



**STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION**



NPDES PERMIT

issued to

Quality Rolling and Deburring Company, Inc.
135 South Main Street
Thomaston, CT 06787

Location Address:

135 South Main Street
Thomaston

Facility ID: 140-033

Permit ID: CT0025305

Receiving Stream: Naugatuck River

Permit Expires: March 31, 2013

SECTION 1: GENERAL PROVISIONS

- (A) This permit is reissued in accordance with section 22a-430 of Chapter 446k, Connecticut General Statutes ("CGS"), and Regulations of Connecticut State Agencies ("RCSA") adopted thereunder, as amended, and section 402(b) of the Clean Water Act, as amended, 33 USC 1251, *et. seq.*, and pursuant to an approval dated September 26, 1973, by the Administrator of the United States Environmental Protection Agency for the State of Connecticut to administer an N.P.D.E.S. permit program.
- (B) Quality Rolling and Deburring Company, Inc., ("Permittee"), shall comply with all conditions of this permit including the following sections of the RCSA which have been adopted pursuant to section 22a-430 of the CGS and are hereby incorporated into this permit. Your attention is especially drawn to the notification requirements of subsection (i)(2), (i)(3), (j)(1), (j)(6), (j)(8), (j)(9)(C), (j)(10)(C), (j)(11)(C), (D), (E), and (F), (k)(3) and (4) and (l)(2) of section 22a-430-3.

Section 22a-430-3 General Conditions

- (a) Definitions
- (b) General
- (c) Inspection and Entry
- (d) Effect of a Permit
- (e) Duty
- (f) Proper Operation and Maintenance
- (g) Sludge Disposal
- (h) Duty to Mitigate
- (i) Facility Modifications; Notification
- (j) Monitoring, Records and Reporting Requirements
- (k) Bypass
- (l) Conditions Applicable to POTWs
- (m) Effluent Limitation Violations (Upsets)
- (n) Enforcement
- (o) Resource Conservation
- (p) Spill Prevention and Control
- (q) Instrumentation, Alarms, Flow Recorders
- (r) Equalization

Section 22a-430-4 Procedures and Criteria

- (a) Duty to Apply
 - (b) Duty to Reapply
 - (c) Application Requirements
 - (d) Preliminary Review
 - (e) Tentative Determination
 - (f) Draft Permits, Fact Sheets
 - (g) Public Notice, Notice of Hearing
 - (h) Public Comments
 - (i) Final Determination
 - (j) Public Hearings
 - (k) Submission of Plans and Specifications. Approval.
 - (l) Establishing Effluent Limitations and Conditions
 - (m) Case by Case Determinations
 - (n) Permit issuance or renewal
 - (o) Permit Transfer
 - (p) Permit revocation, denial or modification
 - (q) Variances
 - (r) Secondary Treatment Requirements
 - (s) Treatment Requirements for Metals and Cyanide
 - (t) Discharges to POTWs - Prohibitions
- (C) Violations of any of the terms, conditions, or limitations contained in this permit may subject the Permittee to enforcement action including, but not limited to, seeking penalties, injunctions and/or forfeitures pursuant to applicable sections of the CGS and RCSA.
- (D) Any false statement in any information submitted pursuant to this permit may be punishable as a criminal offense under section 22a-438 or 22a-131a of the CGS or in accordance with section 22a-6, under section 53a-157b of the CGS.
- (E) The authorization to discharge under this permit may not be transferred without prior written approval of the Commissioner of Environmental Protection ("Commissioner"). To request such approval, the Permittee and proposed transferee shall register such proposed transfer with the Commissioner, at least 30 days prior to the transferee becoming legally responsible for creating or maintaining any discharge which is the subject of the permit transfer. Failure, by the transferee, to obtain the Commissioner's approval prior to commencing such discharge(s) may subject the transferee to enforcement action for discharging without a permit pursuant to applicable sections of the CGS and RCSA.
- (F) No provision of this permit and no action or inaction by the Commissioner shall be construed to constitute an assurance by the Commissioner that the actions taken by the Permittee pursuant to this permit will result in compliance or prevent or abate pollution.
- (G) Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.
- (H) An annual fee shall be paid for each year this permit is in effect as set forth in section 22a-430-7 of the Regulations of Connecticut State Agencies.

SECTION 2: DEFINITIONS

(A) The definitions of the terms used in this permit shall be the same as the definitions contained in section 22a-423 of the CGS and section 22a-430-3(a) and 22a-430-6 of the RCSA, except for "No Observable Acute Effect Level (NOAEL)" which is redefined below.

(B) In addition to the above, the following definitions shall apply to this permit:

"-----" in the limits column on the monitoring table means a limit is not specified but a value must be reported on the DMR

"Annual" in the context of any sampling frequency found in Section 5, shall mean the sample must be collected in the month of June.

"Average Monthly Limit"; means the maximum allowable "Average Monthly Concentration" as defined in section 22a-430-3(a) of the RCSA when expressed as a concentration (e.g. mg/l); otherwise, it means "Average Monthly Discharge Limitation" as defined in section 22a-430-3(a) of the RCSA.

"Critical Test Concentration (CTC)" means the specified effluent dilution at which the Permittee is to conduct a single-concentration Aquatic Toxicity test.

"Daily Concentration" means the concentration of a substance as measured in a daily composite sample, or, the arithmetic average of all grab sample results defining a grab sample average.

"Daily Quantity" means the quantity of waste discharged during an operating day.

"Instantaneous Limit" means the highest allowable concentration of a substance as measured by a grab sample, or the highest allowable measurement of a parameter as obtained through instantaneous monitoring.

"In stream Waste Concentration (IWC)" means the concentration of a discharge in the receiving water after mixing has occurred in the allocated zone of influence.

"Maximum Daily Limit", means the maximum allowable "Daily Concentration" (defined above) when expressed as a concentration (e.g. mg/l); otherwise, it means the maximum allowable "Daily Quantity" as defined above, unless it is expressed as a flow quantity. If expressed as a flow quantity it means "Maximum Daily Flow" as defined in section 22a-430-3(a) of the RCSA.

"NA" as a Monitoring Table abbreviation means "not applicable".

"NR" as a Monitoring Table abbreviation means "not required".

"No Observable Acute Effect Level (NOAEL)" means any concentration equal to or less than the critical test concentration in a single concentration (pass/fail) toxicity test conducted pursuant to section 22a-430-3(j)(7)(A)(i) RCSA demonstrating greater than 50% survival of test organisms in 100% (undiluted) effluent and 90% or greater survival of test organisms at the CTC.

"Quarterly", in the context of a sampling frequency, means sampling is required in the months of March, June, September and December.

"Range During Month" ("RDM"), as a sample type, means the lowest and the highest values of all of the monitoring data for the reporting month.

"Range During Sampling" ("RDS"), as a sample type, means the maximum and minimum of all values recorded as a result of analyzing each grab sample of; 1) a Composite Sample, or, 2) a Grab Sample Average. For those Permittees with continuous monitoring and recording pH meters, Range During Sampling means the maximum and minimum readings recorded with the continuous monitoring device during the Composite or Grab Sample Average sample collection.

"Twice per Month" when used as a sample frequency shall mean two samples per calendar month collected no less than 12 days apart.

"ug/l" means micrograms per liter.

SECTION 3: COMMISSIONER'S DECISION

- (A) The Commissioner has issued a final determination and found that modification of the existing system or installation of a new system would protect the waters of the state from pollution. The Commissioner's decision is based on Application No. 200401050 for permit reissuance received on March 31, 2004 and the administrative record established in the processing of that application.
- (B) The Commissioner hereby authorizes the Permittee to discharge in accordance with the provisions of this permit, the above referenced application, and all approvals issued by the Commissioner or the Commissioner's authorized agent for the discharges and/or activities authorized by, or associated with, this permit.
- (C) The Commissioner reserves the right to make appropriate revisions to the permit in order to establish any appropriate effluent limitations, schedules of compliance, or other provisions which may be authorized under the Federal Clean Water Act or the CGS or regulations adopted thereunder, as amended. The permit as modified or renewed under this paragraph may also contain any other requirements of the Federal Clean Water Act or CGS or regulations adopted thereunder which are then applicable.

SECTION 4: GENERAL EFFLUENT LIMITATIONS

- (A) No discharge shall contain, or cause in the receiving stream, a visible oil sheen or floating solids; or, cause visible discoloration or foaming in the receiving stream.
- (B) No discharge shall cause acute or chronic toxicity in the receiving water body beyond any zone of influence specifically allocated to that discharge in this permit.
- (C) The temperature of any discharge shall not increase the temperature of the receiving stream above 85°F, or, in any case, raise the normal temperature of the receiving stream more than 4°F.

SECTION 5: SPECIFIC EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

- (A) The discharges shall not exceed and shall otherwise conform to the specific terms and conditions listed below. The discharges are restricted by, and shall be monitored in accordance with, the tables below. Table A shall be effective from the day of permit issuance until the second anniversary of permit issuance, Table B shall become effective on the second anniversary of permit issuance until the fourth anniversary of permit issuance, Table C shall become effective on the fourth anniversary of permit issuance until one day before the fifth anniversary of permit issuance; Table D shall become effective one day before the fifth anniversary of permit issuance; and Tables E, F and G shall be effective throughout the term of the permit.

