

PRETREATMENT PERMIT

issued to

3M Purification Inc.
32 River Road
Stafford Springs, CT 06076-1500

Location Address:

32 River Road
Stafford Springs, CT

Permit ID: SP0000060

Permit Expires: _____

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 a modified Memorandum of Agreement dated June 3, 1981, by the Administrator of the United States Environmental Protection Agency which authorizes the State of Connecticut to administer a Pretreatment Program pursuant to 40 CFR 403 (Title 40 of the Code of Federal Regulations, Part 403).
- (B) 3M Purification 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 subsections (i)(2), (i)(3), (j)(1), (j)(6), (j)(8), (j)(9)(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, penalties, injunctions and/or forfeitures pursuant to applicable sections of the CGS and RCSA. Specifically, civil penalties of up to twenty-five thousand dollars may be assessed per violation per day.
- (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 Energy and Environmental Protection ("the Commissioner"). To request such approval, the Permittee and proposed transferee shall register such proposed transfer with the Commissioner at least thirty (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) Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.
- (G) An annual fee shall be paid for each year this permit is in effect as set forth in section 22a-430-7 of the RCSA.

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 sections 22a-430-3(a) and 22a-430-6 of the RCSA.
- (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 discharge monitoring report ("DMR").
- "Annually", in the context of a sampling frequency, means the sample must be collected in the month of January.
- "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.
- "Daily composite" means (1) a composite sample taken over a full operating day consisting of grab samples collected at equal intervals of no more than sixty (60) minutes and combined proportionally to flow, or (2) a composite sample continuously collected over a full operating day proportionally to flow. Upon submission of documentation by the applicant satisfactory to the Commissioner that a discharge is of consistent effluent quality, the Commissioner may allow equal sampling intervals of up to four (4) hours for a daily composite sample.
- "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 generated during an operating day.

"Grab Sample Average" (or "GSA") means the arithmetic average of all grab sample analyses. Grab samples shall be collected at least once every four hours over a full operating day for as long as a discharge exists on that day (minimum of two grab samples per day).

"gpd" means gallons per 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.

"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.

"mg/l" means milligrams per liter.

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

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

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

"Range During Sampling" or "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 shall mean the maximum and minimum readings recorded with the continuous monitoring device during the Composite or Grab Sample Average sample collection.

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

"S.U." means Standard Units.

SECTION 3: COMMISSIONER'S DETERMINATION

- (A) The Commissioner has made a final determination and found that the continuance of the existing system to treat the discharge will protect the waters of the state from pollution. The Commissioner's decision is based on Application No. 201205431 for permit reissuance received on July 3, 2012 and the administrative record established in the processing of that application.
- (B) (1) From the issuance of this permit through and including [LAST DAY OF MONTH, MONTH OF PERMIT REISSUANCE], the Commissioner hereby authorizes the Permittee to discharge in accordance with the terms and conditions of Permit No. SP0000060, issued by the Commissioner to the Permittee on December 28, 2007, the previous application submitted by the Permittee on April 4, 2003, and all modifications and approvals issued by the Commissioner or the Commissioner's authorized agent for the discharge and/or activities authorized by, or associated with, Permit No. SP0000060, issued by the Commissioner to the Permittee on December 28, 2007.
- (2) From [FIRST DAY OF MONTH, MONTH FOLLOWING PERMIT REISSUANCE] until this permit expires or is modified or revoked, the Commissioner hereby authorizes the Permittee to discharge in accordance with the terms and conditions of Permit No. SP0000060, issued by the Commissioner to the Permittee on [DATE OF PERMIT ISSUANCE], Application No. 201205431 received by the Department on July 3, 2012, and all modifications and approvals issued by the Commissioner or the Commissioner's authorized agent for the discharge and/or activities authorized by, or associated with, Permit No. SP0000060, issued by the Commissioner to the Permittee on [DATE OF PERMIT ISSUANCE].
- (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 that 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: EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

- (A) The discharge shall not exceed and shall otherwise conform to the specific terms and conditions listed below. The discharge is restricted by, and shall be monitored in accordance with, the table(s) below.

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Table A-1

Effective from **[Date of permit reissuance]** until **[Date of permit reissuance plus 730 days]**.

