								10				0.13/0.5
Dichlorobromomethane								100			350	0.1/0.2
Dichlorodifluoromethane								10			230	1.81/5
Dichloroethane, 1,1-						59/22	59/22	10	10		59	0.07/0.3

Attachment C - MODEL TECHNOLOGY BPJ LIMITS (1/98)

Parameter	(A) L&S	(B) L S&F	(C) S S&F	(D) Chemical	(E) Biological	(F) OCPSF-Bio	(G) OCPSF-Nonbio	(H) Carbon	(I) Air Strip	(J) Misc.	(K) LDRs	(L) MDL/POL
Dichloroethane, 1,2-						210/68	570/180	10-100	10-30		210	0.03/0.1
Dichloroethylene, 1,1-						25/16	60/22	10-100	10		25	0.13/0.5
Dichloroethylene, 1,2-C-								10	10	10		
Dichloroethylene, 1,2-T-						54/21	66/25	10-100	10-50		54	0.1/0.2
Dichlorofluoromethane												
Dichloromethane (see methylene chloride)												
Dichlorophenol, 2,4-						110/39		10			44	0.39/2
Dichlorophenol, 2,6-											44	2/10
Dichlorophenoxyacetic acid (see D, 2,4-)												
Dichloropropane, 1,2-						230/150	790/200	10			850	0.04/0.1
Dichloropropylene, 1,2-								10				
Dichloropropylene, 1,3-C or T-						44/29	790/200				36	0.34/1; 0.2/0.8
Dieldrin								10		10	17	0.002/0.005
Diethyl ether (see ethyl ether)												
Diethyl phthalate					200*	200/81		25			200	0.49/2
Dimethylaminoazobenzene, P-											130	2/10
Dimethylbenzenes (see xylenes)												
Dimethylketone (see acetone)												
Dimethylphenol, 2,4-					5	36/18		50			36	0.32/1
Dimethyl phthalate					200*	47/19		25			47	0.29/1
Di-N-butyl phthalate					200*	57/27		25			57	0.36/1
Di-N-octyl phthalate					200*			10			17	2.5/10
Di-N-propylnitrosoamine											400	
Dinitrobenzene, 1,4-											320	
Dinitro-O-cresol, 4,6-					25	280/78	280/78	25			280	
Dinitrophenol, 2,4-					50	120/71	4300/1200	25			120	13/50
Dinitrotoluene, 2,4-					100	290/110		50			320	0.02/0.08
Dinitrotoluene, 2,6-						640/260		50			550	0.01/0.04
Dioxane, 1,4-												40/150
Diphenylamine											920	2/10
Diphenylhydrazine, 1,2								50			87	
Diphenylnitrosamine											920	

Attachment C - MODEL TECHNOLOGY BPJ LIMITS (1/98)

Parameter	(A) L&S	(B) L S&F	(C) S S&F	(D) Chemical	(E) Biological	(F) OCPSF-Bio	(G) OCPSF-Nonbio	(H) Carbon	(I) Air Strip	(J) Misc.	(K) LDRs	(L) MDL/POL
Disulfoton											17	0.2/0.6
Endosulfan, alpha- or I-								1.0			23	0.014/0.05
Endosulfan, beta- or II-								10			29	0.004/0.01
Endosulfan sulfate								10			29	0.066/0.2
Endrin								10		10	2.8	0.006/0.02
Endrin aldehyde								10			25	0.023/0.05
Ethyl acetate											340	
Ethylbenzene					25, 40	110/32	380/140	5.0	5.0		57	0.2/0.8
Ethyl cyanide											240	
Ethyl ether											120	
Ethyl methacrylate											140	1/5
Ethylene oxide											120	
Famophos (see famphur)												
Famphur											17	2/10
Fluoranthene					5.0, 40	68/25		10		9.0	68	0.21/0.8
Fluorene					5.0, 40	59/22		10		8.0	59	0.21/0.8
Freon-11 (see trichlorofluoromethane)												
Freon-12 (see dichlorodifluoromethane)												
Freon-21 (see dichlorofluoromethane)												
Heptachlor								10		8.0	1.2	0.003/0.01
Heptachlor epoxide								10		9.0	16	0.083/0.2
Hexachlorobenzene						28/15	790/200	10		8.0	55	0.05/0.2
Hexachlorobutadiene						49/20	380/140	10		4.0	55	0.34/1
Hexachlorocyclopentadiene								10			57	0.4/2
Hexachlorodibenzofurans											0.063	
Hexachlorodibenzo-p-dioxins											0.063	
Hexachloroethane						54/21	790/200	10		12	55	0.03/0.1
Hexachloropropene											35	2/10
Hexanone,2- (see MNBK)												
Indeno(123cd)pyrene					40			10		10	5.5	0.043/0.2
Iodomethane											190	1/5
Isobutanol											5600	
Isobutyl alcohol (see isobutanol)												

Attachment C - MODEL TECHNOLOGY BPJ LIMITS (1/98)

Parameter	(A) L&S	(B) L S&F	(C) S S&F	(D) Chemical	(E) Biological	(F) OCPSF-Bio	(G) OCPSF-Nonbio	(H) Carbon	(I) Air Strip	(J) Misc.	(K) LDRs	(L) MDL/POL
Isodrin											21	0.05/0.2
Isophorone					100			50				2.2/9
Isosafrole											81	2/10
Kepone											1.1	2/10
Lindane (see BHC, gamma-)												
Methacrylonitrile											240	1/5
Methanol											15600	
Methapyrilene											810	2/10
Methoxychlor										18	250	0.1/0.4
Methyl alcohol (see methanol)												
Methyl bromide (see bromomethane)												
Methyl chloride (see chloromethane)												
Methylcholanthrene, 3-											5.5	
Methyl cyanide (see acetonitrile)												
Methylene-bis(2-chloroaniline), 4,4-											500	
Methylene chloride						89/40	170/36	10-100	10-50	10	89	0.25/1
Methyl ethyl ketone											280	2/10
Methyl isobutyl ketone											140	1/5
Methyl methacrylate											140	0.5/2
Methyl methansulfonate											18	2/10
Methyl-N-butyl ketone												10/50
Methyl parathion											14	
Methyl-2-Pentanone,4- (see MIBK)												
Methyl phenol, 2- (see cresol, O-)												
Methyl phenol, 3- (see cresol, M-)												
Methyl phenol, 4- (see cresol, P-)												
Methyl-1-propanol, 2- (see isobutanol)												
Methyl tert butyl ether									50			
Mirex										0.4		0.1/0.4
MTBE (see methyl tert butyl ether)												
Naphthalene					5.0, 40	59/22		10-50			59	1.6/6
Naphthylamine, 2-											520	2/10
Nitroaniline, O-											270	10/50

Attachment C - MODEL TECHNOLOGY BPJ LIMITS (1/98)