Table A

Discharge Serial Number: 001-1		Monitoring Location: 1						
Wastewater Description: Treated electroplating, chromating, cleaning, etching and deburring, as well as, air compressor, laboratory, non-contact cooling and steam condensate wastewaters								
Monitoring Location Description: Treatment System Effluent Flume								
PARAMETER	UNITS	FLOW/TIME BASED MONITORING			INSTANTANEOUS MONITORING			Minimum Level Test ³
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency ²	Sample Type or Measurement to be reported	Sample/Reporting Frequency ²	Sample Type or measurement to be reported	
Aquatic Toxicity, <i>Daphnia pulex</i> LC50 ⁵	%	NA	> 28	Quarterly	Daily Composite	NR	Grab	
Aquatic Toxicity, <i>Pimephales promelas</i> LC50 ⁵	%	NA	> 28	Quarterly	Daily Composite	NR	Grab	
Aluminum, total	mg/l	2.0	4.0	Weekly	Daily Composite	NR	Grab	*
Aluminum, total	g/d	492	984	Weekly	Daily Composite	NR	NA	*
Ammonia - Nitrogen	mg/l	-----	-----	Monthly	Daily Composite	NR	NA	
Arsenic, total	ug/l	-----	-----	Annual	Daily Composite	NR	NA	*
Biochemical oxygen demand (5-day)	mg/l	30	50	Weekly	Daily Composite	NR	Grab	
Boron, total	mg/l	-----	-----	Quarterly	Daily Composite	NR	NA	
Cadmium, total	mg/l	-----	0.1	Quarterly	Daily Composite	NR	Grab	*
Cadmium, total	g/d	14.3	20.9	Quarterly	Daily Composite	NR	NA	*
Chlorine, total residual	mg/l	NA	-----	Monthly	Grab Sample Avg	NR	Grab	*
Chromium, total	mg/l	1.0	2.0	Weekly	Daily Composite	NR	Grab	*
Copper, total	mg/l	0.24	0.64	Weekly	Daily Composite	NR	Grab	*
Copper, total	g/d	136	272	Weekly	Daily Composite	NR	NA	*
Cyanide, total	mg/l	0.007	0.012	Quarterly	Grab Sample Avg	NR	Grab	*
Flow, Average and Maximum ¹	Gpd	100,800	110,000	Daily/monthly	Daily Flow	NR	NA	
Flow, Total	Gpd	NA	110,000	Weekly/monthly	Daily Flow	NR	NA	
Fluoride, total	mg/l	20	30	Monthly	Daily Composite	NR	Grab	
Gold, total	mg/l	0.1	0.5	Quarterly	Daily Composite	NR	Grab	*
Iron, total	mg/l	3.0	5.0	Weekly	Daily Composite	NR	Grab	
Lead, total	mg/l	0.02	0.10	Weekly	Daily Composite	NR	Grab	*
Lead, total	g/d	27.7	55.7	Weekly	Daily Composite	NR	NA	*
Nickel, total	mg/l	1.0	2.0	Weekly	Daily Composite	NR	Grab	*
Nitrate - Nitrogen	mg/l	NA	-----	Monthly	Daily Composite	NR	NA	
Nitrite - Nitrogen	mg/l	NA	-----	Monthly	Daily Composite	NR	NA	
Total Kjeldahl Nitrogen	mg/l	NA	-----	Monthly	Daily Composite	NR	NA	

Table A (continued)

	kg/d	14.9	NA	Monthly	Daily Composite	NA	NR	NA
Nitrogen, Total ⁴		NA	NA	NR	NA	6.0 - 9.0	Weekly	NA
pH	S.U.	NA	NA	NR	NA	6.0 - 9.0	Continuous	RDS
pH, Continuous	S.U.	NA	NA	NR	NA			RDM
Phosphorous, total	mg/l	-----	-----	Monthly	Daily Composite	NA	NR	NA
Silver, total	mg/l	-----	0.1	Monthly	Daily Composite	0.15	NR	NA *
Silver, total	g/d	14.4	24.6	Monthly	Daily Composite	NA	NR	NA *
Surfactants	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA
Tin, total	mg/l	2.0	4.0	Weekly	Daily Composite	6.0	NR	Grab
Total Suspended Solids	mg/l	20.0	30.0	Weekly	Daily Composite	45.0	NR	Grab
Total Toxic Organics	mg/l	NA	NA	NR	NA	0.25	Monthly	Grab
Zinc, total	mg/l	0.75	1.0	Weekly	Daily Composite	1.5	NR	Grab *
Zinc, total	g/d	285	475	Weekly	Daily Composite	NA	NR	NA *

Table Footnotes and Remarks:

Footnotes:

- ¹ For this parameter the Permittee shall maintain at the facility a record of the total flow for each day of discharge and shall report the Average Daily Flow and the Maximum Daily Flow for each sampling month.
- ² The first entry in this column is the 'Sample Frequency'. If a 'Reporting Frequency' does not follow this entry and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.
- ³ Minimum Level Test refers to Section 6.0, Paragraph (A) of this permit.
- ⁴ The limit on Total Nitrogen shall become effective on August 1, 2009 per requirements of A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound, prepared in conformance with Section 303(d) of the Clean Water Act and the Long Island Sound Study by New York State Department of Environmental Conservation and the Connecticut Department of Environmental Protection, December 2000. The Permittee shall calculate Total Nitrogen by combining analytical results for nitrate, nitrite and total Kjehldahl nitrogen and daily flow, as applicable. The samples for these respective parameters shall be obtained on the same day of operation, in accordance with the frequency specified above.
- ⁵ The results of the Toxicity test are reported as the LC₅₀ value on the DMR.

Remarks:

The limits in Table A are effective from the day of permit issuance until the second anniversary of the day of permit issuance.

Table B

Discharge Serial Number: 001-1		Monitoring Location: 1							
Wastewater Description: Treated electroplating, chromating, cleaning, etching and deburring, as well as, air compressor, laboratory, non-contact cooling and steam condensate wastewaters									
Monitoring Location Description: Treatment System Effluent Flume									
PARAMETER	UNITS	FLOW/TIME BASED MONITORING			INSTANTANEOUS MONITORING			Minimum Level Test ³	
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency ²	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency ²		Sample Type or measurement to be reported
Aquatic Toxicity, Daphnia pulex LC50 ⁵	%	NA	> 28	Quarterly	Daily Composite	>9.4	NR	Grab	
Aquatic Toxicity, Pimephales promelas LC50 ⁵	%	NA	> 28	Quarterly	Daily Composite	>9.4	NR	Grab	
Aluminum, total	mg/l	2.0	4.0	Weekly	Daily Composite	6.0	NR	Grab	*
Aluminum, total	g/d	492	984	Weekly	Daily Composite	NA	NR	NA	*
Ammonia – Nitrogen	mg/l	-----	-----	Monthly	Daily Composite	NA	NR	NA	
Arsenic, total	ug/l	-----	-----	Annual	Daily Composite	NA	NR	NA	*
Biochemical oxygen demand (5-day)	mg/l	30	50	Weekly	Daily Composite	75	NR	Grab	
Boron, total	mg/l	-----	-----	Quarterly	Daily Composite	NA	NR	NA	
Cadmium, total	mg/l	-----	0.1	Quarterly	Daily Composite	0.15	NR	Grab	*
Cadmium, total	g/d	14.3	20.9	Quarterly	Daily Composite	NA	NR	NA	*
Chlorine, total residual	mg/l	NA	-----	Monthly	Grab Sample Avg	NA	NR	Grab	*
Chromium, total	mg/l	1.0	2.0	Weekly	Daily Composite	3.0	NR	Grab	*
Copper, total	mg/l	0.24	0.64	Weekly	Daily Composite	0.96	NR	Grab	*
Copper, total	g/d	136	272	Weekly	Daily Composite	NA	NR	NA	*
Cyanide, total	mg/l	0.007	0.012	Quarterly	Grab Sample Avg	0.018	NR	Grab	*
Flow, Average and Maximum ¹	Gpd	100,800	110,000	Daily/monthly	Daily Flow	NA	NR	NA	
Flow, Total	Gpd	NA	110,000	Weekly/monthly	Daily Flow	NA	NR	NA	
Fluoride, total	mg/l	20	30	Monthly	Daily Composite	45	NR	Grab	
Gold, total	mg/l	0.1	0.5	Quarterly	Daily Composite	0.75	NR	Grab	*
Iron, total	mg/l	3.0	5.0	Weekly	Daily Composite	7.5	NR	Grab	
Lead, total	mg/l	0.02	0.10	Weekly	Daily Composite	0.15	NR	Grab	*
Lead, total	g/d	3.0	6.0	Weekly	Daily Composite	NA	NR	NA	*
Nickel, total	mg/l	1.0	2.0	Weekly	Daily Composite	3.0	NR	Grab	*
Nitrate – Nitrogen	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA	
Nitrite - Nitrogen	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA	
Total Kjeldahl Nitrogen	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA	