Discharge Serial Number: 201-1 **Monitoring Location: 1**
Wastewater Description: Wastewaters from filter manufacturing operations and laboratory activities, cooling tower blowdown, filtered water overflow, air compressor condensate and reverse osmosis reject water.
Monitoring Location Description: Effluent wet well
Discharge is to: The Town of Stafford Publicly Owned Treatment Works (“POTW”)

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING		
		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
Biochemical Oxygen Demand 5 Day (BOD ₅)	mg/l	NA	---	Monthly	Daily Composite	NA	NR	Grab
Flow Rate, (Average Daily) ¹	gpd	400,000	NA	Daily	Total Flow	NA	NR	NA
Flow Total (Day of Sampling)	gpd	NA	500,000	Weekly/Monthly	Total Flow	NA	NR	NA
Flow, Maximum During 24 hr Period ¹	gpd	NA	500,000	Daily	Total Flow	NA	NR	NA
Formaldehyde	mg/l	---	19.1	Weekly	Daily Composite	28.6	NR	Grab
	mg/l	NA	---	Monthly	Daily Composite	NA	NR	Grab
Nitrogen, nitrate total (as N)	mg/l	NA	----	Monthly	Daily Composite	NA	NR	Grab
Nitrogen, total (as N)	mg/l	NA	----	Monthly	Daily Composite	NA	NR	Grab
Nitrogen, Kjeldahl, total (as N)	mg/l	NA	----	Monthly	Daily Composite	NA	NR	Grab
pH, Day of Sampling	S.U.	NA	NA	NR	NA	6.5 – 10.0	Weekly	RDS
pH, Maximum	S.U.	NA	NA	NR	NA	10.0	Continuous	Continuous
pH, Minimum	S.U.	NA	NA	NR	NA	6.5	Continuous	Continuous
Phenols, Total	mg/l	5.0	10.0	Monthly	Grab Sample Average	10.0	NR	Grab
Phosphorous, Total	mg/l	NA	----	Monthly	Daily Composite	NA	NR	Grab
Solids, Total Suspended	mg/l	---	----	Weekly	Daily Composite	----	NR	Grab

Table A Footnotes and Remarks:

¹ For this parameter, the Permittee shall maintain at the facility a record of the Total Daily 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 this entry is not followed by a ‘Reporting Frequency’ 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’.

Remarks

a. Samples shall be collected during normal production operating days.

Table A-2

Effective from **[Date of permit reissuance plus 731 days]** until **[permit expiration date]**.

Discharge Serial Number: 201-1 | **Monitoring Location: 1**

Wastewater Description: Wastewaters from filter manufacturing operations and laboratory activities, cooling tower blowdown, filtered water overflow, air compressor condensate and reverse osmosis reject water.

Monitoring Location Description: Effluent wet well

Discharge is to: The Town of Stafford Publicly Owned Treatment Works (“POTW”)

PARAMETER	UNITS	FLOW/TIME BASED MONITORING				INSTANTANEOUS MONITORING		
		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
Biochemical Oxygen Demand 5 Day (BOD ₅)	mg/l	NA	---	Monthly	Daily Composite	NA	NR	Grab
Flow Rate, (Average Daily) ¹	gpd	400,000	NA	Daily	Total Flow	NA	NR	NA
Flow Total (Day of Sampling)	gpd	NA	500,000	Weekly/Monthly	Total Flow	NA	NR	NA
Flow, Maximum During 24 hr Period ¹	gpd	NA	500,000	Daily	Total Flow	NA	NR	NA
Formaldehyde	mg/l	---	19.1	Weekly	Daily Composite	28.6	NR	Grab
Nitrogen, ammonia total (as N)	mg/l	NA	---	Monthly	Daily Composite	NA	NR	Grab
Nitrogen, nitrate total (as N)	mg/l	NA	----	Monthly	Daily Composite	NA	NR	Grab
Nitrogen, total (as N)	mg/l	NA	----	Monthly	Daily Composite	NA	NR	Grab
Nitrogen, Kjeldahl, total (as N)	mg/l	NA	----	Monthly	Daily Composite	NA	NR	Grab
pH, Day of Sampling	S.U.	NA	NA	NR	NA	6.5 – 10.0	Weekly	RDS
pH, Maximum	S.U.	NA	NA	NR	NA	10.0	Continuous	Continuous
pH, Minimum	S.U.	NA	NA	NR	NA	6.5	Continuous	Continuous
Phenols, Total	mg/l	5.0	10.0	Monthly	Grab Sample Average	10.0	NR	Grab
Phosphorous, Total	mg/l	NA	----	Monthly	Daily Composite	NA	NR	Grab
Solids, Total Suspended	mg/l	---	250	Weekly	Daily Composite	375	NR	Grab

Table A Footnotes and Remarks:

¹ For this parameter, the Permittee shall maintain at the facility a record of the Total Daily 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 this entry is not followed by a ‘Reporting Frequency’ 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’.