Parameter	(A) L&S	(B) L S&F	(C) S S&F	(D) Chemical	(E) Biological	(F) OCPSF-Bio	(G) OCPSF-Nonbio	(H) Carbon	(I) Air Strip	(J) Misc.	(K) LDRs	(L) MDL/POL
Nitroaniline, P-											28	10/50
Nitrobenzene						68/27	6200/2200	50			68	1.9/8
Nitro-O-toluidine, 5-											320	
Nitrophenol, 2-					100	69/41	230/65	10			28	0.45/2
Nitrophenol, 4-						120/72	580/160	50			120	0.7/3
Nitrosodiethylamine, N-											400	
Nitrosodimethylamine, N-								10			400	0.15/0.6
Nitrosodimethylethylamine, N-											400	
Nitrosodi-N-butylamine, N-											400	
Nitrosodi-N-propylamine, N-								10				0.46/2
Nitrosodiphenylamine, N-								10				0.81/3
Nitrosomorpholine, N-											400	2/10
Nitrosopiperidine, N-											13	2/10
Nitrosopyrrolidine, N-											13	2/10
Oxirane (see ethylene oxide)												
Parathion, ethyl or methyl											14	0.2/0.6
PCBs (see also aroclors)											sum 100	
Pentachlorobenzene										10	55	2/10
Pentachlorodibenzofurans											0.035	
Pentachlorodibenzo-p-dioxins											0.063	
Pentachloroethane											55	1/5
Pentachloronitrobenzene											55	0.1/0.4
Pentachlorophenol								10			89	0.59/2
Perchloroethylene (see tetrachloroethylene)												
Phenacetin											81	2/10
Phenanthrene					40	59/22		10		20	59	0.64/3
Phenol					25	26/15		50			39	0.14/0.6
Phenols, T (4AAP)					1000/500			1000/500				2/8
Phenyl aniline, O- (see aminobiphenyl, 4-)												
Phorate											21	0.15/0.6
Phthalic acid											55	
Phthalic anhydride											55	
Pronamide											93	2/10

Attachment C - MODEL TECHNOLOGY BPJ LIMITS (1/98)

Parameter	(A) L&S	(B) L S&F	(C) S S&F	(D) Chemical	(E) Biological	(F) OCPSF-Bio	(G) OCPSF-Nonbio	(H) Carbon	(I) Air Strip	(J) Misc.	(K) LDRs	(L) MDL/POL
Propanone, 2- (see acetone)												
Pyrene					10, 40	67/25		1.0-10		8	67	0.27/1
Pyridine											14	1/5
Safrole											81	2/10
Silvex (see TP, 2,4,5-)												
T, 2,4,5-											720	0.01/0.04
Tetrachlorobenzene, 1,2,4,5-								2.0		10	55	2/10
Tetrachlorodibenzofurans											0.063	
Tetrachlorodibenzo-p-dioxins											0.063	3/10 pg/l
Tetrachloroethane, 1,1,1,2-											57	1/5
Tetrachloroethane, 1,1,2,2-								50			57	0.03/0.1
Tetrachloroethylene					100, 40	56/22	160/52	10-50	10	10	56	0.03/0.1
Tetrachlorophenol, 2,3,4,6-											30	2/10
Toluene					50	80/26	74/28	5.0	5.0		80	0.2/0.8
Toxaphene								10		10	9.5	0.24/1
TP, 2,4,5-											720	0.01/0.04
Trichlorobenzene, 1,2,4-						140/68	380/140	10		8.0	55	0.05/0.2
Trichloroethane, 1,1,1-						54/21	59/22	10	10-20	10	54	0.03/0.1
Trichloroethane, 1,1,2-						54/21	130/32	100	10		54	0.02/0.08
Trichloroethylene						54/21	69/26	10	10	10	54	0.012/0.5
Trichlorofluoromethane								10	10		20	1/5
Trichlorophenol, 2,4,5-											180	2/10
Trichlorophenol, 2,4,6-					50			10-25			35	0.58/2
Trichlorophenoxyacetic acid, 2,4,5- (see T, 2,4,5-)												
Trichloropropane, 1,2,3-											850	1/5
Trichloro-1,2,2-trifluoroethane, 1,1,2-											57	
Tris(2,3-dibromophenyl)phosphate											110	
Vinyl chloride						270/100	170/100	10	10-50		270	0.18/0.7
Vinyl cyanide (see acrylonitrile)												
Xylenes (O, M, P), each					sum 100			5.0	5.0		sum 320	1/5
Xylenol (see dimethylphenol, 2,4-)												

Attachment C - MODEL TECHNOLOGY BPJ LIMITS (1/98)

Examples of how to interpret the above values:

15 = A daily maximum limit of 15 is recommended.

200/80 = The recommended daily max permit limit is 200 and the recommended daily average permit limit is 80.

200, 100/50 = Variation in available references. One reference recommends a daily max permit limit of 200. The other reference recommends a max/avg of 100/50.

10-50 = Variation in available references. Recommended daily max limits should be in this range. It may be appropriate to limit high strength wastes (2 orders of magnitude or more above limit) at the high end of the range.

Notes:

* = This 200 ug/l limit applies to the sum of all phthalates.

** = Pretreatment of these parameters is often necessary to prevent fouling of carbon columns.

*** = Iron and other minerals found in groundwater frequently cause fouling of packed column air strippers unless they are removed or treated with WTCs.

References:

A - Lime & Settle. Nonferrous Metals Manufacturing Development Document (p.248).

B - Lime, Settle & Filter. Nonferrous Metals Manufacturing Development Document (p.248).

C - Sulfide, Settle & Filter. Nonferrous Metals Manufacturing Development Document (p.248).

D - Chemical treatment (Precipitation, Oxidation, Reduction) with appropriate pre and post treatment. April 1, 1987 and June 18, 1980 Division guidance.

E - Activated Sludge with appropriate pre and post treatment. Secondary treatment definition, Iron & Steel Manufacturing Development Document (p.216), and, April 1, 1987 and June 18, 1980 Division guidance

F - Biological end of pipe treatment. Promulgated OCPSF Categorical limitations, 40 CFR Part 414.

G - No biological end of pipe treatment. Promulgated OCPSF Categorical limitations, 40 CFR Part 414.

H - Carbon adsorption with appropriate pretreatment. Aluminum Forming Development Document (p.1251-1254), and, April 1, 1987 Division guidance. Chromium and mercury based on literature evaluations.

I - Air Stripping with appropriate pretreatment. April 1, 1987 guidance and recent evaluation of performance at existing facilities.

J - Miscellaneous:

Ammonia	Activated sludge (moderate strength waste) facility evaluation (20 mg/l). Sequencing batch reactors (high strength waste) facility evaluation (20/10 mg/l).
BOD5	Activated sludge followed by filtration. Facility evaluation (20 mg/l).
Oil & Grease	Oil Separation. Division guidance (April 1, 1987).
pH	Neutralization. Standard practice.
TSS and settleable solids	Sedimentation. Division guidance, sand and gravel facilities (40/20 mg/l and 0.1 ml/l).
TSS	Filtration. Facility evaluations (20 mg/l).
Surfactants	Ultrafiltration and emulsion breaking, facility evaluation (17/11 mg/l). Division guidance, car wash facilities (20 mg/l).
Chlorine	Steam electric effluent limitations guidelines.
Cyanide	Nonferrous metals manufacturing development document, special study of complexed cyanide treatment.
Fluoride	Nonferrous metals manufacturing development document, special study of fluoride treatment.
BCCs	Division guidance, TOGS 1.3.8.
VOCs	UV/Oxidation. Recent evaluation of performance at an existing facility.

K- Land disposal resrictions phase II, universal wastewater treatment standards, September 19, 1994 FR.

L - Most sensitive approved analytical method for each parameter, Analytical Detectability and Quantitation Guidelines for Selected Environmental Parameters, NYSDEC, 1998 version.

Potential items to investigate for the next update of this document:

More thorough evaluation of UV/Oxidation data.
Evaluation of wetlands treatment systems.