Table B (continued)

	kg/d	14.9	NA	Monthly	Daily Composite	NA	NR	NA
Nitrogen, Total ⁴		NA	NA	NR	NA	6.0 - 9.0	Weekly	NA
pH	S.U.	NA	NA	NR	NA	6.0 - 9.0	Continuous	RDS
pH, Continuous	S.U.	NA	NA	NR	NA			RDM
Phosphorous, total	mg/l	-----	-----	Monthly	Daily Composite	NA	NR	NA
Silver, total	mg/l	-----	0.1	Monthly	Daily Composite	0.15	NR	NA
Silver, total	g/d	14.4	24.6	Monthly	Daily Composite	NA	NR	NA
Surfactants	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA
Tin, total	mg/l	2.0	4.0	Weekly	Daily Composite	6.0	NR	Grab
Total Suspended Solids	mg/l	20.0	30.0	Weekly	Daily Composite	45.0	NR	Grab
Total Toxic Organics	mg/l	NA	NA	NR	NA	0.25	Monthly	Grab
Zinc, total	mg/l	0.75	1.0	Weekly	Daily Composite	1.5	NR	Grab
Zinc, total	g/d	285	475	Weekly	Daily Composite	NA	NR	NA

Table Footnotes and Remarks:

Footnotes:

- ¹ For this parameter the Permittee shall maintain at the facility a record of the total flow for each day of discharge and shall report the Average Daily Flow and the Maximum Daily Flow for each sampling month.
- ² The first entry in this column is the 'Sample Frequency'. If a 'Reporting Frequency' does not follow this entry and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.
- ³ Minimum Level Test refers to Section 6.0, Paragraph (A) of this permit.
- ⁴ The limit on Total Nitrogen shall become effective on August 1, 2009 per requirements of A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound, prepared in conformance with Section 303(d) of the Clean Water Act and the Long Island Sound Study by New York State Department of Environmental Conservation and the Connecticut Department of Environmental Protection, December 2000. The Permittee shall calculate Total Nitrogen by combining analytical results for nitrate, nitrite and total Kjeldahl nitrogen and daily flow, as applicable. The samples for these respective parameters shall be obtained on the same day of operation, in accordance with the frequency specified above.
- ⁵ The results of the Toxicity test are reported as the LC₅₀ value on the DMR.

Remarks:

The limits in Table B are effective from the second anniversary of the day of permit issuance until the fourth anniversary of the day of permit issuance.

Table C

Discharge Serial Number: 001-1		Monitoring Location: 1							
Wastewater Description: Treated electroplating, chromating, cleaning, etching and deburring, as well as, air compressor, laboratory, non-contact cooling and steam condensate wastewaters									
Monitoring Location Description: Treatment System Effluent Flume									
PARAMETER	UNITS	FLOW/TIME BASED MONITORING			INSTANTANEOUS MONITORING			Minimum Level Test ³	
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency ²	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency ²		Sample Type or measurement to be reported
Aquatic Toxicity, <i>Daphnia pulex</i> LC50 ⁵	%	NA	> 28	Quarterly	Daily Composite	>9.4	NR	Grab	
Aquatic Toxicity, <i>Pimephales promelas</i> LC50 ⁵	%	NA	> 28	Quarterly	Daily Composite	>9.4	NR	Grab	
Aluminum, total	mg/l	2.0	4.0	Weekly	Daily Composite	6.0	NR	Grab	*
Aluminum, total	g/d	492	984	Weekly	Daily Composite	NA	NR	NA	*
Ammonia - Nitrogen	mg/l	-----	-----	Monthly	Daily Composite	NA	NR	NA	*
Arsenic, total	ug/l	-----	-----	Annual	Daily Composite	NA	NR	NA	*
Biochemical oxygen demand (5-day)	mg/l	30	50	Weekly	Daily Composite	75	NR	Grab	
Boron, total	mg/l	-----	-----	Quarterly	Daily Composite	NA	NR	NA	
Cadmium, total	mg/l	-----	0.1	Quarterly	Daily Composite	0.15	NR	Grab	*
Cadmium, total	g/d	14.3	20.9	Quarterly	Daily Composite	NA	NR	NA	*
Chlorine, total residual	mg/l	NA	-----	Monthly	Grab Sample Avg	NA	NR	Grab	*
Chromium, total	mg/l	1.0	2.0	Weekly	Daily Composite	3.0	NR	Grab	*
Copper, total	mg/l	0.24	0.64	Weekly	Daily Composite	0.96	NR	Grab	*
Copper, total	g/d	56.1	112.5	Weekly	Daily Composite	NA	NR	NA	*
Cyanide, total	mg/l	0.007	0.012	Quarterly	Grab Sample Avg	0.018	NR	Grab	*
Flow, Average and Maximum ¹	Gpd	100,800	110,000	Daily/monthly	Daily Flow	NA	NR	NA	
Flow, Total	Gpd	NA	110,000	Weekly/monthly	Daily Flow	NA	NR	NA	
Fluoride, total	mg/l	20	30	Monthly	Daily Composite	45	NR	Grab	*
Gold, total	mg/l	0.1	0.5	Quarterly	Daily Composite	0.75	NR	Grab	*
Iron, total	mg/l	3.0	5.0	Weekly	Daily Composite	7.5	NR	Grab	*
Lead, total	mg/l	0.02	0.10	Weekly	Daily Composite	0.15	NR	Grab	*
Lead, total	g/d	3.0	6.0	Weekly	Daily Composite	NA	NR	NA	*
Nickel, total	mg/l	1.0	2.0	Weekly	Daily Composite	3.0	NR	Grab	*
Nickel, total	g/d	139	279	Weekly	Daily Composite	NA	NR	NA	*
Nitrate - Nitrogen	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA	
Nitrite - Nitrogen	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA	
Total Kjeldahl Nitrogen	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA	

Table C (continued)

	kg/d	14.9	NA	Monthly	Daily Composite	NA	NR	NA
Nitrogen, Total ⁴		NA	NA	NR	NA	6.0 - 9.0	Weekly	NA
pH	S.U.	NA	NA	NR	NA	6.0 - 9.0	Continuous	RDS
pH, Continuous	S.U.	NA	NA	NR	NA			RDM
Phosphorous, total	mg/l	-----	-----	Monthly	Daily Composite	NA	NR	NA
Silver, total	mg/l	-----	0.1	Monthly	Daily Composite	0.15	NR	NA
Silver, total	g/d	14.4	24.6	Monthly	Daily Composite	NA	NR	NA
Surfactants	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA
Tin, total	mg/l	2.0	4.0	Weekly	Daily Composite	6.0	NR	Grab
Total Suspended Solids	mg/l	20.0	30.0	Weekly	Daily Composite	45.0	NR	Grab
Total Toxic Organics	mg/l	NA	NA	NR	NA	0.25	Monthly	Grab
Zinc, total	mg/l	0.75	1.0	Weekly	Daily Composite	1.5	NR	Grab
Zinc, total	g/d	285	475	Weekly	Daily Composite	NA	NR	NA

Table Footnotes and Remarks:

Footnotes:

- ¹ For this parameter the Permittee shall maintain at the facility a record of the total flow for each day of discharge and shall report the Average Daily Flow and the Maximum Daily Flow for each sampling month.
- ² The first entry in this column is the 'Sample Frequency'. If a 'Reporting Frequency' does not follow this entry and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.
- ³ Minimum Level Test refers to Section 6.0, Paragraph (A) of this permit.
- ⁴ The limit on Total Nitrogen shall become effective on August 1, 2009 per requirements of A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound, prepared in conformance with Section 303(d) of the Clean Water Act and the Long Island Sound Study by New York State Department of Environmental Conservation and the Connecticut Department of Environmental Protection, December 2000. The Permittee shall calculate Total Nitrogen by combining analytical results for nitrate, nitrite and total Kjeldahl nitrogen and daily flow, as applicable. The samples for these respective parameters shall be obtained on the same day of operation, in accordance with the frequency specified above.
- ⁵ The results of the Toxicity test are reported as the LC₅₀ value on the DMR.

Remarks:

The limits in Table C are effective from the fourth anniversary of the day of permit issuance until one day before the fifth anniversary of the day of permit issuance.