Remarks

a. Samples shall be collected during normal production operating days.

- (B) All samples shall be comprised of only those wastewaters described in this schedule. Therefore, samples shall be taken prior to combination with wastewaters of any other type and after all approved treatment units, if applicable. All samples taken shall be representative of the discharge during standard operating conditions.
- (C) In cases where limits and sample type are specified but sampling is not required, the limits specified shall apply to all samples which may be collected and analyzed by the Department of Energy and Environmental Protection personnel, the Permittee, or other parties.
- (D) Testing for formaldehyde shall be conducted using the NIOSH 3500 method.

SECTION 5: SAMPLE COLLECTION, HANDLING AND ANALYTICAL TECHNIQUES AND REPORTING REQUIREMENTS

- (A) Chemical analyses to determine compliance with effluent limits and conditions established in this permit shall be performed using the methods approved by the Environmental Protection Agency pursuant to 40 CFR 136 unless an alternative method has been approved in writing in accordance with 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.
- (B) All metals analyses identified in this permit shall refer to analyses for total recoverable metal as defined in 40 CFR 136 unless otherwise specified.
- (C) The results of chemical analysis required above shall be entered on the DMR, provided by this office, and reported to the Water Permitting and Enforcement Division at the address below. Except for continuous monitoring, any monitoring required more frequently than monthly shall be reported on an attachment to the DMR, and any additional monitoring conducted in accordance with 40 CFR 136 or other methods approved by the Commissioner shall also be included on the DMR, or as an attachment, if necessary. The report shall also include a detailed explanation of any violations of the limitations specified. The DMR shall be received at the address below by the last day of the month following the month in which samples are taken.

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

- (D) If this permit requires monitoring of a discharge on a calendar basis (e.g. monthly, quarterly) but a discharge has not occurred within the frequency of sampling specified in the permit, the Permittee must submit the DMR 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.
- (E) NetDMR Reporting Requirements
 - (1) Prior to one-hundred and eighty (180) days after the issuance of this permit, the Permittee may either submit monitoring data and other reports to the Department in hard copy form or electronically using NetDMR, a web-based tool that allows Permittees to electronically submit DMRs and other required reports through a secure internet connection. Unless otherwise approved in writing by the Commissioner, no later than one-hundred and eighty (180) days after the issuance of this permit, the Permittee shall begin reporting electronically using NetDMR. Specific requirements regarding subscription to NetDMR, and submittal of data and reports in hard copy form and for submittal using NetDMR are described below:

- a. Submittal of *NetDMR Subscriber Agreement*

On or before fifteen (15) days after the issuance of this permit, the Permittee and/or the person authorized to sign the Permittee's DMRs ("Signatory Authority") as described in section 22a-430-3(b)(2) of the RCSA shall contact the Department at deep.netdmr@ct.gov and initiate the NetDMR subscription process for electronic submission of DMR information. Information on NetDMR is available on the Department's website at www.ct.gov/deep/netdmr. On or before ninety (90) days after issuance of this permit, the Permittee shall submit a signed and notarized copy of the *Connecticut DEEP NetDMR Subscriber Agreement* to the Department.

b. Submittal of Reports Using NetDMR

Unless otherwise approved by the Commissioner, on or before one-hundred and eighty (180) days after issuance of this permit, the Permittee and/or the Signatory Authority shall begin electronically submitting DMRs and reports required under this permit to the Department using NetDMR in satisfaction of the DMR submission requirement of Section 5(C) of this permit.