Attachment D - LIMITS DEVELOPMENT STATISTICAL ALGORITHMS

Attachment D - Daily Maximum Permit Limit Calculations

The daily maximum permit limit is usually the 99th upper percentile value of the pollutant distribution. In certain cases the 95th percentile value may be allowable. The following gives the formulas:

WITH ALL MEASUREMENTS > DETECTION LIMIT (based on lognormal distribution)

$\hat{X}_{.95}$ = 95th percentile daily maximum limit

= $\exp[\hat{\mu}_y + 1.645\ \hat{\sigma}_y]$

$\hat{X}_{.99}$ = 99th percentile daily maximum limit

= $\exp[\hat{\mu}_y + 2.326\ \hat{\sigma}_y]$

where

x_i = daily pollutant measurement i

y_i = $\ln(x_i)$

k = sample size of data set

$\hat{\mu}_y$ = $\Sigma(y_i) / k$ $\quad 1 \le i \le k$

$\hat{\sigma}_y^2$ = $\Sigma[(y_i - \hat{\mu}_y)^2] / (k - 1)$ $\quad 1 \le i \le k$

$\hat{E}(X)$ = $\exp(\hat{\mu}_y + 0.5\ \hat{\sigma}_y^2)$

$\hat{V}(X)$ = $\exp(2\hat{\mu}_y + \hat{\sigma}_y^2)\ [\exp(\hat{\sigma}_y^2) - 1]$

$\hat{cv}(X)$ = $[\exp(\hat{\sigma}_y^2) - 1]^{½}$

From "USEPA Technical Support Document for Water Quality Based Toxics Control," Appendix E, Page E-15, March 1991

Statistical Analysis Sheet for Delta-Lognormal Data Distributions
Daily Maximum Permit Limit Calculations, 95th and 99th Percentile
Based on guidance from USEPA "Technical Support Document for Water Quality Based Toxics Control," 3/91.

Note: Do not include nondetect levels in ln(1+mg/l) column - leave blank.

Site Name:	ABCXYZ Industries				
SPDES No:	NY 000 0000				
Outfall No.:	001			001	
Parameter:	Alum in iron			Formulae used to calculate limits	
Units:	<	mg/l	ln(1+mg/l)	mg/l	ln(1+mg/l)
11/1/93		2	1.09862		=LN(1+G14)
12/1/93	<	0.5		0.5	
1/1/94		4	1.60944		=LN(1+G16)
2/1/94		3	1.38633		=LN(1+G17)
3/1/94		5	1.79185		=LN(1+G18)
4/1/94		2	1.09862		=LN(1+G19)
5/1/94	<	0.5		0.5	
6/1/94		4	1.60944		=LN(1+G21)
7/1/94		3	1.38633		=LN(1+G22)
8/1/94		5	1.79185		=LN(1+G23)
9/1/94		2	1.09862		=LN(1+G24)
10/1/94	<	0.5		0.5	
11/1/94		4	1.60944		=LN(1+G26)
12/1/94		3	1.38633		=LN(1+G27)
1/1/95		5	1.79185		=LN(1+G28)
2/1/95		3	1.38633		=LN(1+G29)
3/1/95		5	1.79185		=LN(1+G30)
4/1/95		2	1.09862		=LN(1+G31)
5/1/95	<	0.5		0.5	
6/1/95		4	1.60944		=LN(1+G33)
7/1/95		3	1.38633		=LN(1+G34)
8/1/95		5	1.79185		=LN(1+G35)
9/1/95		2	1.09862		=LN(1+G36)
10/1/95	<	0.5		0.5	
11/1/95		4	1.60944		=LN(1+G38)
12/1/95		3	1.38633		=LN(1+G39)
1/1/96		5	1.79185		=LN(1+G40)
2/1/96		3	1.38633		=LN(1+G41)
3/1/96		5	1.79185		=LN(1+G42)
4/1/96		2	1.09862		=LN(1+G43)
5/1/96	<	0.5		0.5	
6/1/96		4	1.60944		=LN(1+G45)
7/1/96		3	1.38633		=LN(1+G46)
8/1/96		5	1.79185		=LN(1+G47)

Daily maximum permit limit calculations, delta lognormal distribut
(taken from Table E-1 of US EPA TSD for Water Quality Based Tox
Note: Items in italics require the permit writer to input that information. All other info is calculated from the data listed above.

Data range	c14..c47	d14..d47	g14..g47	h14..h47
k (number of data points)		34		=COUNTA(INDIRECT(G53))
Minimum reported value	mg/l	0.5	=(G13)	=MIN(INDIRECT(G53))
Maximum reported value	mg/l	5	=(G13)	=MAX(INDIRECT(G53))
D (detection limit units)	mg/l	0.5	=(G13)	=MIN(INDIRECT(G53))
k - r (number of detects)		28		=COUNTA(INDIRECT(H53))
r (number of nondetects)		6		=(H54-H58)
delta (ratio of nondetects/total)		0.176		=(H59/H54)
μ(y) (average of detects)		1.488		=SUM(INDIRECT(H53))/H58
s(y) (std deviation of detects)		0.260		=STDEV(INDIRECT(H53))
t(y) (variance of detects)		0.067		=VAR(INDIRECT(H53))
E(X*) (daily average)		3.861		=(H60*H57)+((1-H60)*EXP(H61+0.5*H63))
V(X*) (variance)		3.626		=(1-H60)*EXP(2*H61+H63)*(EXP(H63)-(1-H60)) +H60*(1-H60)*H57*(H57-2*EXP(H61+0.5*H63))
z*95 (adjusted Z-score, 95th %ile)		1.545		=((0.95-H60)/(1-H60))*1.645
z*99 (adjusted Z-score, 99th %ile)		2.298		=((0.99-H60)/(1-H60))*2.326

Daily maximum limit & units:	Alum in iron	=(G11)	
95th percentile	6.62 mg/l	EXP(H61+(H67*H62))	=(G13)
99th percentile	**8.04 mg/l**	**EXP(H61+(H68*H62))**	**=(G13)**

Note: If the calculated limit is less than the detection limit,

the detection limit (i.e., the PQL) shall be used as the permit limit.

Attachment D - Daily Maximum Permit Limit Calculations (continued)

WITH SOME MEASUREMENTS < DETECTION LIMIT (based on delta-lognormal distribution)

$\hat{X}_{.95}$ = 95th percentile daily maximum limit

= D $\quad \delta \geq 0.95$

= $\max [D, \exp(\hat{\mu}_y + z^* \hat{\sigma}_y)]$ $\quad \delta < 0.95$

with $z^* = \Phi^{-1}[(0.95 - \delta) / (1 - \delta)]$

$\hat{X}_{.99}$ = 99th percentile daily maximum limit

= D $\quad \delta \geq 0.99$

= $\max [D, \exp(\hat{\mu}_y + z^* \hat{\sigma}_y)]$ $\quad \delta < 0.99$

with $z^* = \Phi^{-1}[(0.99 - \delta) / (1 - \delta)]$

where

x_i	=	daily pollutant measurement i	
k	=	sample size of data set	
D	=	detection limit (as established by the laboratory)	
r	=	number of nondetects	($x_1, x_2, \ldots, x_r$ are $\leq$ D)
k-r	=	number of detects	($x_{r+1}, x_{r+2}, \ldots, x_k$ are > D)
y_i	=	$\ln(x_i)$	for $r+1 \leq i \leq k$
δ	=	r / k	
$\hat{\mu}_y$	=	$\Sigma(y_i) / (k - r)$	$r+1 \leq i \leq k$ (excludes values $\leq$ D from sum)
$\hat{\sigma}_y^2$	=	$\Sigma[(y_i - \hat{\mu}_y)^2] / (k - r - 1)$	$r+1 \leq i \leq k$
$\hat{E}(X^*)$	=	$\delta D + (1 - \delta) \exp(\hat{\mu}_y + 0.5 \hat{\sigma}_y^2)$	
$\hat{V}(X^*)$	=	$(1 - \delta) \exp(2\hat{\mu}_y + \hat{\sigma}_y^2) [\exp(\hat{\sigma}_y^2) - (1 - \delta)] + \delta (1 - \delta) D[D - 2 \exp(\hat{\mu}_y + 0.5 \hat{\sigma}_y^2)]$	

From "USEPA Technical Support Document for Water Quality Based Toxics Control," Appendix E, Page E-16, March 1991

Statistical Analysis Sheet for Delta-Lognormal Data Distributions
Monthly Average Permit Limit Calculations, 95th and 99th Percentile
Based on guidance from USEPA "Technical Support Document for Water Quality Based Toxics Control," 3/91.

