

**RESPONSE TO COMMENTS  
REGARDING THE RESISSUANCE OF THE FOLLOWING NPDES PERMIT  
MA0040223 STONY HILL SAND & GRAVEL**

**Introduction:**

The U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) solicited public comments from June 12, 2006, through July 12, 2006 on the draft National Pollution Discharge Elimination System (NPDES) permit to be issued to Stony Hill Sand & Gravel, Inc. (MA0040223). The Draft NPDES Permit is for the discharge of storm water and treated process water. The facility discharges to the Chicopee River.

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the Draft NPDES Permit and any appropriate changes made to the public-noticed draft permit as a result of the comments. The Final Permit is substantially identical to the draft permit that was available for public comment. Although EPA's decision making has benefited from the comments submitted, the information and arguments submitted did not result in any substantial new changes to the permit. EPA did, however, improve certain requirements in the permits as a result of the comments raised. These improvements and changes are further explained in this document and are reflected in the Final Permit.

During the public-notice (comment) period EPA-New England received comments from the Commonwealth of Massachusetts Riverways Program (Riverways) in a letter dated July 10, 2006.

A summary of the changes made in the Final Permit are listed below. The analyses underlying these changes are explained in the responses to individual comments that follow.

**Summary of Changes Made to the Final Permit**

1. Flow limits have been revised to limit average monthly process water flow to 0.08 MGD and to require that total maximum daily flow be reported.
2. Language in Part I.A.2.g has been revised to clarify that "change in operation" includes the use of chemical additives.
3. Part I.B.3 has been added to require a quantitative assessment of Stony Hill's storm water collection and treatment system.

**Comments from Cindy Delpapa, Massachusetts Riverways Program**

**COMMENT NO. 1**

**The Fact Sheet explained this was a new permit though the discharge from this operation has been in existence for decades. The Fact Sheet did not explain why this facility is just now being permitted. Why wasn't this facility previously permitted? Is the production rate for the facility and the volume of effluent comparable or lower now, (daily maximum**

**of 1.3 MGD) than in 1975? Can a flow greater than one in existence in 1975 be permitted under the regulations found in the Clean Water Act?**

**RESPONSE NO 1**

Stony Hill Sand & Gravel initially applied for permit coverage on October 31, 2004 and submitted revised and updated application materials on May 11, 2005 and January 21, 2006, as stated in the Fact Sheet. EPA has responded as rapidly as resources allow. EPA has not requested or received information regarding the history of discharge flow from the site. Permit requirements for storm water and process waste water are based on current flows. There are no flow restriction requirements in the Clean Water Act that would prevent issuing this permit.

**COMMENT NO. 2**

**Since this is a new NPDES permitted discharge, has there been any preliminary sampling done on the existing discharge which could inform the permit? Has there been any previously reported or observed negative water quality impacts from the effluent discharge from this operation?**

**RESPONSE NO. 2**

Applicants for a permit are required to submit a complete application which includes information on the discharge of pollutants believed present. In this case, the applicant collected a sample of the effluent and analyzed it for the pollutants and reported that information as part of their completed application. Additionally, this office is not aware of any previous negative water quality impacts from the effluent discharge from this facility based on a review of the *Chicopee River Basin 1998 Water Quality Assessment Report* published by the Commonwealth of Massachusetts.

**COMMENT NO. 3**

**The Fact Sheet lists the dilution factor at this facility at over 1000:1 and bases the de minimus determination for this discharge on the significant dilution rate. It appears the dilution rate was calculated using the average discharge from this facility (0.08 MGD) and the 7Q10 (126 cfs). This is problematic given the maximum daily flow allowed by this draft permit is 1.3 MGD which would result in a dilution rate well below 100:1. ( $126 \text{ cfs} + 2.011 \text{ cfs} / 2.011 \text{ cfs} = 63.7$ ) Should the permitted flow be changed to a maximum daily flow of 0.08 MGD then the discharge would meet the insignificant determination but, as found in the draft permit, this discharge is significant and careful consideration should be given to permitting the new 'old' discharge.**

**One other consideration concerning dilution is related to the process water used. Attachment A provides a great schematic of the facility layout. According to the diagram, the facility takes in process water from the Chicopee River upstream of the outfall pipe. This suggests the small reach of river between the intake and outfall is partially dewatered by this withdrawal and the dilution factor needs to be calculated without including the water withdrawn from the river. This would make the dilution factor even lower than the 64:1 shown above.**

### **RESPONSE NO. 3**

The Massachusetts DEP concluded that the discharge will be in compliance with the antidegradation provisions of the Massachusetts Surface Water Quality Standards in part because of the amount of dilution available. EPA and the MassDEP believe that using the process flow rate not a maximum flow rate based on potential storm water input is appropriate in making this antidegradation finding. Additionally, as stated on page 8 of the Fact Sheet, compliance with the antidegradation provisions was determined because the effluent limit for TSS will protect against violations of water quality standards in the receiving water and there will be no toxic impacts from the discharge.