DMRs shall be submitted electronically to the Department no later than the thirtieth (30th) day of the month following the completed reporting period. All reports required under the permit, including any monitoring conducted more frequently than monthly or any additional monitoring conducted in accordance with 40 CFR 136, shall be submitted to the Department as an electronic attachment to the DMR in NetDMR. Once a Permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to the Department. The Permittee shall also electronically file any written report of non-compliance described in Section 6 of this permit as an attachment in NetDMR. NetDMR is accessed from: <http://www.epa.gov/netdmr>.

c. Submittal of NetDMR Opt-Out Requests

If the Permittee is able to demonstrate a reasonable basis, such as technical or administrative infeasibility, that precludes the use of NetDMR for electronically submitting DMRs and reports, the Commissioner may approve the submission of DMRs and other required reports in hard copy form ("opt-out request"). Opt-out requests must be submitted in writing to the Department for written approval on or before fifteen (15) days prior to the date the Permittee would be required under this permit to begin filing DMRs and other reports using NetDMR. This demonstration shall be valid for twelve (12) months from the date of the Department's approval and shall thereupon expire. At such time, DMRs and reports shall be submitted electronically to the Department using NetDMR unless the Permittee submits a renewed opt-out request and such request is approved by the Department.

All opt-out requests and requests for the NetDMR subscriber form should be sent to the following address or by email at deep.netdmr@ct.gov:

Attn: NetDMR Coordinator
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

- (F) Copies of all DMRs shall be submitted concurrently to the Stafford POTW.
- (G) On every Monday through Friday, the Permittee shall report the total daily flow of DSN 201-1 for the previous day to the Stafford POTW. Monday's report shall include the total daily flow of DSN 201-1 for the previous Friday, Saturday and Sunday. In the event of a holiday, the report shall be submitted on the next business day.
- (H) The Permittee shall provide the Stafford POTW with a daily composite sample of DSN 201-1 unless instructed otherwise by the Stafford POTW in writing.
- (I) By the close of business each Thursday, the Permittee shall notify the Stafford POTW if the Zeta Plus operation will be run at the facility the following weekend.

SECTION 6: RECORDING AND REPORTING OF VIOLATIONS, ADDITIONAL TESTING REQUIREMENTS

- (A) If any sample analysis indicates that an effluent limitation specified in Section 4 of this permit has been exceeded, a second sample of the effluent shall be collected and analyzed for the parameter(s) in question and the results reported to the Water Permitting and Enforcement Division (Attn: DMR Processing) within thirty (30) days of the exceedance.
- (B) The Permittee shall immediately notify the Water Permitting and Enforcement Division and the Stafford POTW of all discharges that could cause problems to the POTW, including but not limited to slug loadings of pollutants which may cause a violation of the POTW's NPDES permit, or which may inhibit or disrupt the POTW, its treatment processes or operations, or its sludge processes, use or disposal.
- (C) In addition to the notification requirements specified in Section 1B of this permit, if any sampling and analysis of the

discharge performed by the Permittee indicates a violation of limits specified in Section 4 of this permit, the Permittee shall notify the Water Permitting and Enforcement Division within twenty-four (24) hours of becoming aware of the violation.

SECTION 7: COMPLIANCE SCHEDULE

- (A) On or before one hundred eighty (180) days after the date of issuance of this permit, the Permittee shall submit for the Commissioner's review and written approval a detailed report of its investigation into the feasibility of:
- (1) measuring the concentration of total suspended solids in DSN 201-1 by use of a turbidity meter, and
 - (2) transmitting data from flow, pH and turbidity meters at the Permittee's facility directly to the Stafford POTW.
- (B) The Permittee shall achieve compliance with the total suspended solids effluent limitations in Section 4 as soon as possible, but in no event later than seven hundred thirty (730) days after the date of issuance of this permit in accordance with the following. Any process and/or wastewater treatment system modifications implemented to achieve compliance with the total suspended solids effluent limitations must be approved pursuant to section 22a-430-3i of the RCSA. In order to request such approval, the Permittee must submit a *Facility and Wastewater Treatment System Modification Notification and Request for Approval* form (document no. DEEP –WPED-APP-002).
- (C) 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:

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

SECTION 8: COMPLIANCE CONDITIONS

In accordance with 40 CFR 403.8(f)(2)(viii), the Commissioner may provide public notification, in a newspaper of general circulation in the area of the respective POTW, of permittees that at any time in the previous twelve (12) months were in significant noncompliance with the provisions of this permit. For the purposes of this provision, a permittee that is a Significant Industrial User is in significant noncompliance if its violation(s) meet(s) one or more of the following criteria:

- **Chronic violations:** Those in which sixty-six percent (66%) or more of all measurements taken for the same pollutant parameter during a six (6) month period exceed, by any magnitude, the Average Monthly, Maximum Daily, or Maximum Instantaneous Limit(s).
- **Technical Review Criteria violations:** Those in which thirty-three percent (33%) or more of all of the measurements taken for the same pollutant parameter during a six-month period equal or exceed the Average Monthly, Maximum Daily, or Maximum Instantaneous Limit(s) multiplied by 1.4 for biological oxygen demand, total suspended solids or fats, oil, and grease, or 1.2 for all other pollutants except pH.
- **Monitoring Reports:** Failure to provide, within forty-five (45) days after the due date, required reports such as DMRs.
- **Compliance Schedule:** Failure to meet within ninety (90) days after the schedule date, a compliance schedule milestone contained in or linked to a respective permit for starting construction, completing construction or attaining final compliance.
- **Noncompliance Reporting:** Failure to accurately report noncompliance in accordance with provisions identified in Section 6 of this permit.
- **Discretionary:** Any other violation of an effluent limit that the Department determines has caused, alone or in combination with other discharges, a violation of the POTW's NPDES permit, inhibition or disruption of the POTW, its treatment processes or operations, or its sludge processes, use or disposal.
- **Imminent Endangerment:** Any discharge of a pollutant that has caused imminent endangerment to human health, welfare

or to the environment, or has resulted in the Department's exercise of its emergency authority under 40 CFR 403.8(f)(1)(vi)(B) to halt or prevent such a discharge.

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- **Best Management Practices (“BMPs”):** Any other violation or group of violations, which may include failure to implement and/or follow BMPs, which the Department determines will adversely affect the operation or implementation of the pretreatment program.

This permit is hereby issued on

Michael Sullivan
Deputy Commissioner
Department of Energy and Environmental Protection

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MS/SCE

cc: Stafford POTW

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DATA TRACKING AND TECHNICAL FACT SHEET

Permittee: 3M Purification Inc.

PERMIT, ADDRESS, AND FACILITY DATA

Permit No. SP0000060

Application No. 201205431

Mailing Address:					Location Address:						
Street:	32 River Road				Street:	Same					
City:	Stafford Springs	ST:	CT	Zip:	06076-1500	City:		ST:	CT	Zip:	
Contact Name:	Kariesa Jenyo				DMR Contact	Same					
Phone No.:	(860) 684 - 8649				Phone No.:						
E-mail:	kbowlin@mmm.com				E-mail:						

PERMIT INFORMATION

DURATION 5 YEAR 10 YEAR 30 YEAR
TYPE New Reissuance Modification
CATEGORIZATION POINT (X) NON-POINT ()
 NPDES () PRETREAT (X) GROUND WATER (UIC) () GROUND WATER (OTHER) ()
 NPDES MAJOR (MA)
 NPDES SIGNIFICANT MINOR or PRETREAT SIU (SI)
 NPDES or PRETREATMENT MINOR (MI)
 PRETREAT SIGNIFICANT INDUS USER (SIU)
 PRETREAT CATEGORICAL (CIU)
 POLLUTION PREVENTION MANDATE ENVIRONMENTAL EQUITY ISSUE

SOLVENT MANAGEMENT PLAN

Is the facility operating under an approved solvent management plan? YES NO NA
Approved on: (see Other Comments section on page 5)

COMPLIANCE ISSUES

COMPLIANCE SCHEDULE YES NO
 POLLUTION PREVENTION TREATMENT REQUIREMENT WATER CONSERVATION
 WATER QUALITY REQUIREMENT REMEDIATION OTHER

IS THE PERMITTEE SUBJECT TO A PENDING ENFORCEMENT ACTION? NO YES

OWNERSHIP CODE

Private X Federal State Municipal (town only) Other

DEEP STAFF ENGINEER Stephen Edwards and Peter Ploch

PERMIT FEES

<i>Discharge Code</i>	<i>DSN Number</i>	<i>Annual Fee</i>
501054Z (Approximation) ¹	201-1	\$ 8,425.00
5060000	201-1	\$660.00

¹ This discharge was considered equivalent to the cited category

FOR SEWER DISCHARGES

Discharge to Town of Stafford Publicly Owned Treatment Works (“POTW”) via its collection system.

NATURE OF BUSINESS GENERATING DISCHARGE

3M Purification Inc. manufactures disposable liquid filtration media (including cylindrical cartridges, wound fiber cartridges and polypropylene/polyethylene bi-component wound filter cartridges) using resins, various pulps, cellulose, polymer and diatomaceous earth.