Site Name:	ABCXYZ Industries
SPDES No.:	NY 000 0000

Outfall No.:		001		001	
Parameter:		Aluminiron		TDS (Total Dissolved Stuff)	
Units:	<	mg/l	ln(1+mg/l)	mg/l	ln(mg/l)
11/1/93		2	1.0986	2	=LN(1+G12)
12/1/93	<	0.5		0.5	
1/1/94		4	1.6094	4	=LN(1+G14)
2/1/94		3	1.3863	3	=LN(1+G15)
3/1/94		5	1.7918	5	=LN(1+G16)
4/1/94		2	1.0986	2	=LN(1+G17)
5/1/94	<	0.5		0.5	
6/1/94		4	1.6094	4	=LN(1+G19)
7/1/94		3	1.3863	3	=LN(1+G20)
8/1/94		5	1.7918	5	=LN(1+G21)
9/1/94		2	1.0986	2	=LN(1+G22)
10/1/94	<	0.5		0.5	
11/1/94		4	1.6094	4	=LN(1+G24)
12/1/94		3	1.3863	3	=LN(1+G25)
1/1/95		5	1.7918	5	=LN(1+G26)
2/1/95		3	1.3863	3	=LN(1+G27)
3/1/95		5	1.7918	5	=LN(1+G28)
4/1/95		2	1.0986	2	=LN(1+G29)
5/1/95	<	0.5		0.5	
6/1/95		4	1.6094	4	=LN(1+G31)
7/1/95		3	1.3863	3	=LN(1+G32)
8/1/95		5	1.7918	5	=LN(1+G33)
9/1/95		2	1.0986	2	=LN(1+G34)
10/1/95	<	0.5		0.5	
11/1/95		4	1.6094	4	=LN(1+G36)
12/1/95		3	1.3863	3	=LN(1+G37)
1/1/96		5	1.7918	5	=LN(1+G38)
2/1/96		3	1.3863	3	=LN(1+G39)
3/1/96		5	1.7918	5	=LN(1+G40)
4/1/96		2	1.0986	2	=LN(1+G41)
5/1/96	<	0.5		0.5	
6/1/96		4	1.6094	4	=LN(1+G43)
7/1/96		3	1.3863	3	=LN(1+G44)
8/1/96		5	1.7918	5	=LN(1+G45)

Monthly average permit limit calculations for more than ten samples
(taken from Table E-3 of USEPA TSD for Water Quality Based Toxics Control)
Note: Items in italics require the permit writer to input that information.
All other info is calculated from the data listed above.

Data range	c12..c45	d12..d45	g12..g45	h12..h45
k (number of data points)		34		=COUNTA(INDIRECT(G51))
n (number of samples per month)		4		4
Minimum reported value	mg/l	0.5	=(G11)	=MIN(INDIRECT(G51))
Maximum reported value	mg/l	5	=(G11)	=MAX(INDIRECT(G51))
D (detection limit, units)	mg/l	0.5	=(G11)	=MIN(INDIRECT(G51))
μ(y) (average of detects)		1.2257		=SUM(INDIRECT(H51))/H52
s(y) (std deviation of detects)		0.2596		=STDEV(INDIRECT(H51))
t(y) (variance of detects)		0.0674		=VAR(INDIRECT(H51))
E(X*) (daily average)(=E(Xn))		3.5232		=EXP(H57+0.5*H59)
V(X*) (variance)		0.8651		=EXP(2*H57+H59)*(EXP(H59)-1
V(Xn) (sample variance)		0.2163		=(H61/H53)
cv(Xn) (sample coeff. of variance)		0.1320		=(H62^0.5)/(H60)

Monthly Average Permit Limit	Aluminiron	**=(G9)**	
95th percentile	**4.29 mg/l**	**=(H60)+1.645*(H62)^0.5**	**=(G11)**
99th percentile	4.60 mg/l	=(H60)+2.326*(H62^0.5)	=(G11)

Note: If the calculated limit is less than the detection limit,
the detection limit (i.e. the PQL) shall be used as the permit limit.

Attachment D - Monthly Average Permit Limit Calculations for More Than Ten Samples

The monthly average permit limit usually is based on the estimates of the 95th percentile of the distribution of the average of the daily effluent values. These daily values are assumed to be lognormally distributed. For sample sizes larger than 10, the averages (represented by the random variable $\bar{X}_n$) are assumed to be normally distributed.

$$\hat{X}_{.95} = \text{95th percentile n-day monthly average limit}$$
$$= \hat{E}(\bar{X}_n) + 1.645\,[\hat{V}(\bar{X}_n)]^{1/2}$$
$$\hat{X}_{.99} = \text{99th percentile n-day monthly average limit}$$
$$= \hat{E}(\bar{X}_n) + 2.326\,[\hat{V}(\bar{X}_n)]^{1/2}$$

where

x_i = daily pollutant measurement i

$y_i = \ln(x_i)$

k = sample size of data set

$$\hat{\mu}_y = \Sigma(y_i) / k \qquad 1 \le i \le k$$

$$\hat{\sigma}_y^2 = \Sigma[(y_i - \hat{\mu}_y)^2] / (k - 1) \qquad 1 \le i \le k$$

$$\hat{E}(X) = \exp(\hat{\mu}_y + 0.5\,\hat{\sigma}_y^2)$$

$$\hat{V}(X) = \exp(2\hat{\mu}_y + \hat{\sigma}_y^2)\,[\exp(\hat{\sigma}_y^2) - 1]$$

$$\hat{E}(\bar{X}_n) = \hat{E}(X)$$

$$\hat{V}(\bar{X}_n) = \hat{V}(X) / n$$

$$\hat{cv}(X) = \hat{V}(\bar{X}_n)^{1/2} / \hat{E}(\bar{X}_n)$$

From "USEPA Technical Support Document for Water Quality Based Toxics Control," Appendix E, Page E-19, March 1991

Attachment E - FACT SHEET AND TRANSMITTAL

SPDES Permit Fact Sheet Instructions

Fact Sheet Transmittal Memo

SPDES Permit Fact Sheet Format

Attachment E

Form FSWQR.mem (1/98)

SPDES PERMIT FACT SHEET TRANSMITTAL MEMO
Water Quality Analysis Request

TO: Mr. Bromberg, Chief, Quality Allocation Section, BWM
FROM: , BWP
DRAINAGE BASIN:
SPDES PERMIT NO.: NY
DATE:

Please indicate if the attached final effluent limitations are compatible with satisfactory maintenance of receiving water quality. If not, please indicate what limitations are needed.