The dilution provided by the receiving water was only a consideration in making the antidegradation finding, not in developing permit limits. Therefore, no changes have been made as a result of the comment.

However, based on the above comment, EPA finds that the flow limitations in the permit should clearly define a process waste water flow limit (distinguishable from the overall limit which includes both process water and storm water) to prohibit large process waste water flows during low flow conditions. The final permit reflects this change.

After further evaluation, EPA also finds that the maximum daily flow limit for combined storm water and process water is unenforceable due to the unpredictable nature of storm events. Therefore the total maximum daily flow limit has been revised in the final permit to reflect a requirement to report only.

### **COMMENT NO. 4**

**The water quality treatment for the process wash water from this facility and from the site runoff consists of settling ponds in series. What are the holding times for each of these ponds under the range of operating conditions at this plant and during different design storms? Are the holding ponds capable of containing larger or more intense storm events and providing enough settling time? Is the gravel washing operation suspended during larger or more intense rain events?**

### **RESPONSE NO. 4**

Most sand and gravel operations utilize settling ponds to treat process waste water and as a best management practice (BMP) for site storm water. In this case, Stony Hill utilizes three settling ponds in series to treat process waste water. The third, and largest, settling pond is also used as a structural BMP to treat site storm water. The applicant is responsible for developing their own design criteria and constructing treatment systems and BMPs. When setting effluent limits, EPA evaluates both the potential for a discharge to violate water quality standards and the treatability of the discharge. EPA is required by statute to issue the effluent limits which are most protective of the receiving water. In this case, EPA has issued technology based effluent limits that reflect the effluent characteristics achievable using settling basins or ponds.

The NPDES permit requires Stony Hill to develop a storm water pollution prevention plan (SWPPP) that meets the requirements of Section 4 of the Storm Water Multi-Sector General Permit at 65 FR 64812-64815 (2000), educate their staff and submit annual certifications that their SWPPP has been updated and is being fully implemented. At other sand & gravel

processing facilities, best management practices (BMPs) that have been built into SWPPPs include: site grading and roadway maintenance to prevent scouring or erosion, storm water collection and retention in a settling pond, and regular inspection and maintenance of equipment to prevent leaks and spills. Such measures will all contribute to protecting the Chicopee River.

In conjunction with the requirement to develop an SWPPP, the final permit has been amended to require Stony Hill to quantitatively assess their storm water collection and treatment system and identify a flow capacity and overflow conditions.

#### COMMENT NO. 5

**The draft permit requires sampling for parameters monthly. This infrequent sampling regime may or may not capture storm events. We would like to strongly advocate requirements for storm event sampling, especially since there is no history on the nature of this discharge and the efficacy of the treatment method under various conditions. We are also curious if effluent temperature has been considered. The unshaded treatment ponds would cause the effluent becoming heated on sunny days resulting in warm and probably, oxygen depressed water being discharged into the Chicopee River. We would be appreciative of some temperature and dissolved oxygen monitoring for this waste stream since there does not appear to be existing data to ascertain if there is a reasonable potential for dissolved oxygen or temperature to result in excursions from state water quality standards.**

#### RESPONSE NO. 5

##### Sampling Frequency

The draft permit does not distinguish between storm water and process water in the sampling requirements because they are combined in the third of three retention ponds prior to discharge. Rain water and/or process water which enters the retention pond displaces accumulated process water and rain water from previous storms. Therefore samples collected during a storm event are no more or less representative than those collected on a dry day.

##### Temperature

Numerical standards for temperature of the effluent listed in the State of Massachusetts Surface Water Quality Standards for Class B waters states that the permittee's discharge "*shall not exceed...83° F (28.3° C) in warm water fisheries, and the rise in temperature due to a discharge shall not exceed...5° F (2.8° C) in rivers and streams designated as warm water fisheries;....*"

Typically the 7Q10 low flow of the stream is used in determining the affect of the discharge on stream temperature. The 7Q10 low flow near Stony Hill is 126 cubic feet per second (cfs) or 81.4 MGD. The rise in cooling water temperature that would result in the maximum allowable temperature increase in the Chicopee River can be estimated using the following mass balance equation.

$$Q_u(T_u) + Q_e(T_e) = Q_d(T_d) \quad (\text{equation 1})$$

Where:                      Tu = Temperature upstream  
                                    Te = Temperature effluent