Table D

Discharge Serial Number: 001-1		Monitoring Location: 1							
Wastewater Description: Treated electroplating, chromating, cleaning, etching and deburring, as well as, air compressor, laboratory, non-contact cooling and steam condensate wastewaters									
Monitoring Location Description: Treatment System Effluent Flume									
PARAMETER	UNITS	FLOW/TIME BASED MONITORING			INSTANTANEOUS MONITORING			Minimum Level Test ³	
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency ²	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency ²		Sample Type or measurement to be reported
Aquatic Toxicity, Daphnia pulex, NOAEL = 52.7 ⁵	%	NA	>= 90	Quarterly	Daily Composite	LC50 > 52.7	NR	Grab	
Aquatic Toxicity, Daphnia pulex, Survival in 100% ⁵	%	NA	>= 50	Quarterly	Daily Composite	NA	NR	NA	
Aquatic Toxicity, Pimephales promelas, NOAEL = 52.7 ⁵	%	NA	>= 90	Quarterly	Daily Composite	LC50 > 52.7	NR	Grab	
Aquatic Toxicity, Pimephales promelas, Survival in 100% ⁵	%	NA	>= 50	Quarterly	Daily Composite	NA	NR	NA	
Aluminum, total	mg/l	2.0	4.0	Weekly	Daily Composite	6.0	NR	Grab	*
Aluminum, total	g/d	492	984	Weekly	Daily Composite	NA	NR	NA	*
Ammonia – Nitrogen	mg/l	-----	-----	Monthly	Daily Composite	NA	NR	NA	
Arsenic, total	ug/l	-----	-----	Annual	Daily Composite	NA	NR	NA	*
Biochemical oxygen demand (5-day)	mg/l	30	50	Weekly	Daily Composite	75	NR	Grab	
Boron, total	mg/l	-----	-----	Quarterly	Daily Composite	NA	NR	NA	
Cadmium, total	mg/l	-----	0.1	Quarterly	Daily Composite	0.15	NR	Grab	*
Cadmium, total	g/d	14.3	20.9	Quarterly	Daily Composite	NA	NR	NA	*
Chlorine, total residual	mg/l	0.114	0.229	Weekly	Grab Sample Avg	0.343	NR	Grab	*
Chromium, total	mg/l	1.0	2.0	Weekly	Daily Composite	3.0	NR	Grab	*
Copper, total	mg/l	0.24	0.64	Weekly	Daily Composite	0.96	NR	Grab	*
Copper, total	g/d	56.1	112.5	Weekly	Daily Composite	NA	NR	NA	*
Cyanide, total	mg/l	0.007	0.012	Quarterly	Grab Sample Avg	0.018	NR	Grab	*
Flow, Average and Maximum ¹	Gpd	100,800	110,000	Daily/monthly	Daily Flow	NA	NR	NA	
Flow, Total	Gpd	NA	110,000	Weekly/monthly	Daily Flow	NA	NR	NA	
Fluoride, total	mg/l	20	30	Monthly	Daily Composite	45	NR	Grab	
Gold, total	mg/l	0.1	0.5	Quarterly	Daily Composite	0.75	NR	Grab	*
Iron, total	mg/l	3.0	5.0	Weekly	Daily Composite	7.5	NR	Grab	
Lead, total	mg/l	0.02	0.10	Weekly	Daily Composite	0.15	NR	Grab	*
Lead, total	g/d	3.0	6.0	Weekly	Daily Composite	NA	NR	NA	*
Nickel, total	mg/l	1.0	2.0	Weekly	Daily Composite	3.0	NR	Grab	*

Table D (continued)

	g/d	139	279	Weekly	Daily Composite	NA	NR	NA	*
Nickel, total	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA	*
Nitrate - Nitrogen	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA	
Nitrite - Nitrogen	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA	
Total Kjeldahl Nitrogen	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA	
Nitrogen, Total ⁴	kg/d	14.9	NA	Monthly	Daily Composite	NA	NR	NA	
pH	S.U.	NA	NA	NR	NA	6.0 - 9.0	Weekly	RDS	
pH, Continuous	S.U.	NA	NA	NR	NA	6.0 - 9.0	Weekly	RDS	
Phosphorous, total	S.U.	NA	NA	NR	NA	6.0 - 9.0	Continuous	RDM	
Silver, total	mg/l	-----	-----	Monthly	Daily Composite	NA	NR	NA	*
Silver, total	mg/l	-----	0.1	Monthly	Daily Composite	0.15	NR	NA	*
Surfactants	g/d	14.4	24.6	Monthly	Daily Composite	NA	NR	NA	*
Tin, total	mg/l	NA	-----	Monthly	Daily Composite	NA	NR	NA	
Total Suspended Solids	mg/l	2.0	4.0	Weekly	Daily Composite	6.0	NR	Grab	
Total Toxic Organics	mg/l	20.0	30.0	Weekly	Daily Composite	45.0	NR	Grab	
Zinc, total	mg/l	NA	NA	NR	NA	0.25	Monthly	Grab	*
Zinc, total	g/d	285	475	Weekly	Daily Composite	1.5	NR	Grab	*

Table Footnotes and Remarks:

- Footnotes:**
- ¹ For this parameter the Permittee shall maintain at the facility a record of the total flow for each day of discharge and shall report the Average Daily Flow and the Maximum Daily Flow for each sampling month.
 - ² The first entry in this column is the 'Sample Frequency'. If a 'Reporting Frequency' does not follow this entry and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.
 - ³ Minimum Level Test refers to Section 6.0, Paragraph (A) of this permit.
 - ⁴ The limit on Total Nitrogen is effective per requirements of A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound, prepared in conformance with Section 303(d) of the Clean Water Act and the Long Island Sound Study by New York State Department of Environmental Conservation and the Connecticut Department of Environmental Protection, December 2000. The permittee shall calculate Total Nitrogen by combining analytical results for nitrate, nitrite and total Kjeldahl nitrogen and daily flow, as applicable. The samples for these respective parameters shall be obtained on the same day of operation, in accordance with the frequency specified above.
 - ⁵ The results of the Toxicity test are reported as % survival on the DMR.

Remarks:

Table D shall become effective the day before the fifth anniversary of permit issuance.

Table E

Discharge Serial Number: 001-A		Monitoring Location: 1						
Wastewater Description: Solvent Pretreatment System								
Monitoring Location Description: Treatment System Effluent								
PARAMETER	UNITS	FLOW/TIME BASED MONITORING		INSTANTANEOUS MONITORING			Minimum Level Test	
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency ²	Sample Type or Measurement to be reported	Instantaneous limit or required range		Sample/Reporting Frequency ²
Flow, total ¹	gpd	NA	1,800	Daily/Monthly	Daily flow	NA	NR	NA
Perchloroethylene	mg/l	NA	NA	NR	NA	1.0	Twice per Month	Grab

Footnotes:
¹ For this parameter the Permittee shall maintain at the facility a record of the total flow for each day of discharge and shall report the Maximum Daily Flow for each sampling month.
² The first entry in this column is the 'Sample Frequency'. If a 'Reporting Frequency' does not follow this entry and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

Table F

Discharge Serial Number: 001-B		Monitoring Location: 1						
Wastewater Description: Hexavalent chromium Pretreatment System associated with Departments 14, 44 and 77								
Monitoring Location Description: Treatment System Effluent								
PARAMETER	UNITS	FLOW/TIME BASED MONITORING		INSTANTANEOUS MONITORING			Minimum Level Test	
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency ²	Sample Type or Measurement to be reported	Instantaneous limit or required range		Sample/Reporting Frequency ²
Flow, total ¹	gpd	NA	-----	Daily/Monthly	Daily flow	NA	NR	NA
Chromium, hexavalent	mg/l	0.1	0.2	Monthly	Grab Sample Avg	0.3	NR	NA

Footnotes:
¹ For this parameter the Permittee shall maintain at the facility a record of the total flow for each day of discharge and shall report the Maximum Daily Flow for each sampling month.
² The first entry in this column is the 'Sample Frequency'. If a 'Reporting Frequency' does not follow this entry and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

Table G

Monitoring Location: 1

Discharge Serial Number: 001-C

Wastewater Description: Hexavalent chromium Pretreatment System associated with Department 1

Monitoring Location Description: Treatment System Effluent

PARAMETER	UNITS	FLOW/TIME BASED MONITORING			INSTANTANEOUS MONITORING			Minimum Level Test
		Average Monthly Limit	Maximum Daily Limit	Sample/Reporting Frequency ²	Sample Type or Measurement to be reported	Instantaneous limit or required range	Sample/Reporting Frequency ²	
Flow, total ¹	gpd	NA	-----	Daily/Monthly	Daily flow	NA	NR	NA
Chromium, hexavalent	mg/l	0.1	0.2	Monthly	Grab Sample Avg	0.3	NR	NA

Footnotes:

¹ For this parameter the Permittee shall maintain at the facility a record of the total flow for each day of discharge and shall report the Maximum Daily Flow for each sampling month.

² The first entry in this column is the 'Sample Frequency'. If a 'Reporting Frequency' does not follow this entry and the 'Sample Frequency' is more frequent than monthly then the 'Reporting Frequency' is monthly. If the 'Sample frequency' is specified as monthly, or less frequent, then the 'Reporting Frequency' is the same as the 'Sample Frequency'.

- (1) All samples shall be comprised of only the wastewaters described in the respective tables. Samples shall be collected prior to combination with receiving waters or wastewater of any other type, and after all approved treatment units, if applicable. All samples collected shall be representative of the discharge during standard operating conditions.
- (2) In cases where limits and sample type are specified but sampling is not required by this permit, the limits specified shall apply to all samples which may be collected and analyzed by the Department of Environmental Protection personnel, the Permittee, or other parties.
- (3) The limits imposed on the discharges listed in this permit take effect on the issuance date of this permit, hence any sample taken after this date which, upon analysis, shows an exceedance of permit limits will be considered non-compliance.