PROCESS AND TREATMENT DESCRIPTION (by DSN)

DSN 201-1: Consists of a maximum daily flow of 500,000 gallons per day of treated wastewaters from filter manufacturing operations (including hydrochloric acid washing of diatomaceous earth, media formation, alkali cleaning of stainless steel screens and miscellaneous cleaning) and laboratory activities, cooling tower blowdown, filtered water overflow, air compressor condensate and reverse osmosis reject water. Wastewater treatment consists of an automatic rotary drum screen, an equalization basin with an approximate capacity of 73,000 gallons providing an average retention time of 11 hours (for equalization and mixing), a pH adjustment system, and final filter screening.

RESOURCES USED TO DRAFT PERMIT

- X Federal Effluent Limitation Guideline 40 CFR Part 403
General Pretreatment Regulations for Existing and New Sources of Pollution
- X Performance Standards
- Federal Development Document _____
- Treatability Manual
- X Department File Information
- Connecticut Water Quality Standards

- Anti-degradation Policy
- Coastal Management Consistency Review Form
- Other – See General Comments section below

BASIS FOR LIMITATIONS, STANDARDS OR CONDITIONS

- Case-by-Case Determination and Best Professional Judgment (“BPJ”) DSN 201-1: Ammonia (total, as nitrogen), BOD₅, total phenols, total Kjeldahl nitrogen, nitrate, total nitrogen, formaldehyde, pH, phosphorous and total suspended solids (“TSS”).

GENERAL COMMENTS

I. Basis for Effluent Limitations

Effluent limits and monitoring requirements in this permit are based on review of information in the application for the permit renewal and from supporting documents. Water Permitting and Enforcement Division (“WPED”) staff evaluated the application and determined that limits are needed for formaldehyde, pH, total phenols and TSS to protect the Town of Stafford POTW from adverse impacts.

Formaldehyde - Wastewater generated at the facility contains formaldehyde from the resins used at the facility. Formaldehyde can be toxic to microorganisms at a POTW. Therefore, when the permit was reissued on December 28, 2007, it contained concentration limits for formaldehyde: a maximum daily limit (“MDL”) of 32.5 mg/l and a maximum instantaneous limit (“MIL”) of 45.8 mg/l. A review of the chemical research literature related to formaldehyde inhibition concentrations was conducted. The research found that formaldehyde concentrations of as low as 4.5 mg/l can adversely affect protozoan species (SIDS Initial Assessment Report, a March 2002 UNEP publication). 3M Purification Inc. currently discharges about 21% of the 2.0 million gallons per day (“MGD”) typical average daily flow of the receiving POTW (21% was provided to the Department by the Stafford POTW). A concentration of 32.5 mg/l of formaldehyde in 3M Purification’s discharge would result in 6.825 mg/l in the influent to the POTW from this one source, which is higher than the inhibition level cited above. Therefore, WPED permitting staff reduced the concentration limits for formaldehyde in the new permit using the criteria of best professional judgment. The MDL for formaldehyde of 19.1 mg/l is based on the 99th percentile of sample results reported by the Permittee on discharge monitoring reports (“DMRs”). The MIL of 28.6 mg/l for formaldehyde was derived by multiplying the MDL by a factor of 1.5. This is consistent with what has been done in other permits.

pH - The 2007 permit contained a lower pH limit of 6.0 S.U. and an upper pH limit of 10.0 S.U. Following a January 8, 2014 meeting (attended by representatives from DEEP/WPED, 3M and the Town of Stafford), Kevin Leslie, who was then Superintendent of the Stafford POTW, requested that the lower pH limit be raised to 6.5 S.U. to help reduce operating costs at the POTW. Due to the close proximity of the Permittee to the POTW and the relatively large volume of 3M’s discharge, this change reduces the amount of chemicals used at the POTW. The lower pH limit has been raised to 6.5 S.U.

Total phenols – Phenols are semi-volatile organic compounds which are substantially removed from wastewater through secondary treatment at a POTW. The Stafford POTW’s NPDES permit does not contain a limit for phenols, though phenols are common enough that the POTW is required to monitor for them quarterly. Staff calculated that the POTW’s discharge could contain up to 377 ug/l of total phenol (on average) and still meet water quality standards. Assuming 90% removal in the Stafford POTW secondary treatment, the discharge from 3M could contain up to 17.95 mg/l on average before affecting the POTW’s ability to meet water quality standards. 3M’s 2007 permit contains an average monthly limit (“AML”) of

5.0 mg/l and a MDL of 10.0 mg/l for total phenols. For consistency with Section 22a-430-4(1)(4)(D)(vi) of the RCSA (the anti-backsliding provision), WPED staff is recommending that these limits be retained in the new permit.