UPA DEADLINE:

BCCS:

NEW or INCREASED DISCHARGE:

ANTIBACKSLIDING (Technology):

COMMENTS:

Attachment

cc: Ken Griggs (w/o Attach)
<WQ project engineer> (w/Attach)

Water Quality Analysis Response

TO: ,BWP
FROM: , Quality Allocation Section, BWM
DATE:

WET TESTING JUSTIFICATION:

ANTIBACKSLIDING (WQBELS):

ANTIDEGRADATION:

COMMENTS:
Attachment

cc: Ken Griggs (w/o Attach)

Attachment E - FACT SHEET INSTRUCTIONS

The new fact sheet consists of six sections which are described below. An example of a completed fact sheet has been included in this attachment for reference.

A simplified summary of the fact sheet development procedure is as follows:

(a) The permit writer completes section 1, and most of sections 2 and 3.
(b) For surface water discharges, the permit writer completes the top half of the Fact Sheet Transmittal Memo (use the new form) and sends the memo and the partially completed fact sheet to the WQ engineer for review. For groundwater discharges the permit writer performs the WQ review.
(c) The WQ engineer completes the remainder of sections 2 and 3 (with the exception of the permit basis column) and the applicable portions of 4 and the bottom half of the Fact Sheet Transmittal Memo and returns them to the permit writer.
(d) The permit writer completes the permit basis column and section 4 and 5 and enters the date on the top of each fact sheet page.
(e) The permit writer drafts the permit in accordance with the information contained on the fact sheet.

The format of the memo and fact sheet was designed to facilitate transmittal by e-mail between the permit writer and the WQ engineer.

Item by item instructions for completing the fact sheet follow:

(1) General permittee data

The first section is very brief and self-explanatory. This section is completed by the permit writer.

(2) Summary of final outfall flow rates and receiving water data

The purpose of the second section is to locate each final outfall and its receiving stream, to summarize flow rates to determine the available dilution, and, to summarize other pertinent receiving water critical data, e.g. hardness. This section is completed by the permit writer with the exception of the critical data portion which is completed by the WQ engineer. Completion of the critical data portion is not necessary for groundwater discharges unless the groundwater is in close communication with a surface water body, in which case the surface water body would also be listed as a receiving water.

(3) Individual outfall data summaries and permit limit development

Summarize for each parameter its existing effluent quality, technology based effluent limit, water quality based effluent limit and permit basis. This section is the most complex so item by item instructions and examples follow, working from top to bottom and left to right:

List the source(s) of wastewater -
e.g. anode quench contact cooling water, noncontact cooling water, sewage, storm water runoff, VOC contaminated groundwater, etc.

List the existing wastewater treatment facilities -
e.g. equalization basin, oil/water separator, two dual media filters in series and a packed column air stripper.

List the EPA point source category & production rate -
This applies to those industries subject to an EPA promulgated effluent guideline (i.e. BPT, BCT and/or BAT). In general, all of these permits are drafted in the central office. List the applicable CFR, its title and the production rate used to calculate the limits expressed in the appropriate units, usually tons/day. Specify "Not applicable." if the facility is not subject to a federal effluent guideline. It is also possible that a BPJ limit has been developed based upon production. In that case specify
"Not applicable. BPJ limit production rate -" and list the rate used. Include a detailed explanation of how the BPJ limit

was determined in section (4).

Whole Effluent Toxicity (WET) testing -
Summarize results under existing effluent quality e.g. passed 3 of 4 acute tests or "No data" if no testing has been performed. The WQ engineer will recommend testing in accordance with TOGS 1.3.2. If testing is required the WQ engineer must summarize their justification in section (4).

Enter each parameter name and units -
Include both concentration and mass units, and if appropriate, the CAS number. All parameters the permit writer wishes to regulate must be summarized here. Additionally, it is useful to summarize parameters which are not going to be regulated but which have been detected. This summary is useful because it ensures that all potential pollutants have been considered and that all detected pollutants are adequately authorized by the SPDES permit. It is important to note that in most cases the number of parameters listed in the permit will be less than the number listed on the in the fact sheet.

Calculate the average and maximum -
2 or more suitable data points are necessary to perform this calculation. If there is only one data point enter this value only. If there is no data enter "No data.". Generally, it is recommended that the last 3 to 5 years of data be used to calculate statistics unless there have been recent changes in effluent quality, e.g. installation of an improved treatment system. In any event, the statistical period must be specified in section (4) along with reasons for excluding specific data points from the analysis.

Calculate the lognormal 95th and 99th percentiles -
10 or more suitable data points are necessary to perform this calculation. See Attachment D for instructions on calculating percentiles. The permit writer may decide to not calculate the percentiles for specific cases but in general these calculations are recommended. If percentiles are not calculated leave this column blank.

Enter the technology based effluent limit -
Enter the limit or Action Level in terms of concentration and/or mass or other appropriate measure. If "monitor only" is proposed enter "M". If no limit, Action Level or monitoring is proposed enter "-".

Enter the technology limit type -
e.g. Avg (for average), Max (for maximum), Avg/Max (for a parameter with both average and maximum limits), RNG (for range), AL (for Action Level), M (for monitor only) or "-" (for no limit, Action Level or monitoring proposed).

PQL -
It is optional to list the PQL for the most sensitive approved analytical method as specified in the DEC detectability manual. However, this section is very useful for comparison when the WQBEL is expected to be below the PQL and use of the most sensitive approved analytical method must be required in the permit. Requiring use of a specific analytical method must be explained in section (4) under additional issues.

Technology limit basis -
Summarize the technology effluent limit basis. For example, the basis for a 20 mg/l TSS limit could be represented in this column by the following notation - TOGS 1.2.1, Attachment C, Column J, Filtration.

AWQC -
This value is entered by the WQ engineer. If none exists the WQ engineer enters NA and skips over to the next parameter.

WQBEL -
This value is entered by the WQ engineer in accordance with the AWQC, the information contained in sections (2) and (4), and the procedures contained in TOGS 1.3.1.

Enter the water quality limit type -
e.g. Avg (average), Max (maximum) or RNG (range).

Permit basis -
Finally, the permit limit selected should be the more stringent of the technology or water quality based effluent limits. The permit writer indicates the basis by entering a T (technology), WQ (water quality) or NA (parameter is authorized but there will be no limits or monitoring in the permit).

(4) Additional Issues
To comply with the regulatory requirements there are several issues which must be addressed if they affect the permit.

WQBELs -
A summary of the TMDL process is provided followed by a table which is completed by the WQ engineer when appropriate. This section should be included in all fact sheets.

Statistics -
A brief explanation of the standard statistical procedures used to develop SPDES permits is included. If other procedures are used they must be identified by the permit writer. Additionally, the permit writer should note the time period used in the calculations, reasons why specific data points may have been discarded from the analysis and the source of the data. This section should be included in all fact sheets.

Internal Waste Stream Monitoring -
Generic justification for this requirement is included on the blank fact sheet page. The permit writer must identify the specific circumstances which make this requirement applicable to the permit. This section is only included on those permits with internal outfalls.

Toxicity Testing -
This section is completed by the WQ engineer.

Indicator Parameters -
The permit writer specifies which parameters are affected.

Compliance schedules, required use of a specific analytical method, a permit that does <u>not</u> require a BMP plan, relaxation of any requirements compared to the previous permit, decisions on requested variances, and, any other special or unusual conditions -
All of these items require a brief explanation when they are required by the permit.

(5) Summary of Proposed Permit Changes
Summarize the <u>major</u> changes compared to the issued SPDES permit the draft is intended to replace.