The monitoring requirements begin on the date of issuance of this permit if the issuance date is on or before the 12th day of a month. For permits issued on or after the 13th day of a month, monitoring requirements begin the 1st day of the following month.

SECTION 6: SAMPLE COLLECTION, HANDLING AND ANALYTICAL TECHNIQUES

(A) Chemical Analysis

- (1) Chemical analyses to determine compliance with effluent limits and conditions established in this permit shall be performed using the methods approved pursuant to the 40 CFR 136 unless an alternative method has been approved in writing pursuant to 40 CFR 136.4 or as provided in section 22a-430-3(j)(7) of the RCSA. Chemicals which do not have methods of analysis defined in 40 CFR 136 shall be analyzed in accordance with methods specified in this permit.
- (2) All metals analyses identified in this permit shall refer to analyses for Total Recoverable Metal as defined in 40 CFR 136 unless otherwise specified.
- (3) The Minimum Levels specified below represent the concentrations at which quantification must be achieved and verified during the chemical analyses for the parameters identified in Section 5 Tables A, B, C and D. Analyses for these parameters must include check standards within ten percent of the specified Minimum Level or calibration points equal to or less than the specified Minimum Level.

<u>Parameter</u>	<u>Minimum Level</u>
Aluminum	10.0 ug/L
Arsenic	5.0 ug/L
Cadmium	0.5 ug/L
Chlorine, total residual	20.0 ug/L
Chromium	5.0 ug/L
Chromium, hexavalent	10.0 ug/L
Cyanide	10.0 ug/L
Copper	5.0 ug/L
Lead	5.0 ug/L
Nickel	5.0 ug/L
Silver	2.0 ug/L
Zinc	10.0 ug/L

- (4) The value of each parameter for which monitoring is required under this permit shall be reported to the maximum level of accuracy and precision possible consistent with the requirements of this section of the permit.
- (5) Effluent analyses for which quantification was verified during the analysis at or below the minimum levels specified in this section and which indicate that a parameter was not detected shall be reported as "less than x" where 'x' is the numerical value equivalent to the analytical method detection limit for that analysis.
- (6) Results of effluent analyses which indicate that a parameter was not present at a concentration greater than or equal to the Minimum Level specified for that analysis shall be considered equivalent to zero (0.0) for purposes of determining compliance with effluent limitations or conditions specified in this permit.

(B) Acute Aquatic Toxicity Test

- (1) Samples for monitoring of Aquatic Toxicity shall be collected and handled as prescribed in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA/821-R-02-012).
 - (a) Composite samples shall be chilled as they are collected. Grab samples shall be chilled immediately following collection. Samples shall be held at 4 degrees Centigrade until Aquatic Toxicity testing is initiated.

- (b) Effluent samples shall not be dechlorinated, filtered, or, modified in any way, prior to testing for Aquatic Toxicity unless specifically approved in writing by the Commissioner for monitoring at this facility.
 - (c) Chemical analyses of the parameters identified in Section 5 Tables A, B, C and D shall be conducted on an aliquot of the same sample tested for Aquatic Toxicity.
 - (i) At a minimum, pH, specific conductance, total alkalinity, total hardness, and total residual chlorine shall be measured in the effluent sample and, during Aquatic Toxicity tests, in the highest concentration of test solution and in the dilution (control) water at the beginning of the test and at test termination. If Total Residual Chlorine is not detected at test initiation, it does not need to be measured at test termination. Dissolved oxygen, pH, and temperature shall be measured in the control and all test concentrations at the beginning of the test, daily thereafter, and at test termination.
 - (d) Tests for Aquatic Toxicity shall be initiated within 36 hours of sample collection.
- (2) Monitoring for Aquatic Toxicity to determine compliance with the permit limit on Aquatic Toxicity (invertebrate) above shall be conducted for 48-hours utilizing neonatal Daphnia pulex (less than 24-hours old)
 - (3) Monitoring for Aquatic Toxicity to determine compliance with the permit limit on Aquatic Toxicity (vertebrate) above shall be conducted for 48-hours utilizing larval Pimephales promelas (1-14 days old with no more than 24-hours range in age).
 - (4) Tests for Aquatic Toxicity shall be conducted as prescribed for static non-renewal acute tests in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms" (EPA/821-R-02-012), except as specified below.
 - (a) Definitive (multi-concentration) testing, with LC50 as the endpoint, shall be conducted to determine compliance with limits on Aquatic Toxicity and monitoring conditions and shall incorporate, at a minimum, the following effluent concentrations:
 - (i) For Aquatic Toxicity Limits expressed as LC50 values between 15% and 33% and for monitoring only conditions: 100%, 50%, 35%, 25%, 12.5%, and 6.25%
 - (b) For Aquatic Toxicity Limits and for monitoring only conditions, expressed as an NOAEL value, Pass/Fail (single-concentration) tests shall be conducted at a specified Critical Test Concentration (CTC) equal to the Aquatic Toxicity Limit, or 100% in the case of monitoring only conditions, as prescribed in section 22a-430-3(j)(7)(A)(I) of the Regulations of Connecticut State Agencies, except that five replicates of undiluted effluent and five replicates of effluent diluted to the CTC shall be included.
 - (c) Organisms shall not be fed during the tests.
 - (d) Copper nitrate shall be used as the reference toxicant in tests with freshwater organisms.
 - (e) Synthetic freshwater prepared with deionized water adjusted to a hardness of 50 mg/L (plus or minus 5 mg/L) as CaCO₃ shall be used as dilution water in tests with freshwater organisms.
 - (5) Compliance with limits on Aquatic Toxicity shall be determined as follows:
 - (a) For limits expressed as a minimum LC50 value, compliance shall be demonstrated when the results of a valid definitive Aquatic Toxicity test indicates that the LC50 value for the test is greater than the Aquatic Toxicity Limit.
 - (b) For limits expressed as an NOAEL value, compliance shall be demonstrated when the results of a valid pass/fail Aquatic Toxicity test indicates there is greater than 50% survival in the undiluted effluent and 90% or greater survival in the effluent at the specified CTC.

(C) The Permittee shall annually monitor the chronic toxicity of the DSN 001-1 in accordance with the following specifications.

- (1) Chronic toxicity testing of the discharge shall be conducted annually during July, August, or September of each year.
- (2) Chronic toxicity testing shall be performed on the discharge in accordance with the test methodology established in "Short term Methods For Estimating The Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms" (EPA-821-R-02-013) as referenced in 40 CFR 136 for Cerio daphnia survival and reproduction and Fathead Minnow larval survival and growth.
- (3) Chronic toxicity tests shall utilize a minimum of five effluent dilutions prepared using a dilution factor of 0.5 (100% effluent, 50% effluent, 25 % effluent, 12.5 % effluent, 6.25 % effluent, 0 % effluent).
- (4) Naugatuck River water collected immediately upstream of the area influenced by the discharge shall be used as site water control (0% effluent) and dilution water in the toxicity tests.
- (5) A laboratory water control consisting of synthetic freshwater prepared in accordance with EPA-821-R-02-013 at a hardness of 50±5 mg/l shall be included in the test protocol in addition to the site-water control.
- (6) Daily composite samples of the discharge and grab samples of the Naugatuck River for use as site water control and dilution water shall be collected on: day 0, for test solution renewal on day 1 and day 2 of the test; day 2, for test solution renewal on day 3 and day 4 of the test; and day 4, for test solution renewal on day 5, 6, and 7 of the test. Samples shall not be dechlorinated, pH or hardness adjusted, or chemically altered in any way.
- (7) All samples of the discharge and the Naugatuck River water used in the chronic toxicity test shall, at a minimum, be analyzed and results reported in accordance with the provisions listed in section 6(A) of this permit for the following parameters:

pH	Copper (Total recoverable and dissolved)
Hardness	Nickel (Total recoverable and dissolved)
Alkalinity	Nitrogen, Ammonia (total as N)
Conductivity	Nitrogen, Nitrate (Total as N)
Chlorine, (Total residual)	Nitrogen, Nitrite (Total as N)
Solids, Total Suspended	Solids, Total dissolved
Surfactants	Biochemical Oxygen Demand (5-day)
Iron	Lead (Total recoverable and dissolved)
Boron	Phosphorous
Aluminum	Zinc, (Total recoverable and dissolved)

SECTION 7: LIMITATIONS FOR AQUATIC TOXICITY BASED ON ACTUAL FLOWS

(A) In lieu of demonstrating compliance with the specific Maximum Daily Toxicity Limits in Section 5 Tables A, B, C and D the Permittee may recalculate the IWC based on actual flows provided:

- (1) the Permittee maintains an accurate record of measured discharge flows and hours of operation for all days on which a discharge occurs; and
- (2) the total daily flow for any single operating day does not exceed the average of the daily flows for the thirty consecutive operating days prior to the sampling date by more than 25 percent.