TSS - An analysis of the impact of the discharge from 3M on the Stafford POTW revealed that elevated concentrations of TSS in the discharge have been problematic for the Stafford POTW. The POTW has informed the Department that due to the high concentration of solids from 3M, it has taken its integrated fixed film activated sludge (IFFAS) modules permanently off line and has had to buy credits to meet its nitrogen limits. (Note: buying nitrogen credits is only a temporary solution for the POTW to meet its limits. The Department will be requiring Stafford to investigate and implement additional treatment to reduce the concentration of nitrogen in its discharge.) Also, since there are no primary clarifiers at the POTW to settle solids prior to the secondary system, all solids settling takes place in the aeration tanks. At times, solids have clogged the inlet ports of the secondary clarifiers and pumps. In addition, these solids have significantly increased the amount of sludge generated at the POTW, elevating operating expenses. The 3M facility is directly across the Willimantic River from the POTW. As such the large fluctuations in the concentration of TSS in 3M's discharge have also made it difficult for the POTW to establish wasting rates (see the attached copy of the December 5, 2014 e-mail from Stafford POTW).

The TSS from 3M Purification are generated in their Micro-Klean and Zeta Plus process lines, with as much as 98% of the solids being produced by Zeta Plus processing operations. Solids from the Zeta Plus process may not be recycled due to FDA requirements.

On May 22, 2011, 3M Purification installed a new automatic rotary drum screen in an attempt to reduce the levels of TSS in its effluent. This additional treatment was effective in removing the larger suspended solids (≥ 2 mm size) present in the final effluent coming from the Micro-Klean line. However, since the installation of the new screen, the concentration of TSS in DSN 201-1 has only been reduced by 28.2 %.

Consequently, in order to protect the POTW, 3M's reissued permit contains TSS limits for DSN 201 which must be met within 730 days from the date of permit issuance. In a memo dated April 16, 2015 (see attached copy), DEEP's Municipal Water Pollution Control ("MWPC") Section staff recommended that the TSS concentration in 3M's discharge be reduced "...to a concentration that is consistent with a medium strength wastewater (200 to 250 mg/l)." Therefore, the MDL for TSS was set at 250 mg/l. The MIL was calculated by multiplying the MDL by 1.5 (250 mg/l X 1.5 = 375 mg/l). This is consistent with the methodology used to establish the limits in Section 22a-430- 4(s) of the RCSA and other permits.

Given that the MDL was based on MWPC's recommended protective concentration, WPED staff determined an AML is not warranted.

II. Basis for Monitoring Only Requirements

Nitrogen - Ammonia (as nitrogen) was measured at 4.67 mg/l in 3M Purification's discharge during the permit renewal process, resulting in a concentration of 0.98 mg/l in the influent to the POTW from this one source. The POTW's NPDES permit contains a limit for ammonia (total, as nitrogen) from July to September of 3.0 mg/l. The POTW has been meeting this limit.

The technical review of the 3M Purification's renewal application and supporting analytical results found that total Kjeldahl nitrogen ("TKN") was measured in the discharge at a concentration of 16.8 mg/l. This results in 3.6 mg/l of TKN in the influent to the POTW from this one source (DSN 201-1 is 21% of the total flow at the POTW, see above).

The Stafford POTW is currently buying credits to meet total nitrogen limits. Modification to the POTW in 2014 reduced the amount of credits necessary from \$36,000 (2011 through 2013) to \$10,000 in 2014. It is believed that when 3M reduces its TSS loading to the POTW, aeration capacity at the POTW will increase. In turn, this should improve nitrogen removal. MWPC staff does not believe nitrogen limits are warranted at this time. However, the Stratford POTW requested that the permit require 3M to monitor its nitrogen

loading to the POTW by analyzing for ammonia (total, as nitrogen), nitrate (total, as nitrogen), total nitrogen and TKN (see MWPC's April 16, 2015 memo).