(6) Explanatory Notes
This section contains an explanation of the terms used in sections (2), (3) and (4). If new terms are used add them to this section as necessary.

Attachment E - SPDES PERMIT FACT SHEET FORMAT

Form FSpg1 (1/98)

SPDES PERMIT FACT SHEET: Wastewater Data, Receiving Water Data, and, Permit Limit Derivation.

(see last pages of fact sheet for explanatory notes).

Date	
Permit Writer	
WQ Engineer	

(1) General Permittee Data:

Permit Number	Permittee Name	Facility Name	Location (C, T, V)	County	Industrial Code	Major/Sub Basin
NY						

(2) Summary of Final Outfall Flow Rate(s) and Receiving Water Data:

Outfall Information					**Receiving Water Information**								
	Latitude	Longitude	Flow Rate (MGD)					*For use by WQ Engineer* - Critical Data					
Outfall #	°, ‘, “	°, ‘, “	Average	Maximum or Design	Name	Class	Water Index Number	7Q10 (MGD)	30Q10 (MGD)	Dilution/ Mixing	pH (SU)	Temp (°F)	Hardness (mg/l)

Form FSpg2 (1/98)

SPDES PERMIT FACT SHEET: **Permit Number NY** _____ **, page** _____ **of** _____ **Date** _____

(3) Individual Outfall Data Summaries and Permit Limit Development:

Outfall _____

Source(s) of Wastewater	
Existing Wastewater Treatment Facilities	
EPA Point Source Category & Production Rate	

Effluent Parameter (Units) (concentration units - mg/l, ug/l or ng/l; mass units - lbs/d or g/d)	**Existing Effluent Quality**				**Technology Based Effluent Limit**					**Water Quality Based Effluent Limit**				**Permit Basis** (T or WQ)
	concentration		mass					PQL		AWQC	Effluent			
	Avg/Max	95%/99%	Avg/Max	95%/99%	conc.	mass	Type	conc.	Basis	conc.	conc.	mass	Type	
Whole Effluent Toxicity (WET) TESTING					NA					Recommended?		YES/NO		
Flow Rate, units =	Average		Maximum					NA						
pH (su)	Minimum		Maximum				Range							

Form FSpg3 (1/98)

SPDES PERMIT FACT SHEET: **Permit Number NY** _____ **, page** _____ **of** _____ **Date** _____

Outfall _____ continued

Effluent Parameter (Units) (concentration units - mg/l, ug/l or ng/l; mass units - lbs/d or g/d)	**Existing Effluent Quality**				**Technology Based Effluent Limit**					**Water Quality Based Effluent Limit**				**Permit Basis** (T or WQ)
	concentration		mass					PQL		AWQC	Effluent			
	Avg/Max	95%/99%	Avg/Max	95%/99%	conc.	mass	Type	conc.	Basis	conc.	conc.	mass	Type	

(4) Additional Issues:

Water Quality Based Effluent Limits (WQBELs):

New York State water quality regulations (for surface waters) are implemented by applying the Total Maximum Daily Load (TMDL) process to watersheds, drainage basins or water bodys segments on a pollutant specific basis. The analysis determines if there is a "reasonable potential" that the discharge of a pollutant will result in exceedance of ambient water quality criteria (AWQC). If there is a reasonable potential for an exceedance of AWQC, the TMDL is used to establish waste load allocations for point sources and load allocations for nonpoint sources of the pollutant. For point sources, the waste load allocations are translated to WQBELs for inclusion in SPDES permits. Reference - TOGS 1.3.1, USEPA Guidance for Water Quality - Based Decisions: The TMDL Process, 40 CFR 130 and the Clean Water Act 303(d).

The following table has been completed only for those parameters for which WQBELs were determined to be necessary.

Parameter					
Amount to be Allocated (TMDL)					
Number of Sources					
Allocation to this Permit					

Statistics:
The statistical methods utilized are consistent with TOGS 1.2.1 and the USEPA, Office of Water, Technical Support Document For Water Quality-based Toxics Control, March 1991, Appendix E. Generally based on lognormal analysis. If other data distributions such as normal or delta-lognormal are utilized it is noted below. Statistical calculations were not performed for parameters with insufficient data. Generally, ten or more data points are needed to calculate percentiles. Two or more data points are necessary to calculate an average and a maximum. Non-detects were included in the statistical calculations at the reported detection limit unless otherwise noted.

Monitoring data collected during the following time period was used to calculate statistics:

This data was taken from the following source(s):

Internal Waste Stream Monitoring:
40 CFR 122.45(h)(1) allows the permit authority to monitor and limit parameters at internal locations when controlling them solely at the final outfall is impractical or infeasible. Dilution of a process wastewater with large volumes of cooling water and/or storm water is one example of when the use of an internal monitoring point is justified. Monitoring at the following internal outfalls is necessary for the reasons specified:

WET Testing:
Testing is required, in accordance with TOGS 1.3.2, for the following reasons:

Indicator Parameters:
In accordance with 40 CFR 122.44(e)(2), The permit writer has determined that effective treatment and/or acceptable performance for specific parameters is indicated by one or more other parameters which are limited and therefore a decision has been made to not limit or monitor these specific parameters. This judgement is based on the similarity between this and the regulated parameter(s) and historical data where available. The use of indicator parameters is not appropriate for WQBELs. Following is a list of the affected parameters:

Schedule of Compliance:

(5) Summary of Proposed Permit Changes:

Compared to the issued permit this draft is intended to replace, the following significant changes are proposed -

(6) Explanatory Notes:

Please note that some of these terms are not applicable to every fact sheet.