Td = Temperature downstream  
Qe = Flow effluent (maximum process flow) = 0.08 MGD  
Qu = flow upstream of the plant (using the worst case case) = 81.44 MGD  
Qd = downstream = Qu + Qe = 81.52 MGD

the result is:

$$(81.44)(Tu) + (0.08 \text{ MGD})(Te) = (81.52 \text{ MGD})(Td)$$

According to the Massachusetts Water Quality Standards, the maximum allowable temperature change in the river is 5 degrees Fahrenheit, so the temperature downstream cannot be 5 degrees higher or lower than the upstream water:

In the worst allowable case:

$$Td = Tu + 5 \text{ (equation 2)}$$

Substituting equation 2 into equation 1 results in:

$$(81.44 \text{ MGD})Tu + (0.08 \text{ MGD}) Te = (81.52 \text{ MGD})(Tu + 5)$$

Solving for Te,

$$Te = Tu + 5,095.0$$

Therefore, in order for the effluent to change the temperature of the water downstream by more than 5 degrees Fahrenheit, the effluent temperature would have to be at least 5,095 degrees warmer than the upstream water. Sun warmed effluent water at 90 °F would increase the downstream water temperature by only 0.09 °F.

Due to the passive nature of potential temperature increases and the lack of potential for any pond warming to cause a violation of water quality standards, EPA find that permit conditions to monitor or control effluent temperature are unnecessary.

### Dissolved Oxygen

Process water and storm water discharges from Stony Hill are unlikely to contain organic matter that would contribute to lowering the dissolved oxygen levels in the Chicopee River. No organic materials are used or produced in the crushing and washing of stone and gravel. Additionally, low dissolved oxygen has not been identified as an impairment in the Chicopee River.

Therefore, EPA finds that permit conditions to monitor or control effluent dissolved oxygen are unnecessary.

### **COMMENT NO. 6**

**We agree with the statements in the Fact Sheet about the potential for turbidity to be an issue at a facility processing materials in a manner that produces fine solids. As stated, turbidity is a significant water quality concern and as such we would like to see a turbidity limitation added to the permit. Turbid waters can be disruptive to many aspects of the aquatic cycle from light penetration to physical and physiological impacts to fish and other aquatic organisms. Given this is a discharge receiving an NPDES permit for the first time, the highest standards should be asked of the facility. We would also like to voice our disapproval of the averaging method proposed to determine the maximum daily**

**concentration of total suspended solids and turbidity. It is our strong belief the maximum daily concentration reported should be the highest concentration found in the three grab samples tested while the average of the three samples will serve as the average monthly concentration. With a discharge of untested quality and the infrequent sampling schedule, it is not possible to know if the effluent TSS and turbidity fluctuates markedly allowing an occasional highly turbid and/or sediment laden plume to be released. The maximum daily concentration found during the one day a month sampling is carried out is the maximum daily concentration, and the average of the three grab samples would be the average daily maximum.**

**We heartily support the enforceability of the storm water pollution prevention plan as an integral part of the permit. The SWPPP is an important tool for protecting the Chicopee River and we are pleased the elements of this plan are as valid as the limitations found in the permit.**

#### **RESPONSE NO. 6**

The draft permit currently contains average monthly effluent limits of 20 mg/l and a Maximum Daily effluent limit of 45 mg/l for Total Suspended Solids (TSS). Because the wastewater treatment method utilized to reduce the TSS levels in the effluent corresponds to a reduction of turbidity levels, EPA believes that the turbidity levels in the effluent will be reduced to a level where the discharge poses no reasonable potential to adversely affect the receiving water. Therefore, EPA finds that the current report only requirement for turbidity in the draft permit should remain.

A daily maximum sample is defined as the maximum allowable discharge of pollutants during a calendar day. The daily discharge is calculated as the average measurement of the pollutant throughout the day (see 40 CFR Section 122.2). Therefore, the average of 3 grab samples taken over the course of one day is appropriate.

#### **COMMENT NO. 7**

**We would like to suggest one augmentation to the permit. In Part A.2.f, the permittee is restricted to processing uncontaminated rock. This is an important prohibition and we would like to see it extended to include additives. We would like to see a limitation that prevents the use of additives in the processing of the materials. We understand the permittee currently does not use additives so this addition will [not] be a burden.**

#### **RESPONSE NO. 7**

The permittee currently does not use additives in their wastewater treatment process and is required under the terms of the permit to report any changes in operations, including the use of additives, to EPA prior to making those changes. The language in the final permit has been revised to clarify this.