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

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

Date	10/21/05
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(1) General Permittee Data:

Permit Number	Permittee Name	Facility Name	Location (C, T, V)	County	Industrial Code	Major/Sub Basin
NY 026 8151	NYC Department of Environmental Protection	Shandaken Tunnel Outlet	Shandaken (T)	Ulster	4941	13/07

(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 (CFS)	30Q10 (MGD)	Dilution/ Mixing	pH (SU)	Temp (˚F)	Hardness (mg/l)
001	42˚06'53"	74˚21'49"	160	300	Esopus Creek	A (TS)	H-171	4.6					67

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

Outfall 001

Source(s) of Wastewater	Water Supply - Discharge from Shandaken Tunnel
Existing Wastewater Treatment Facilities	None
EPA Point Source Category & Production Rate	N/A

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% DM	Avg/Max	95%/99%	conc.	mass	Type	conc.	Basis	conc.	conc.	mass	Type	
WET TESTING					NA					Recommended?		NO		
Flow, June-October, downstream, MGD	Average		Maximum		300		Daily Max	NA	6 NYCRR Part 670					T
Flow, minimum, downstream, MGD					160		Daily Min	NA	6 NYCRR Part 670					T
Phosphorus, as P, kg/yr						Monitor	DA/DM		BPJ			8962		T/WQ
Phosphorus, 12 mo. rolling avg., kg/d			8962	95% DA		8,962	12 mo RA		BPJ (see Notes 1 and 3)					T
Solids, Settleable, ml/l					Monitor		DA/DM		BPJ					T
Solids, Total Suspended, mg/l					Monitor		DA/DM		BPJ					T
Turbidity, upstream, NTU					Monitor		DA/DM		BPJ					T
Turbidity, June-October, NTU	10.3/85	28.5			Monitor		DA/DM		BPJ					T
Turbidity, November-May, NTU	13.1/300	34.0			Monitor		DA/DM		BPJ					T
Turbidity difference, June-Oct., NTU	7.5				15		Action Level		BPJ (see Notes 2 and 3)					T
Turbidity difference, Nov.-May, NTU	14.7				20		Action Level		BPJ (see Notes 2 and 3)					T
Turbidity, Shutdown					100		DM		BPJ (see Notes 2 and 3)					
Turbidity	13.8/300	17.5/39.8			Monitor		DA/DM		BPJ (see Notes 2 and 3)					
Turbidity difference					15		DM		BPJ (see Notes 2 and 3)					
Temperature, May-September					70		DM		6 NYCRR Part 704 (see Notes 3 and 4)					
Temperature, November-May, deg F					Monitor		DA/DM		BPJ					T

Notes: See Page 3 of this Fact Sheet.

Note 1: The Phosphorus limit is based upon a statistical analysis of data from the Shandaken tunnel outlet (monitoring station SRR2) from the January 1987 - December 2002 period. The action level/TMDL is set at the 95th percentile Daily Average nonparametric calculation on a 12 month rolling average basis, as submitted by NYCDEP to this Department on October 11, 2005. Neither the Ashokan nor the Schoharie Watersheds are impaired for phosphorus at the time of this Fact Sheet. Algae blooms are not a water quality issue within these watersheds at this time. The allocation of 8,962 kg/yr to this discharge will not impact the current available capacity level (8,026 kg/yr) as that term is defined in the Phase II TMDL.

Note 2: These action levels and limits are established pursuant to 40 CFR Part 122.44(d)(1)(vi)(B) and based upon factors and circumstances unique to the Shandaken Tunnel, and as such do not define "substantial visible contrast" per 6NYCRR Part 703.2 and should not be construed to establish a statewide numeric limit for the parameters of Turbidity or Turbidity Increase.

Interim Action Levels:

The interim Turbidity action levels are based upon a statistical analysis of data from the Shandaken tunnel outlet (monitoring station SRR2) from the November 2000 - November 2003 period to be representative of the most recent conditions at the Tunnel. The Turbidity Increase action levels are based upon a statistical analysis of the turbidity difference between upstream monitoring station E5 and the Shandaken tunnel outlet (monitoring station SRR2) and the permit writer's BPJ. The Turbidity, Shutdown limit is based upon the permit writer's BPJ and discussions with the Division of Fish and Wildlife which indicated that long term exposure to this level of turbidity may adversely impact the fishery.

Final Effluent Limits:

The final Turbidity and Turbidity Increase effluent limits are based upon a statistical analysis of data from the Shandaken tunnel outlet (monitoring station SRR2) from the January 2001 -December 2003 period, input from the Division of Fish and Wildlife and the permit writer's BPJ.

Note 3: a. The effluent limits, monitoring requirements, and compliance measures listed in this permit shall be re-evaluated as the nonstructural and structural measures required in the Schedules of Compliance are implemented. Re-evaluation shall occur on five year intervals beginning at ten years from the effective date of this Permit.

b. The nonstructural measures listed on page 9 of this Permit are an ongoing program that is necessary to meet the requirements of this Permit.The nonstructural measures shall be re-evaluated on a five year basis to assess proigress made in reducting turbidity, the need for further turbidity reductions, and the need for additional data and analysis.

Note 4: The Temperature limit is based on 6 NYCRR Part 704. As there is no addition of heat of artificial origin, the temperature increase requirements of Part 704.2(b)(2) do not apply to this discharge.

(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 waterbody 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	Phosphorus				
Amount to be Allocated (TMDL)	10,781 kg/yr				
Number of Sources	6				
Allocation to this Permit	8,962 kg/yr				

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 ponts 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: November 2000 - December 2003

This data was taken from the following source(s): Monitoring stations E5, E6, and SRR2.

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: NA

WET Testing:

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

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:NA

Schedule of Compliance: The schedule of compliance contains several items intended to reduce the turbidity and better control the temperature of the discharge from the Shandaken Tunnel to the Esopus Creek, including short and long term studies of structural and nonstructural measures and stream restoration projects.

(5) Summary of Proposed Permit Changes:

Compared to the previous draft permit, the following significant changes are proposed -

1. Turbidity: Final effluent limits for daily average and daily maximum turbidity have been changed to "monitor," as the water quality regulations regarding turbidity are in terms of substantial visible contrast rather than absolute turbdity. The footnotes for Turbidity have been revised and clarified. Additional exemptions for void/void, emergency operations, reservoir balancing, and recreational releases were included.

2. Phosphorus: The 12 month rolling average Phosphorus effluent limit has been revised based upon analysis of the existing data using the appropriate 12 month rolling average calculation for purposes of consistency.

3. Temperature: The temperature action level has been removed in lieu of the Reservoir Releases Plan (Footnote 6), based upon discussions with the Division of Fish and Wildlife.

4. Flow: Ramping provisions for the opening/closing of the Tunnel are now included by reference. An additional exemption for emergency operation of the Tunnel has been included.

5. Compliance schedule: The nonstructural compliance schedule has been revised based upon discussions and agreements with NYCDEP and the Coalition of Watershed Towns.

(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 (nonPOTWs), 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 internet at http://www.dec.state.ny.us/website/dow/togs/index.htm.

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.