AL -	Action level calculated in accordance with TOGS 1.2.1 (non POTWs) and TOGS 1.3.3 (POTWs). See the permit for a complete definition.
AVG or Av -	Average. The arithmetic mean.
AWQC -	Ambient water quality criteria for the receiving water. The applicable standard, guidance value or estimated value in accordance with TOGS 1.1.1, TOGS 1.3.1 and 6NYCRR 700-705.
Basis -	The technical analysis, internal guidance, regulation and/or law upon which an effluent limit or monitoring requirement is proposed.
BAT -	Best Available Technology Economically Achievable in accordance with TOGS 1.2.1 (non POTWs) and TOGS 1.3.3 (POTWs), 40 CFR 125, 6NYCRR 754, ECL 17-0811 and the Clean Water Act.
BCT -	Best Conventional Control Technology in accordance with TOGS 1.3.4, 40 CFR 125, 6NYCRR 754, ECL 17-0811 and the Clean Water Act.
BPJ -	Best Professional Judgement in accordance with TOGS 1.2.1 (non POTWs) and TOGS 1.3.3 (POTWs), 40 CFR 122 and 125, 6NYCRR 754.1, ECL 17-0811 and the Clean Water Act.
BPT -	Best Practicable Control Technology in accordance with TOGS 1.2.1, 40 CFR 125, 6NYCRR 754, ECL 17-0811 and the Clean Water Act.
Conc. -	Concentration in units of mg/l, ug/l or ng/l.
Design Flow -	Treatment system design capacity as noted in an approved engineering report.
Final -	Final permit period requirements. A level of performance that must be achieved according to a schedule specified in either the permit or a consent order.
g/d -	Grams per day discharged.
GW -	Groundwater effluent limitation developed in accordance with TOGS 1.2.1 (non POTWs), TOGS 1.3.3 (POTWs), TOGS 1.1.2 and 6NYCRR 703.
Ind -	Indicated parameter. See definition in section (4).
Interim -	Interim permit period requirements. A level of performance that must be achieved while improvements are being implemented in order to achieve final permit period requirements.
lbs/d or #/d -	Pounds per day discharged.
Mass -	Mass discharge in units of #/d or g/d discharge.
Max or Mx -	The maximum value.
MGD -	Million gallons per day.
mg/l -	Milligrams per liter.
Dilution/Mixing -	Used to determine dilution available in receiving waters. For lakes, estuaries and slowly flowing rivers and streams, mixing zone dilution is generally assumed to be 10:1 unless data is available to indicate otherwise.
Model -	Calibrated water quality model applied in accordance with TOGS 1.3.1.
Mon -	Monitor only.
NA -	The characteristics of this parameter and the reported discharge levels do not justify routine monitoring or a limit. Also indicates "not applicable".
ng/l -	Nanograms per liter. 1000 ng/l = 1 ug/l = 0.001 mg/l.
PQL -	The DEC published or site specific practical quantitation limit; the concentration in wastewater at which analytical results are thought to be accurate to within approximately plus or minus thirty percent.
R -	"Rolled Over", i.e. the specific requirement in this permit is equivalent to the previous permit. R(T) is roll over of a technology based requirement and R(WQ) is roll over of a WQBEL.
Range -	The discharge is limited to a range of effluent values, e.g. a pH limit of (6.0-9.0) SU.
RREL -	EPA's Risk Reduction Engineering Laboratory treatability database.
T -	Technology based effluent limit or requirement.
TOGS -	Technical and Operational Guidance Series. Internal guidance to permit drafters used by the NYSDEC Division of Water to aid in permit drafting. Copies of these guidance documents may be obtained from the NYSDEC, Division of Water, Bureau of Information and Human Resources at (518)457-7463.
ug/l -	Micrograms per liter. 1000 ug/l = 1 mg/l.
WET -	Whole Effluent Toxicity (testing). See TOGS 1.3.2.
WQ -	Water quality.
WQBEL -	Water quality-based effluent limit. See information in section (4).
7Q10 -	The minimum average 7 consecutive day flow at a recurrence interval of 10 years. Applicable to evaluations involving aquatic health based AWQC.
30Q10 -	The minimum average 30 consecutive day flow at a recurrence interval of 10 years. Applicable to evaluations involving human health based AWQC.
95% -	The 95th percent confidence interval for the historical effluent data used to draft the permit.
99% -	The 99th percent confidence interval for the historical effluent data used to draft the permit.
133 -	Secondary treatment requirements in accordance with TOGS 1.3.3, 40 CFR 133, 6NYCRR 754, ECL 17-0509 and the Clean Water Act.
+ -	These parameters represent scans. Detections vary among the compounds which are included in the scans. The listed value represent the maximum detected level of any compound in the scan.

Attachment F - BMP GUIDANCE MANUALS

Attachment F - BMP Guidance Manuals

FORM OF GUIDANCE	TITLE	DATE
Guidance Manual - EPA/625/7-90/004	Guides to Pollution Prevention The Pesticide Formulating Industry	2/90
Guidance Manual - EPA/625/7-90/007	Guides to Pollution Prevention The Printed Circuit Board Manufacturing Industry	6/90
Guidance Manual - EPA/625/7-90/009	Guides to Pollution Prevention Selected Hospital Waste Streams	6/90
Guidance Manual - EPA/625/7-90/005	Guides to Pollution Prevention The Paint Manufacturing Industry	6/90
Guidance Manual - EPA/625/7-91/010	Guides to Pollution Prevention Research and Educational Institutions	6/90
Guidance Manual - EPA/625/7-90/006	The Fabricated Metal Products Industry	7/90
Guidance Manual - EPA/625/7-90/008	Guides to Pollution Prevention The Commercial Printing Industry	8/90
Guidance Manual - EPA/600/2-90/048	Background Document on Clean Products Research and Implementation	10/90
Guidance Manual - EPA/600/2-91/051	Achievements in Source Reduction and Recycling for Ten Industries in the United States	9/91
Guidance Manual - EPA/625/7-91/015	Guides to Pollution Prevention The Marine Maintenance and Repair Industry	10/91
Guidance Manual - EPA/625/7-91/017	Guides to Pollution Prevention The Pharmaceutical Industry	10/91
Guidance Manual - EPA/625/7-91/013	Guides to Pollution Prevention The Automotive Repair Industry	10/91
Guidance Manual - EPA/625/7-91/012	Guides to Pollution Prevention The Photoprocessing Industry	10/91
Guidance Manual - EPA/625/7-91/016	Guides to Pollution Prevention The Automotive Refinishing Industry	10/91
Guidance Manual - EPA/625/7-91/016	Guides to Pollution Prevention The Marine Maintenance and Repair Industry	10/91
Guidance Manual - NYSDEC, Division of Spill Prevention and Remediation, Bulk Storage Section	Recommended Practices for Storing and Handling Hazardous Substance	1992
Case Histories - EPA/600/R-92/046	Pollution Prevention Case Studies Compendium	4/92
Guidance Manual - EPA/600/R-92/088	Facility Pollution Prevention Guide	5/92
Guidance Manual - EPA 832-R-92-006	Storm Water Management For Industrial Activities - Developing Pollution Prevention Plans and Best Management Practices	9/92

Attachment G - RESERVED

Attachment H - PERMIT NOTES AND FOOTNOTES

Attachment H - PERMIT NOTES AND FOOTNOTES

NOTE 1 - BMP COMPLETE

The completed BMP plan submitted to this Department on xx/xx/xx shall be reviewed by the permittee on an annual basis. The BMP plan shall be modified whenever changes at the facility materially increase the potential for significant releases of toxic or hazardous pollutants or where actual releases indicate the plan is inadequate.

NOTE 2 - REPORT MASS AND CONCENTRATION

The permittee must report both the concentration (in mg/l, µg/l or ng/l) and mass loading (in lbs/d) on the Discharge Monitoring Reports for all parameters except flow, pH, temperature, settleable solids and fecal coliform. Conventional and Non-Conventional parameters shall be reported in mg/l and lbs/day. Pesticides and PCBs shall be reported in ng/l and grams/day. All other parameters shall be reported in µg/l and lbs/day.

NOTE 3 - APPROVABLE

Approvable is defined as that which can be approved by the Department with only minimal revision. Minimal revision shall mean revised and resubmitted to the Department within thirty days of notification by the Department of the revisions that are necessary. All approvable engineering submissions must include the seal and signature of an engineer licensed to practice in New York State.

NOTE 4 - FLOW MONITORING

Continuous recorder - a flow measurement system that continuously measures and displays the instantaneous flow rate and records the cumulative discharge volume versus time on paper or electronically.

Totalizer - A flow measurement system that records the cumulative discharge volume on a mechanical meter and may or may not continuously measure and display the instantaneous flow rate. An example of a flow totalizer is a typical household water meter.

NOTE 5 - ANNUAL EFFLUENT DATA SUMMARY

Within 90 days following the end of each calendar year, the permittee shall submit an annual effluent data summary to the Regional Water Engineer at the address listed in the RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS PAGE and to the Bureau of Water Permits at Room 314, 50 Wolf Road, Albany, N.Y. 12233-3505. The summary shall be submitted on personal computer diskette or CD-ROM in a spreadsheet format acceptable to the Department showing all analytical results and flow monitoring results for samples collected the previous year.

