

Progress toward water quality improvement: Nitrite-N. AMP 2013 Annual Report.
(Water Quality Standard)

AMENDED CONSENT JUDGMENT GOAL

Achieve compliance with the applicable ambient water quality standard to meet designated best use for survival and propagation of a warm water fish community. Achieve desired use of aquatic life protection.

Hypotheses to be tested:	Status:
Achievement of Stage III effluent limits for ammonia results in compliance with the NYS ambient water quality standard for nitrite (warm water fish community)	<ul style="list-style-type: none"> • Stage III effluent limits have been met for ammonia-N since 2004, after the BAF upgrade was implemented for year-round ammonia treatment. • Since 2006, Onondaga Lake has been in full compliance with NYS AWQS for nitrite-N in upper waters.

Current Conditions with Historical Comparison

	<u>Time Period</u>	<u>Metro Effluent Outfall 001</u>	<u>Tributaries</u>
Major Sources – Percent Contribution <i>(Annual Average (standard deviation))</i>	1985-2003:	75% (14%)	25% (14%)
	2004-2009:	38% (18%)	62% (18%)
	2010:	17%	83%
	2011:	18%	82%
	2012:	28%	72%
	2013:	28%	72%

	<u>Time Period</u>	<u>South Deep, UML, Jan-Dec (µg/L)</u>
Upper Waters Concentration <i>(Annual Average (standard deviation))</i>	1985-2003:	166 (76)
	2004-2009:	49 (18)
	2010:	40
	2011:	37
	2012:	41
	2013:	40 (3-m Sample)

Compliance with NYS AWQS	Percent of upper water observations exceeding standard (100 µg/l):
	1985-2003: 55%
	2004-2009: 6%
	2010-2013: 0% Full compliance
Factors Affecting Compliance	Percent of lower water observations exceeding standard (100 µg/l):
	2010: 21%
	2011: 10%
	2012: 0% Full compliance
	2013: 24% (Average of 15 & 18-m discreet samples)
	Metro performance, Hydrology, in-lake processes (nitrification)

Planned Load Reductions (1998 – 2012)

Metro SPDES Permit Requirement	No numerical limit for nitrite in SPDES permit; Monitor only (one sample per week)
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Monitoring and Assessment Program

Loading Estimates <i>Annual County monitoring program</i>	<ul style="list-style-type: none"> • Biweekly tributary monitoring, supplemented with samples collected during high flow conditions • Daily measurements of Metro effluent
Lake Monitoring <i>Annual County monitoring program</i>	<ul style="list-style-type: none"> • Biweekly profiles in Lake, April –Nov, UML and LWL • Additional sampling during fall mixing • Winter sampling as weather allows

Appendix A-6

Related Biological Monitoring

- Assessment of fish community began in 2000
- Annual zooplankton monitoring

Tools for Decision Making

Model	Onondaga Lake Water Quality Model (Anchor QEA, LLC)
NYS AWQS	100 µg/l