UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
1 CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

RCRA RECORDS CENTER
FACILITY MACDERMID
ID NO. CTD001164599
FILE LOC. R-13
OTHER RDMS# 100838

RDMS DocID 00100838

April 9, 2004

Mr. Troy Charlton
MacDermid Incorporated
245 Freight Street
Waterbury, CT 06702

Re: MacDermid, Incorporated, Waterbury, Connecticut; Review of Documentation of Environmental Indicator Determination (CA725) Current Human Exposures Under Control

Dear Mr. Charlton:

The U.S. Environmental Protection Agency, (EPA) Region 1 - New England has completed a review of the Documentation of Environmental Indicator Determination (CA725) Current Human Exposures Under Control (dated January 2004) for the MacDermid, Incorporated facility located at 526 Huntingdon Avenue in Waterbury, Connecticut.

Since no response has been received to my e-mail sent to you March 9 and March 16 requesting additional information and clarification, the EI review comments have been finalized and the requests for additional information/clarification have been included.

This review of the facility's current CA725 Current Human Exposures Under Control submittal reveals several issues that still need to be addressed. The revised groundwater contours depicted on Drawing 2 do not appear to accurately reflect the groundwater elevation data collected in September 2003, so it is still unknown whether groundwater may be flowing southwest, potentially towards the residential properties and further southwest to Steele Brook. A concentration of vinyl chloride was detected above the Connecticut Remediation Standards Regulations (CT RSRs) proposed volatilization criteria (VC) in a new well (MW-116D) installed along the southwestern edge of the property. Although the proposed CT RSR VC applies to groundwater within 30 feet of the ground surface and the corresponding shallow well MW-116S did not apparently contain levels of compounds exceeding the VC, the potential for volatilization of contaminants to indoor air must be reconsidered, particularly since the data indicate that site contaminants may have migrated in this direction and the actual depth of groundwater and contaminant concentrations west of the site near the residential properties is unknown.

EPA continues to consider the options available to ensure that MacDermid expeditiously achieves the Current Human Exposures Under Control Environmental Indicator. Please respond in writing by May 7, 2004 to the attached comments and provide a schedule for completing all activities in accordance with the attached comments that will lead to a finding that current human exposures to releases subject to RCRA Corrective Action are under control under current and reasonably expected conditions.

Please feel free to contact me at (617) 918-1368 should you have any questions.

Sincerely,

Carolyn J. Casey
RCRA Facility Manager

cc: D. Duva, CTDEP

MACDERMID, INCORPORATED WATERBURY, CONNECTICUT
TECHNICAL REVIEW OF THE DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION (CA725)
CURRENT HUMAN EXPOSURES UNDER CONTROL,
DATED JANUARY 2004

GENERAL COMMENTS

1. Please provide copies of the laboratory data sheets, chain of custody forms and filed logs for this sampling effort. Also, please submit copies of any other new data (groundwater, soils, surface water, sediments) collected since the last submittal, dated April 2003.

2. Please provide copies of the boring and well installation logs for the new wells (MW-116S and MW116D).

3. MacDermid Inc. has indicated throughout the EI that the groundwater flow direction at the site is to the south, toward the Naugatuck River, based on data collected from site wells, including two newly-installed wells on the southwestern property boundary. However, the groundwater contours depicted on Drawing 2 do not appear to accurately reflect the groundwater elevation data collected, so it is still unknown whether groundwater may be flowing southwest, potentially towards the residential properties and further southwest to Steele Brook. For example, the groundwater elevation in the newly-installed well MW-116S is reported as 963.08 feet on Drawing 2 and the elevation in nearby well MW-112 is reported as 963.18 feet. It is unclear why well MW-116S is depicted closer to the 964 foot contour line than well MW-112, which reported a higher groundwater elevation. A more accurate representation of groundwater flow based on the collected data may indicate a westerly flow component in this area of the site. It also appears that a limited number of wells were used to generate data for the groundwater elevation map, which may have contributed to a groundwater flow interpretation that is not entirely supported. Wells MW-104, MW-106, MW-107, and MW-108 were not used in the development of the contours for various reasons (i.e., wells were destroyed, wells reported product, etc.), as noted on Figure 2. According to Table 1 in Attachment 3, it also appears that groundwater data was not collected from well MW-103, although this is not indicated in the Notes section on Figure 2.