(B) The In stream Waste Concentration (IWC) shall be calculated as follows:

- (1) The measured average daily flow in gallons per hour total flow/ hours of discharge shall be tabulated for each of the prior 30 operating days and the arithmetic average for the 30 day period calculated.
- (2) The IWC (in gallons per hour) specific for the thirty consecutive operating days prior to the sampling date shall be calculated by dividing the 30 day average hourly flow by the sum of the 30-day average flow and the zone of influence (ZOI) allocated to the discharge {ZOI = 48,965 gph}:

$$\text{IWC (\%)} = \frac{\text{30 day average hourly flow}}{\text{30 day average hourly flow} + \text{ZOI}} \times 100$$

- (3) The alternative Maximum Daily Toxicity Limit shall be determined by the IWC calculated above:
 - (a) For IWC equal to or less than 5%, the LC50 value shall be greater than or equal to the IWC times 20.
 - (b) For IWC greater than 5%, and less than 15%, the NOAEL value shall be an NOAEL equal to the IWC times 6.7.
 - (c) For IWC equal to or greater than 15%, the NOAEL value shall be an NOAEL equal to 100%.
 - (d) Demonstration of compliance with these alternative Maximum Daily Limits shall be performed as specified in Section 6(B) of this permit.

(C) Compliance with the alternative Maximum Daily Toxicity Limits based on actual flows shall be determined as follows:

- (1) For alternative limits expressed as a Minimum LC50 value in accordance with Section (7)(B)(3)(a) above, compliance shall be demonstrated when the LC50 value for a valid definitive Aquatic Toxicity Test, conducted pursuant to the requirements specified in Section (6)(B) of this permit, is greater than the alternative limit.
- (2) For alternative limits expressed as an NOAEL value in accordance with Section (7)(B)(3)(b) above, compliance shall be demonstrated when the results of a valid pass/fail Aquatic Toxicity Test, conducted pursuant to the requirements specified in Section (6)(B) of this permit, indicates greater than 50% survival in the undiluted effluent and 90% or greater survival in the effluent at a CTC equal to the alternative limit.

SECTION 8: REPORTING REQUIREMENTS

(A) The results of chemical analyses and any aquatic toxicity test required above shall be entered on the Discharge Monitoring Report (DMR), provided by this office, and reported to the Bureau of Materials Management and Compliance Assurance (Attn: DMR Processing) at the following address. The report shall also include a detailed explanation of any violations of the limitations specified. The DMR shall be received at this address by the last day of the month following the month in which samples are collected.

Bureau of Materials Management and Compliance Assurance
 Water Permitting and Enforcement Division (Attn: DMR Processing)
 Connecticut Department of Environmental Protection
 79 Elm Street
 Hartford, CT 06106-5127

(B) Complete and accurate aquatic toxicity test data, including percent survival of test organisms in each replicate test chamber, LC50 values and 95% confidence intervals for definitive test protocols, and all supporting chemical/physical measurements performed in association with any aquatic toxicity test, including measured daily flow and hours of operation for the 30 consecutive operating days prior to sample collection if compliance with a limit on Aquatic Toxicity is based on toxicity limits based on actual flows described in Section 7, shall be entered on the Aquatic Toxicity Monitoring Report form (ATMR) and sent to the Bureau of Water Protection and Land Reuse at the following address. The ATMR shall be received at this address by the last day of the month following the month in which samples are collected.

Bureau of Water Protection and Land Reuse (Attn: Aquatic Toxicity)
Connecticut Department of Environmental Protection
79 Elm St.
Hartford, CT 06106-5127

- (C) If this permit requires monitoring of a discharge on a calendar basis (e.g. Monthly, quarterly, etc.), but a discharge has not occurred within the frequency of sampling specified in the permit, the Permittee must submit the DMR and ATMR, as scheduled, indicating "NO DISCHARGE". For those Permittees whose required monitoring is discharge dependent (e.g. per batch), the minimum reporting frequency is monthly. Therefore, if there is no discharge during a calendar month for a batch discharge, a DMR must be submitted indicating such by the end of the following month.
- (D) For any table above that requires Total Toxic Organics (TTO) monitoring, the Permittee may, in lieu of analyzing for Total Toxic Organics, include a statement on the DMR, at the frequency required, certifying compliance with your Solvent Management Plan if such plan has been approved by the Commissioner in accordance with 22a-430-4(l) of the RCSA and by 40 CFR 433 (Metal Finishing). If such approval has been granted and the reports include the compliance statement, the minimum frequency of sampling shall be reduced to annually in the month of January.

SECTION 9: RECORDING AND REPORTING OF VIOLATIONS, ADDITIONAL TESTING REQUIREMENTS

- (A) If any sample analysis indicates that an Aquatic Toxicity effluent limitation in Section 5 of this permit has been exceeded, or that the test was invalid, another sample of the effluent shall be collected and tested for Aquatic Toxicity and associated chemical parameters, as described above in Section 5 and Section 6, and the results reported to the Bureau of Materials Management and Compliance Assurance (Attn: DMR Processing), at the address listed above, within 30 days of the exceedance or invalid test. Results of all tests, whether valid or invalid, shall be reported.
- (B) If any two consecutive test results or any three test results in a twelve month period indicates that an Aquatic Toxicity Limit has been exceeded, the Permittee shall immediately take all reasonable steps to eliminate toxicity wherever possible and shall submit a report to Bureau of Materials Management and Compliance Assurance (Attn: Aquatic Toxicity) for the review and approval of the Commissioner in accordance with section 22a-430-3(j)(10)(c) of the RCSA describing proposed steps to eliminate the toxic impact of the discharge on the receiving water body. Such a report shall include a proposed time schedule to accomplish toxicity reduction and the Permittee shall comply with any schedule approved by the Commissioner.
- (C) The Permittee shall notify the Bureau of Materials Management and Compliance Assurance, Water Permitting and Enforcement Division, within 72 hours and in writing within thirty days of the discharge of any substance listed in the application but not listed in the permit if the concentration or quantity of that substance exceeds two times the level listed in the application.

SECTION 10: COMPLIANCE SCHEDULE

- (A) The Permittee shall achieve compliance with the effluent limitations for Total Nitrogen in Section 5, Table A as soon as possible but in no event later than August 1, 2009 in accordance with the following:
 - (1) On or before 365 days after the date of issuance of this permit, the Permittee shall retain one or more qualified consultants acceptable to the Commissioner to prepare the documents and implement or oversee the actions required by this section of the permit and shall, by that date, notify the Commissioner in writing of the identity of such consultants. The Permittee shall retain one or more qualified consultants acceptable to the Commissioner until the actions required by this section of the permit have been completed, and within ten days after retaining any consultant other than one originally identified under this paragraph, Permittee shall notify the Commissioner in writing of the identity of such other consultant. The consultant retained to perform the studies and oversee any remedial measures required to achieve compliance with Section 5, Table A limits for Total Nitrogen shall be a qualified professional engineer licensed to practice in Connecticut acceptable to the Commissioner. The Permittee shall submit to the Commissioner a description of a consultant's education, experience and training that is relevant to the work required by this permit within ten days after a request for such a description. Nothing in this paragraph shall preclude the Commissioner from finding a previously acceptable consultant unacceptable.

- (2) On or before 545 days after the date of issuance of this permit, the Permittee shall submit for the Commissioner's review and written approval a comprehensive and thorough report which describes and evaluates alternative actions which may be taken by the Permittee to achieve compliance with the effluent limitations for Total Nitrogen in Section 5, Table A of this permit. Such report shall:
- (a) evaluate alternative actions to achieve compliance with Section 5, Table A limits for Total Nitrogen including, but not limited to, pollutant source reduction, process changes/innovations, chemical substitutions, recycle and zero discharge systems, water conservation measures, and other internal and/or end-of-pipe treatment technologies;
 - (b) state in detail the most expeditious schedule for performing each alternative;
 - (c) list all permits and approvals required for each alternative, including but not limited to any permits required under sections 22a-32, 22a-42a, 22a-342, 22a-361, 22a-368 or 22a-430 of the Connecticut General Statutes;
 - (d) propose a preferred alternative or combination of alternatives with supporting justification; and
 - (e) propose a detailed program and schedule to perform all actions required by the preferred alternative including but not limited to a schedule for submission of engineering plans and specifications on any internal and/or end of pipe treatment facilities, start and completion of any construction activities related to any treatment facilities, and applying for and obtaining all permits and approvals required for such actions.
- (3) Implementation of Approved Actions. The Permittee shall perform the approved actions in accordance with the approved schedule, **but in no event shall the approved actions be completed later than August 1, 2009.** Within fifteen (15) days after completing such actions, the Permittee shall certify to the Commissioner in writing that the actions have been completed as approved.
- (4) Progress Reports. Until actions required in Section 10(A) have been completed, the Permittee shall submit to the Commissioner quarterly status reports beginning sixty (60) days after the date of approval of the report referenced in Section 10(A)(2) above. Status reports shall include, but not be limited to, a summary of all applicable effluent monitoring data collected by the Permittee during the previous ninety (90) day period and a detailed description of progress made by the Permittee in performing actions required by this section of the permit in accordance with the approved schedule including, but not limited to, development of engineering plans and specifications, construction activity, contract bidding, operational changes, preparation and submittal of permit applications, and any other actions specified in the program approved pursuant to Section 10(A)(2) above.
- (B) The Permittee shall achieve compliance with the effluent limitations contained in Section 5, Table C of this permit as soon as possible, but in no event later than the fourth anniversary of permit issuance, in accordance with the following:
- (1) Scope of Study. On or before one (1) year after the date of issuance of this permit, the Permittee shall submit for the Commissioner's review and written approval a scope of study for the investigation of its ability to consistently achieve compliance with the effluent limitations contained in Section 5, Table C of this permit. Such scope shall include a schedule for conducting the investigation required by this paragraph and a date by which the report required by Section 10(B)(3) of this permit will be submitted to the Commissioner.
 - (2) Performance of Investigation. The Permittee shall perform the investigation and other actions specified in the approved scope of study and the approved schedule.
 - (3) Investigation Report and Implementation Plan. In accordance with the schedule approved by the Commissioner pursuant to Section 10(B)(1) of this permit but no later than two (2) years after the date of issuance of this permit, the Permittee shall submit for the Commissioner's review and written approval a comprehensive and thorough report which describes in detail the investigation performed pursuant to Section 10(B)(2) of this permit and which:
 - (a) assesses the Permittee's ability to comply with the effluent limits of Section 5, Table C.