Phosphorous – MWPC staff expect that when the NPDES permit for the Stafford POTW is reissued, it will have a total phosphorous seasonal (April 1 to October 31) load cap. This cap is based on the current total phosphorous loading to the POTW and is part of DEEP's interim strategy until final water quality-based limits can be calculated for the POTW's discharge (*Interim Phosphorus Reduction Strategy for Connecticut Freshwater Non-Tidal Waste-Receiving Rivers and Streams Technical Support Document*, Mary E. Becker, Planning and Standards Division, Bureau of Water Protection and Land Reuse, CT Department of Energy and Environmental Protection, Revised: April 24, 2014). Therefore, the cap already takes into account the phosphorous load from 3M.

3M's 2007 permit did not require the company to monitor DSN 201-1 for phosphorous. Though a number of samples were analyzed for phosphorous during the renewal process (averaging about 1 mg/l), WPED staff concluded that there was insufficient data to develop a performance-based phosphorous limit.

The POTW will be required to monitor for total phosphorous weekly during the season and monthly during the off season. MWPC staff has recommended that 3M's reissued permit include a requirement to monitor for total phosphorous. Therefore, 3M's permit will require monthly monitoring for total phosphorous.

III. Monitoring and Limit Modifications

Based on a review of all pertinent data during the reissuance process, WPED staff recommends the following changes with respect to the monitoring requirements and limits associated with DSN 201-1.

1,3 dichloro-2-propanol - The 2007 permit required annual monitoring for 1,3 dichloro-2-propanol. Based on the WPED staff review of 3M Purification's DMRs from 2007 to 2012, effluent concentrations for 1,3 dichloro-2-propanol have been consistently below detection levels. Under normal operations and given secondary containment measures in place at the facility, it is not expected that concentrations of 1,3 dichloro-2-propanol in the discharge would be above the applicable detection level. Based on this information, WPED is recommending that monitoring requirements for 1,3 dichloro-2-propanol not be included in this permit renewal.

Copper, lead and zinc - The 2007 permit contained limits and monitoring requirements for copper, lead and zinc. A review of 3M Purification's DMRs from 2007 to 2013 revealed that concentrations of copper, lead and zinc have consistently been at or below concentrations found in potable water (see attached). 3M submitted documentation on February 5, 2014 stating that their processes do not contain or introduce these metals into the discharge. Therefore, WPED staff is recommending that limits and monitoring requirements for copper, lead and zinc not be included in this permit renewal.

Epichlorohydrin - Epichlorohydrin is now only present at the site in a resin at a concentration of 1ppm. Based on tank storage of this resin, the most epichlorohydrin on site at any time would be less than 5 grams. Under normal operations and given secondary containment measures in place at the facility, it is not expected that concentrations of epichloro hydrin in the discharge would be above the applicable detection level.

IV. Compliance Schedule

Automated Monitoring - During the January 8, 2014 meeting, there was discussion concerning the feasibility of 3M using a turbidity meter to supply the POTW with real-time data on the TSS loading from 3M. Therefore, the Permittee will be required to perform a study on the feasibility of accurately determining the concentration of TSS in DSN 201-1 using a turbidity meter. The feasibility study shall also evaluate the possibility of providing the POTW with a live feed from the proposed turbidity meter, as well as from the existing flow and pH meters.

Total Suspended Solids Discharge Analysis – The permit contains a schedule which requires 3M to meet the new TSS limits within two years of the date of permit issuance.

IIV Other Comments

Paragraph 5(G) was added to the permit at the request of the Stafford POTW requiring the Permittee to provide the POTW with daily flow monitoring data and TSS concentrations in 3M's discharge. This data is to be used to help the POTW deal with TSS from the Permittee more efficiently and better establish wasting rates at the POTW.

The Permittee is also subject to regulation under of the General Permit for the Discharge of Stormwater Associated with Industrial Activity (GSI000253).

During the permit renewal process, it was discovered that minor discharges composed of cooling tower blowdown (1,100 gpd) and air compressor condensate (500 gpd) that were authorized under the General Permit for the Discharge of Minor Non-contact Cooling Water and the General Permit for Miscellaneous Discharges of Sewer Compatible Wastewater (Misc G.P.) drain to the on-site wastewater treatment plant and are discharged as part of DSN 201-1. Consequently, these discharges were added to this permit and are no longer covered under the Misc G.P.

3M has certified in Attachment O of Permit Application No. 201205431 (amended October 12, 2012) that solvents are below detection levels in DSN 201-1.