   An accurate assessment of groundwater flow direction is essential for this CA725 for several reasons:

   - MacDermid has concluded that the potential exposure risk via volatilization of contaminants in groundwater to off-site residential properties located southwest of the site is eliminated since groundwater has been reported not to flow in a direction of nearby residents but instead to flow to the south (Response to Specific Comment, Question 2, #1). A concentration of vinyl chloride was detected in well MW-116D, located on the southwestern property boundary,

above the proposed Connecticut Remediation Standard Regulation (CT RSR) Volatilization Criteria (VC) during the September 2003 sampling event (Attachment 3, Table 3). Due to the volatility of vinyl chloride, detection at the concentrations and depths of these samples is somewhat unusual and concentrations could actually be greater.

- MacDermid has concluded that groundwater flows to the south, toward the Naugatuck River and does not appear to discharge to Steele Brook, located southwest of the site. Therefore, MacDermid further indicates "impact to sediment or surface water [by groundwater discharge] in this brook is precluded" (Response to Specific Comment, Question 2, #2).

Revise the EI Determination to further support the depicted southerly groundwater flow interpretation with additional information or data, or address the potential exposure risks that may be associated with a southwesterly groundwater flow direction (i.e. potential impacts to indoor air in residential properties, and potential impacts to Steele Brooke). If off-site monitoring wells are proposed in the residential area near Huntington Place, the wells should be designed to support the groundwater flow directions along the western side of the site and to characterize the levels of site-related contaminants in groundwater west of the site. In addition at least one more round of groundwater samples and depth to water measurements should be collected. A work plan and quality assurance project plan should be completed for the well installation and for additional sampling. These plans are necessary to ensure the quality of the data and so that EPA can plan to collect split samples if desired.

An explanation should be provided in the EI for the suspected source of the vinyl chloride in monitoring well MW-116D. This contaminant may be related to historical site operations and, therefore, it may be indicative of groundwater flow from the operations area of the facility toward the western boundary of the site. Additionally, indicate the rationale for excluding well MW-103 from groundwater level measurements in the Notes section on Drawing 2.

4. According to Figure 2, it appears that several commercial and/or industrial facilities are located south and southwest of the site, some or all of which may be populated by workers. It does not appear that the facility has included those workers in its summary of off-site receptors (Page 4). Contaminated groundwater may be migrating in a southerly or southwesterly direction, possibly beneath some of the identified commercial or industrial facilities. If so, the potential exposure to off-site workers at these commercial and/or industrial facilities by indoor air impacted by volatile organic compounds in groundwater should be assessed. While EPA and the Occupational Safety and Health Administration (OSHA) have generally agreed that OSHA will take the lead in addressing occupational exposures, EPA generally recommends that such facilities be notified of the potential for this exposure pathway and that they consider any potential exposures that may result. Revise the EI to address the potential for off-site workers in

the surrounding commercial and industrial facilities to be exposed to indoor air contamination, and update the conclusions of the EI as necessary.

In addition, the well survey does identify the existence of some downgradient industrial water supply wells, but it has not been clarified if any of the production wells are still in use. Please verify if the wells are still in use (despite public water supply connections) and if any use of the groundwater poses a health risk.

SPECIFIC COMMENTS

1. On Page 8 of the comment response letter, the facility states that the "EI Determination has been revised to indicate in Question 2 that it is unknown whether surface water and sediment downgradient of the Site at the discharge location of groundwater into the Naugatuck River are 'contaminated.'" However, in Question 2 of the EI, both surface water and sediment are marked "YES," they are known or reasonably suspected to be "contaminated" above appropriately risk-based levels. Potential exposure pathways for surface water and sediment are further assessed in Question 3. Revise the EI to address the inconsistencies between the cover letter and the EI report.