- (b) evaluates alternative actions to achieve compliance with such limits including, but not limited to, pollutant source reduction, process changes/innovations, chemical substitutions, recycle and zero discharge systems, water conservation measures, and other internal and/or end-of-pipe treatment technologies;
 - (c) states in detail the most expeditious schedule for performing each alternative;
 - (d) lists all permits and approvals required for each alternative, including but not limited to, any permits required under sections 22a-32, 22a-42a, 22a-342, 22a-361, 22a-368, 22a-430 or 22a-430b of the Connecticut General Statutes;
 - (e) proposes a preferred alternative or combination of alternatives with supporting justification; and
 - (f) proposes a detailed program and schedule to perform all actions required by the preferred alternative including but not limited to a schedule for submission of engineering plans and specifications on any internal and/or end-of-pipe treatment facilities, start and completion of any construction activities related to any treatment facilities, and applying for and obtaining all permits and approvals required for such actions.
 - (g) proposes a study that shall be the basis of the report required under Section 10(B)(6), evaluating the effectiveness of remedial actions performed. Such proposal shall at a minimum include four sampling events, taken a minimum of one month apart, analyzed in accordance with this permit.
- (4) Progress Reports. Until actions required in Section 10(B) have been completed, the Permittee shall submit to the Commissioner quarterly status reports beginning sixty (60) days after the date of approval of the report referenced in Section 10(B)(3) above. Status reports shall include, but not be limited to, a summary of all applicable effluent monitoring data collected by the Permittee during the previous ninety (90) day period and a detailed description of progress made by the Permittee in performing actions required by this section of the permit in accordance with the approved schedule including, but not limited to, development of engineering plans and specifications, construction activity, contract bidding, operational changes, preparation and submittal of permit applications, and any other actions specified in the program approved pursuant to Section 10(B)(3) above.
- (5) Implementation of Approved Actions. The Permittee shall perform the approved actions in accordance with the approved schedule, **but in no event shall the approved actions be completed later than three (3) years after the date of issuance of this permit.** Within fifteen (15) days after completing such actions, the Permittee shall certify to the Commissioner in writing that the actions have been completed as approved.
- (6) Evaluation of Approved Actions. On or before six (6) months from the completion of all approved remedial actions taken pursuant to Section 10(B)(5), the Permittee shall submit a report based on the study required under Section 10(B)(3)(g) summarizing the effectiveness of such remedial actions.
- (C) The Permittee shall achieve compliance with the effluent limitations contained in Section 5, Table D of this permit as soon as possible, but in no event later than the day before the fifth anniversary of permit issuance, in accordance with the following:
- (1) Scope of Study. On or before two (2) years after the date of issuance of this permit, the Permittee shall submit for the Commissioner's review and written approval a scope of study for the investigation of its ability to consistently achieve compliance with the effluent limitations contained in Section 5, Table D of this permit. Such scope shall include a schedule for conducting the investigation required by this paragraph and a date by which the report required by Section 10(C)(3) of this permit will be submitted to the Commissioner.
 - (2) Performance of Investigation. The Permittee shall perform the investigation and other actions specified in the approved scope of study and the approved schedule.
 - (3) Investigation Report and Implementation Plan. In accordance with the schedule approved by the Commissioner pursuant to Section 10(C)(1) of this permit but no later than three (3) years after the date of

issuance of this permit, the Permittee shall submit for the Commissioner's review and written approval a comprehensive and thorough report which describes in detail the investigation performed pursuant to Section 10(C)(2) of this permit and which:

- (a) assesses the Permittee's ability to comply with the effluent limits of Section 5, Table D. Should such investigation reveal that the Permittee is unable to meet aquatic toxicity limits, then the report shall include for the review and approval of the Commissioner a Toxicity Reduction Evaluation (TRE) performed in accordance with *Methods of Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures (2nd Edition)*;
- (b) evaluates alternative actions to achieve compliance with such limits including, but not limited to, pollutant source reduction, process changes/innovations, chemical substitutions, recycle and zero discharge systems, water conservation measures, and other internal and/or end-of-pipe treatment technologies;
- (c) states in detail the most expeditious schedule for performing each alternative;
- (d) lists all permits and approvals required for each alternative, including but not limited to, any permits required under sections 22a-32, 22a-42a, 22a-342, 22a-361, 22a-368, 22a-430 or 22a-430b of the Connecticut General Statutes;
- (e) proposes a preferred alternative or combination of alternatives with supporting justification; and
- (f) proposes a detailed program and schedule to perform all actions required by the preferred alternative including but not limited to a schedule for submission of engineering plans and specifications on any internal and/or end-of-pipe treatment facilities, start and completion of any construction activities related to any treatment facilities, and applying for and obtaining all permits and approvals required for such actions.
- (g) proposes a study that shall be the basis of the report required under Section 10(C)(6), evaluating the effectiveness of remedial actions performed. Such proposal shall at a minimum include four sampling events, taken a minimum of one month apart, analyzed in accordance with this permit.

(4) Progress Reports. Until actions required in Section 10(C) have been completed, the Permittee shall submit to the Commissioner quarterly status reports beginning sixty (60) days after the date of approval of the report referenced in Section 10(C)(3) above. Status reports shall include, but not be limited to, a summary of all applicable effluent monitoring data collected by the Permittee during the previous ninety (90) day period and a detailed description of progress made by the Permittee in performing actions required by this section of the permit in accordance with the approved schedule including, but not limited to, development of engineering plans and specifications, construction activity, contract bidding, operational changes, preparation and submittal of permit applications, and any other actions specified in the program approved pursuant to Section 10(C)(3) above.

(5) Implementation of Approved Actions. The Permittee shall perform the approved actions in accordance with the approved schedule, **but in no event shall the approved actions be completed later than four (4) years after the date of issuance of this permit.** Within fifteen (15) days after completing such actions, the Permittee shall certify to the Commissioner in writing that the actions have been completed as approved.

(6) Evaluation of Approved Actions. On or before six (6) months from the completion of all approved remedial actions taken pursuant to Section 10(C)(5), the Permittee shall submit a report based on the study required under Section 10(C)(3)(g) summarizing the effectiveness of such remedial actions.

(D) The Permittee may undertake a study to evaluate the ratio of acute to chronic aquatic toxicity associated with Discharge Serial Number 001-1, as it relates to the limits and conditions presented in Table D only. The Permittee may undertake such study and submit the results of such for the Commissioner's consideration in accordance with sections 22a-430-4(1)(5)(A)(iii) and 22a-430-3(j)(7)(B) of the RCSA. If, in the Commissioner's sole discretion, it is determined that adjustments to the acute to chronic toxicity ratio and the resulting toxicity limitations provided in Section 5, Table D of this permit are warranted, the Permittee may request a modification to the permit in accordance with section 22a-430-

4(p) of the RCSA. Should the Permittee choose to undertake such a study, it shall be conducted in accordance with the following:

- (1) Scope of Study. The Permittee shall submit for the Commissioner's review and written approval a scope of study and schedule for performing an evaluation of the ratio of acute to chronic aquatic toxicity associated with Discharge Serial Number 001-1. The scope of study shall include, but need not be limited to, the minimum requirements listed in Attachment A of this permit.
 - (2) Performance of Evaluation. The Permittee shall perform the evaluation and other actions specified in the approved scope of study in accordance with the approved schedule.
 - (3) Report. The Permittee shall submit for the Commissioner's review and written approval a comprehensive and thorough report which describes in detail the evaluation performed pursuant to Section 10(D)(1) of this permit.
 - (4) Progress Reports. Until actions required in Section 10(D) have been completed, the Permittee shall submit to the Commissioner quarterly status reports beginning sixty (60) days after the date of approval of the scope of study referenced in Section 10(D)(1) above. Status reports shall include, but need not be limited to, a summary of all applicable effluent monitoring data collected by the Permittee during the previous ninety (90) day period and a detailed description of progress made by the Permittee in performing actions required by Section 10(D)(1) of the permit.
- (E) The Permittee shall install micro-filtration equipment in the facility's departments nine (9) and seventy-nine (79) to treat and re-use alkaline cleaners utilized in these departments on or before July 1, 2009. Within fifteen (15) days after completing such actions, the Permittee shall certify to the Commissioner in writing that the actions have been completed. The requirement to install micro-filtration equipment in accordance with this paragraph is related to the Permittee's ability to comply with the effluent limits listed in Table C. If the Permittee is able to demonstrate its ability to consistently achieve compliance with effluent limits listed in Table C prior to July 1, 2009 without undertaking the respective project listed above, then the Permittee may request a modification to the permit in accordance with section 22a-430-4(p) of the RCSA. The modification may propose to eliminate the requirements of this paragraph.
- (F) The Permittee shall re-design the automatic nickel line in the facility's department thirteen (13) in a manner that allows the automatic nickel line to be utilized for some of the work currently processed through the manual nickel line. Re-design and implementation shall be completed on or before December 1, 2010. Within fifteen (15) days after completing such actions, the Permittee shall certify to the Commissioner in writing that the actions have been completed. This certification shall include a detailed description of the modifications made to the automatic nickel line and identify the work now processed through this line that had previously been processed through the manual nickel line. The requirement to re-design the automatic nickel line in accordance with this paragraph is related to the Permittee's ability to comply with the effluent limits for nickel presented in Table C. If the Permittee is able to demonstrate its ability to consistently achieve compliance with these effluent limits for nickel prior to December 1, 2010 without undertaking the respective project listed above, then the Permittee may request a modification to the permit in accordance with section 22a-430-4(p) of the RCSA. The modification may propose to eliminate the requirements of this paragraph.
- (G) The Permittee shall re-design the alkaline cleaning line in the facility's department five (5) in a manner that significantly reduces the amount of alkaline cleaner directed to the final treatment system. Re-design and implementation shall be completed on or before March 1, 2012. Within fifteen (15) days after completing such actions, the Permittee shall certify to the Commissioner in writing that the actions have been completed. This certification shall include a detailed description of the modifications made to the alkaline cleaning line in the facility's department five (5) and identify the reduction in the amount of alkaline cleaner directed to the final treatment system. The requirement to re-design the alkaline cleaning line in accordance with this paragraph is related to the Permittee's ability to comply with the effluent limits and conditions presented in Table D. If the Permittee is able to demonstrate its ability to consistently achieve compliance with these effluent limits and conditions prior to March 1, 2012 without undertaking the respective project listed above, then the Permittee may request a modification to the permit in accordance with section 22a-430-4(p) of the RCSA. The modification may propose to eliminate the requirements of this paragraph.
- (H) Approvals. The Permittee shall use best efforts to submit to the Commissioner all documents required by this section of the permit in a complete and approvable form. If the Commissioner notifies the Permittee that any document or other

action is deficient, and does not approve it with conditions or modifications, it is deemed disapproved, and the Permittee shall correct the deficiencies and resubmit it within the time specified by the Commissioner or, if no time is specified by the Commissioner, within thirty days of the Commissioner's notice of deficiencies. In approving any document or other action under this Compliance Schedule, the Commissioner may approve the document or other action as submitted or performed or with such conditions or modifications as the Commissioner deems necessary to carry out the purposes of this section of the permit. Nothing in this paragraph shall excuse noncompliance or delay.

- (I) Dates. The date of submission to the Commissioner of any document required by this section of the permit shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this section of the permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the Commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" as used in this section of the permit means calendar day. Any document or action which is required by this section only of the permit, to be submitted, or performed, by a date which falls on, Saturday, Sunday, or, a legal Connecticut or federal holiday, shall be submitted or performed on or before the next day which is not a Saturday, Sunday, or legal Connecticut or federal holiday.
- (J) Notification of noncompliance. In the event that the Permittee becomes aware that it did not or may not comply, or did not or may not comply on time, with any requirement of this section of the permit or of any document required hereunder, the Permittee shall immediately notify the Commissioner and shall take all reasonable steps to ensure that any noncompliance or delay is avoided or, if unavoidable, is minimized to the greatest extent possible. In so notifying the Commissioner, the Permittee shall state in writing the reasons for the noncompliance or delay and propose, for the review and written approval of the Commissioner, dates by which compliance will be achieved, and the Permittee shall comply with any dates that may be approved in writing by the Commissioner. Notification by the Permittee shall not excuse noncompliance or delay, and the Commissioner's approval of any compliance dates proposed shall not excuse noncompliance or delay unless specifically so stated by the Commissioner in writing.
- (K) Notice to Commissioner of changes. Within fifteen days of the date the Permittee becomes aware of a change in any information submitted to the Commissioner under this section of the permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the Commissioner.
- (L) Submission of documents. Any document, other than a discharge monitoring report, required to be submitted to the Commissioner under this section of the permit shall, unless otherwise specified in writing by the Commissioner, be directed to:

Kevin Barrett
Department of Environmental Protection
Bureau of Materials Management and Compliance Assurance
Water Permitting and Enforcement Division
79 Elm Street
Hartford, CT 06106-5127

This permit is hereby issued on 4/1/08.


Gina McCarthy
Commissioner

GM/KSB

**ATTACHMENT A : MINIMUM REQUIREMENTS ASSOCIATED WITH PERFORMING
AN EVALUATION OF THE RATIO OF ACUTE TO CHRONIC AQUATIC TOXICITY**

- i. Evaluations of the ratio of acute to chronic aquatic toxicity shall be undertaken only after the implementation of all anticipated process, treatment and facility modifications, which could impact the respective discharge. Implementation of process, treatment or facility modification(s) which have the potential to impact the toxic nature of the respective discharge, shall require a subsequent evaluation to determine an appropriate ratio of acute to chronic aquatic toxicity.
- ii. A minimum of four (4) daily composite samples of the effluent shall be evaluated using both acute and chronic toxicity test protocols. Samples shall be collected at least eight (8) weeks apart.
- iii. Daily composite samples shall be analyzed for all parameters listed in Section 5, Table A of this permit, except arsenic, total cyanide and total residual chlorine. Monitoring for total cyanide and total residual chlorine shall be performed using grab sample averages and monitoring for arsenic is not required.
- iv. Toxicity test protocols shall adhere to EPA protocols as outlined by the Acute and Chronic Toxicity Test Manuals and as specified below:
 1. Acute toxicity for *Daphnia pulex* and *Pimephales promelas* will be measured as LC₅₀ values. These values shall be determined by following the protocol outlined in Acute Toxicity of Effluents and Receiving Waters to Marine and Freshwater Organisms, 5th edition (EPA-821-R-02-012) as modified in accordance with Section 6(B) of this permit.
 2. Acute toxicity for *Ceriodaphnia dubia* will be measured as an LC50 value. This value shall be determined using survival data measured at 48 hours during a valid chronic toxicity test.
 3. Chronic toxicity for *Ceriodaphnia dubia* and *Pimephales promelas* will be measured with both a Chronic Lowest Observable Effect Concentration (CLOEC) and a Chronic No Observable Effect Concentration (CNOEC). CLOEC and CNOEC shall be determined following the protocol outlined in Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 3rd edition (EPA-821-R-02-013) as modified in accordance with Sections 6(B)(1) and 6(C) of this permit. The chronic no effect and lowest observable effect end point for *Ceriodaphnia dubia* is determined based on the lowest value for either based on survival or reproduction. The chronic no effect or lowest observable effect end point for *Pimephales promelas* is based on the lowest value for either based on survival or growth.
- v. Each acute and chronic toxicity test must meet test acceptability criteria as specified in (EPA-821-R-02-012) and (EPA-R-02-013), respectively. They also must meet criteria listed in section 22a-430-3(j)(7)(A)(i)(4) of the Regulations of Connecticut State Agencies (RCSA). The dilution water used for all toxicity tests must be artificial freshwater adjusted to a hardness of 50 +/- 5 mg/l.
- vi. Acute to chronic ratios shall be calculated as the 48-hour LC₅₀ result divided by the CNOEC, as follows:
 1. Calculate an acute to chronic ratio for each sample and for each of the species tested.
 2. Acute to Chronic Ratio (ACR) = 48-hour LC50/CNOEC (for the most sensitive chronic endpoint).
 3. The ACR for *Daphnia pulex* shall be calculated using the 48-hour LC50 value from the *Daphnia pulex* test divided by the CNOEC value from the *Ceriodaphnia dubia* test.
- vii. Final acute to chronic ratios shall be calculated as follows:
 1. Calculate the geometric mean of the individual ACRs for each species using all sample results. At the end of the study, there will be one ACR (based on the geometric mean) for each of the test species (*Pimephales promelas*, *Ceriodaphnia dubia* and *Daphnia pulex/Ceriodaphnia dubia*).
 2. If the calculated geometric mean for any species is less than 2.0, it shall be adjusted upward to 2.0.
 3. The final ACR is equal to the highest of all three species.