NOTE 6 - SINGLE INTAKE SOURCE NET LIMITS

The footnoted parameter is subject to net limits. Each time the outfall is monitored for the parameter, the intake source water

must also be monitored by collecting a grab sample for the parameter at a point after mechanical screening/filtration and prior to the addition of any water treatment chemicals.

For each parameter, the value reported on the corresponding Discharge Monitoring Report shall be the concentration in the outfall minus the intake concentration.

If the source water is not monitored, the intake concentration shall be assumed to be zero. If the intake concentration is greater than the outfall concentration (resulting in a negative net value), the value reported on the Discharge Monitoring Report shall be zero.

NOTE 7 - MULTIPLE INTAKE SOURCE NET LIMITS (technology limits only)

The footnoted parameter is subject to net limits. Each time the outfall is monitored for the parameter, the intake source waters must also be monitored by collecting a grab samples for the parameter at a point after mechanical screening/filtration and prior to the addition of any water treatment chemicals. Calculate the flow weighted intake concentration in accordance with the following formula:

(fraction of contribution of source 1) X (concentration in source) + (fraction of contribution in source 2) X (concentration in source 2) + etc.

For each parameter, the value for reporting on the corresponding Discharge Monitoring Report shall be the concentration in the outfall minus the flow weighted intake concentration.

There is no allowance for storm water intake pollutants unless they are demonstrated to be present in off site or atmospheric sources.

If the source water is not monitored the intake concentration shall be assumed to be zero. If the intake concentration is greater than the outfall concentration (resulting in a negative net value), the value reported on the Discharge Monitoring Report or used for averaging. shall be zero.

Attachment I - NY2C ANTIDEGRADATION SUPPLEMENT

Attachment I - NY2C ANTIDEGRADATION SUPPLEMENT

State Pollutant Discharge Elimination System (SPDES)

INDUSTRIAL APPLICATION FORM NY-2C

Supplement A

BCC ANTIDEGRADATION DEMONSTRATION

Facility Name:	SPDES Number:

This supplement to your application requests information regarding the use of Bioaccumulative Chemicals of Concern (BCCs) at your facility. Complete this supplement if any of the chemicals listed on Table 2 of this supplement are identified or believed to be present in the discharge from any of the outfalls at your facility. If you have questions, please call the Bureau of Water Permits at (518) 457-1157.

Table 1: BCC Usage Information

Chemical Name	Quantity Discharged	Mass Loading (lb/day, etc.)	Purpose of Use (see ICS codes)

Antidegradation Demonstration

Attach a summary showing the rationale for the use of the above chemical(s). The summary should include a brief description of the pollution prevention alternatives examined for the above chemical(s), an analysis of any alternative or enhanced treatment methods examined to reduce the quantity of the above chemical(s) in the discharge from your facility, and an analysis of the social and economic development aspects of the use of the above chemical(s). The specific areas to be considered and addressed in the summary are listed below.

Cost-Effective Pollution Prevention Alternatives

Pollution prevention activities must be considered and identified in determining whether or not alternatives exist that would reduce or eliminate the anticipated discharge of BCCs. Examples of pollution prevention activities that should be considered include:

- Substitution of non-bioaccumulative or non-toxic chemicals for BCCs: The applicant should determine if the source of a BCC can be eliminated in favor of a less environmentally problematic substance, especially one that is not a BCC.

- Application of water conservation methods: The applicant should determine whether or not reductions in the overall volume of waste water are possible and would reduce pollutant loadings.

- Waste source reduction within process streams: The applicant should evaluate all waste streams involved in the process associated with the discharge. Opportunities to control more carefully the use of raw materials and reduce waste should be identified and implemented where feasible.

- Recycle or reuse of waste byproducts: The applicant should identify ways in which recycling and reuse of internal waste streams can be employed to reduce the loadings of pollutants to the environment.

- Manufacturing Process Operational Changes: The applicant should identify different means of achieving the desired end that will produce either smaller quantities of toxic waste products or waste products that are less toxic. All of the processes that are related to the new/increased discharge should be examined and alternatives that would reduce or eliminate the discharge of BCCs should be identified.

Alternative or Enhanced Treatment to Reduce the Discharge of BCCs

This analysis should be undertaken after the pollution prevention analysis is completed and should focus on removing the remaining incremental increase in pollutant loadings after cost-effective pollution prevention measures are taken.

The objective of the alternative or enhanced treatment analysis is to ensure that the discharge of pollutants is reduced to the greatest extent practicable. The analysis proceeds by identifying (if any) the least costly options for additional treatment that would reduce or eliminate the discharge of BCCs. The costs of the different treatment options are determined and compared to the costs of the treatment needed to achieve all applicable standards, including Federal effluent guidelines, water quality-based effluent limits and all other applicable Federal and State or Tribal requirements. Where treatment options are identified that are comparable in cost to baseline treatment costs and allow the proposed activity to occur without leading to a discharge of BCCs, those treatment options should be implemented.

Important Social and Economic Development

The applicant must show that the significant lowering of water quality proposed will support social and economic benefits. This part of the demonstration should occur only after pollution prevention or alternative treatment options are evaluated and the discharge of BCC remains. The applicant should identify:

- The area in which the economic benefits occur.

- The baseline economic condition of the area. Factors that may be useful include unemployment rates, percentage of the population living below poverty levels, percentage of the population that are elderly and average household income relative to State and National averages.

- The benefits of the proposed activity corrected for any negative economic impacts of the activity. The types of benefits from the activity to be considered include an increase in the number of jobs, an increase in personal income and/or wages, reduction in unemployment rates or social service expenses, increased tax revenues and provision of necessary social services. Other measures may be relevant on a case-by-case basis.

- Adverse economic impacts may also result from an activity that supports social and economic development. For example, a new industrial facility may provide additional jobs in a community; however it may also make the receiving water less attractive for recreation and cause a loss in tourism dollars. Such impacts should be considered in determining whether or not

a project or activity that will result in a significant lowering of water quality will also support important social and economic development.

- Whether a proposed activity will preclude another activity that may not affect water quality yet yield comparable social and economic benefits. For example, the siting of an industrial plant may preclude water front development or building of a marina that would provide comparable social and economic development at less cost to the environment.

Table 2
BIOACCUMULATIVE CHEMICALS OF CONCERN (BCCs)

NAME	CAS
Chlordane (also CAS# 12789-03-6)	57-74-9
4,4'-DDD; p,p'-DDD; 4,4'-TDE; p,p'TDE	72-54-8
4,4'-DDE; p,p'-DDE	72-55-9
4,4'-DDT; p,p'-DDT	50-29-3
Dieldrin	60-57-1
Hexachlorobenzene	118-74-1
Hexachlorobutadiene; hexachloro-1,3-butadiene	87-68-3
Hexachlorocyclohexane; BHC	608-73-1
alpha-Hexachlorocyclohexane; alpha-BHC	319-84-6
beta-Hexachlorocyclohexane; beta-BHC	319-85-7
gamma-Hexachloroxcyclohexane; gamma-BHC; Lindane	58-89-9
delta-Hexachlorocyclohexane; delta-BHC	319-86-8
Mercury	7439-97-6
Mirex; dechlorane	2385-85-5
Octachlorostyrene	29082-74-4
Pentachlorobenzene	608-93-5
Photomirex	39801-14-4
Polychlorinated Biphenyls; PCBs	A21000-00-0
2,3,7,8-TCDD	1746-01-6
1,2,3,4-Tetrachlorobenzene	634-66-2
1,2,4,5-Tetrachlorobenzene	95-94-3
Toxaphene	8001-35-2