2. Page 4 of the EI indicates that manufacturing activities have ceased at the facility, but limited shipping and receiving of raw product still occurs in the East Aurora Street building. The report later states, on page 11, that "the absence of workers at this facility eliminates a complete exposure pathway for indoor air." Page 2 of the comment response letter indicates that operations at the facility have ceased, the buildings are unoccupied, and that routine inspections of short duration will be the extent of worker activity at the site. The facility needs to clarify whether workers are present at the site for the limited shipping and receiving activities that were mentioned on Page 4. If so, the facility should revise the EI to list indoor air for on-site workers as a complete exposure pathway even if OSHA will take the lead in addressing such occupational exposures for stabilization.

3. In Question 3 (Pages 12-13), MacDermid is concluding that the surface water and sediment exposure pathways are considered incomplete since both the Naugatuck River and Steele Brook are deemed inaccessible to recreators. However, it is not apparent whether a full survey of upgradient and downgradient sections of these water bodies have been conducted by MacDermid to determine accessibility, or whether the local health board or other agency has been contacted with regards to recreator use of the surface water bodies in the vicinity of the site. According to an evaluation by the Connecticut Department of Public Health for the Chase Brass Copper Site, which is located approximately 1 mile upstream of the MacDermid site on the Naugatuck River, "common eel, brown trout, fall fish, brook trout, dace and clams live in the river and fishing is popular in the area [of the Chase Brass Copper Site]. Furthermore, the evaluation stated that "according to EPA and the Waterbury Health Department, there are individuals who access the riverbank within the [Chase Brass Copper] Disposal Area in

order to fish in the Naugatuck River" (Public Health Evaluation of Environmental Data and the Environmental Protection Agency Remediation Plans, Chase Brass and Copper Site, Waterbury, New Haven, Connecticut, prepared by Connecticut Department of Public Health under a Cooperative Agreement with the Agency for Toxic Substances and Disease Registry, March 7, 2002, accessed online at http://www.atsdr.cdc.gov/HAC/PHA/chasebrass/cbc_p1.html#atta).

In addition, it was reported to EPA that MacDermid may have promoted or considered promoting fishing tournaments in the vicinity of the site at one time. Please provide additional information to clarify recreational use (promoted or otherwise) and other uses of the river in the vicinity of the site.

Given the close proximity of the MacDermid facility to the Chase Brass Copper Site and the reported recreational use of the Naugatuck River, surface water and sediment may be complete exposure pathways for recreators. With this in mind, ingestion of fish may be considered a complete exposure pathway.

Revise the EI to further elaborate on the sources used to support the determination that the Naugatuck River is inaccessible to recreators, or collect additional information to adequately characterize the use of the Naugatuck River. If the Naugatuck River is determined to be used by recreators based on any new information, then revise the EI to address the complete exposure pathway for recreators with respect to surface water and sediment.

4. On Page 10 of the cover letter (No. 12), MacDermid has indicated that it is no longer necessary to calculate a revised dilution attenuation factor (DAF) in order to determine the potential impact of site groundwater discharge to surface water and sediment of the Naugatuck River and Steele Brook for two reasons: 1) MacDermid concludes that contaminated groundwater beneath the site does not appear to discharge to Steele Brook, and 2) the Naugatuck River is deemed inaccessible and not considered an exposure pathway. However, as mentioned in General Comment No. 1, the site groundwater elevation data provided with the report may indicate a southwesterly flow component, inferring potential discharge to Steele Brooke. In Specific Comment No. 3 above, recreators may also be using the Naugatuck River in the vicinity of the site. If additional investigations find these items to be representative of site conditions, the facility will need to revisit EPA's previous comments regarding calculation of a site-specific DAF in previous EPA Comment No. 12. The facility will also need to revisit EPA's previous comment No. 13 as well, addressing calculation of the an alternative surface water protection criteria for the site (Comments 12 and 13 will need to be revisited for final remedy if not for stabilization).

5. In Table 1, Exceedances of Surface Water Protection Criteria for Groundwater, the results reported for well MW-115 indicate a 1,1-dichloroethylene concentration of 160 H ug/l. The "H" also appears in the results for other compounds detected on Tables 1, 2 and Table 4, but it does not appear to have been defined. Please revise the tables to

include a "Notes" section that clarifies the meanings of "H" and any other abbreviations used throughout the tables.