



**Tennessee Department of Environment and Conservation
Division of Water Pollution Control
Mining Section
3711 Middlebrook Pike
Knoxville, Tennessee 37921-6538
Phone (865) 594-6035 Fax (865) 594-5253**

April 14, 2009

NOTICE OF DETERMINATION OF NO DEGRADATION

**NPDES Permit TN0069329 (New)
Tennessee Materials Corporation
Linden Quarry
Perry County**

Dear Interested Citizen:

An application for a new NPDES permit for the referenced facility was completed on March 9, 2009. The facility will include limestone mining and processing. The application proposes a permit area of 334 acres, with an initial disturbed area of 69 acres. The initial mining area consists of 52 acres and will drain to Outfall 001. Runoff from the overburden area and office area will drain to Outfall 002. The proposed drainage controls consist of berms to direct runoff to sumps prior to entering sedimentation basins. The basins were sized for the runoff expected from a 10-yr/24-hr storm event and can pass the peak flow expected from a 25-yr storm intensity.

This proposed facility will discharge treated wastewater and storm water from Outfall 001 into an unnamed tributary to the Tennessee River (Kentucky Reservoir) near mile 145.8 and from Outfall 002 into the Short Creek embayment of Kentucky Reservoir in Perry County, Tennessee. The reach of the Tennessee River that receives flow from these outfalls has been identified by the division as Exceptional Tennessee Waters, due to the presence of several species of aquatic mussels that are state and federal-listed as threatened or endangered and the state-listed Blue Sucker fish.

Tennessee's antidegradation regulations are found in *Rules of the Department of Environment and Conservation, Chapter 1200-4-3-.06*. The rules prohibit degradation of Exceptional Tennessee Waters unless and until it is determined by the state that a lowering of water quality is necessary to accommodate important economic or social development in the area where the waters are located. The division must first determine whether or not a new or expanded discharge will result in degradation of water quality.

Total Suspended Solids (TSS) and pH are the pollutant parameters to be addressed by the permit. The applicant submitted the required information for the permit application, including an analysis of reasonable treatment and discharge alternatives. Based on this information and supporting plans, the division has determined that the proposed activity will not degrade Exceptional Tennessee Waters. For the purpose of implementing the antidegradation rules, the impact of the discharge on water quality will be *de minimis*, as defined at 1200-4-3-.04(4). This determination is based on the following information, resulting in reduced magnitude and duration of pollutant discharges:

- a. Discharges from the site will not be continuous, but will be intermittent and result only from precipitation events. Rainfall that would cause a discharge will also result in background stream flow that would provide additional assimilative capacity for the discharged pollutants.
- b. Each sedimentation basin was designed for the volume of runoff expected from a 10-yr/24-hr rainfall event, which is the preferred design storm.
- c. Each basin includes a sump (forebay) to provide additional settling time and to reduce turbulence within the basins, enhancing TSS removal.
- d. Each basin includes a baffle system to increase settling time and TSS removal.
- e. The site plan calls for recycling water from the treatment system for use in material processing, minimizing the total volume to be discharged.

The above information applies to discharges to both the unnamed tributary and Kentucky Reservoir. The division also calculated potential in-stream concentrations of Total Suspended Solids in the Tennessee River as a result of discharges from the site. The following items are a list of conservative assumptions that were used in these calculations:

1. Background TSS in the receiving streams was assumed to be 10 mg/L, equivalent to ecoregion reference streams.
2. All runoff from the site is discharged. In other words, there is no retention in the sediment basins, even though storage volume is expected due to water withdrawal, evaporation, infiltration, and the large design volume of the basin.
3. The discharge contains 40 mg/L TSS, which is the maximum allowed by the draft permit, even though it is expected to be lower due to the sumps, baffling systems, and large design volumes.
4. The stream was assumed to be at the lowest one-day average flow with a return period of 10 years (aka, 1Q10 low flow). There is only a 10% probability that the flow will be equal to or below this level.
5. The maximum runoff associated with a 10-yr/24-hr rainfall event was assumed. There is only a 10% probability that this rainfall amount will occur in a given year.

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Based on these conservative assumptions, the TSS is predicted to be approximately 10 mg/L in the Tennessee River following a 10-yr/24-hr storm. The increase in TSS due to discharges from this facility was estimated to be near zero. Please see Page 4 of this Notice of Determination for details on the TSS calculations. Tennessee's water quality standard for solids is narrative and is based on observation. The predicted in-stream TSS concentrations resulting from a discharge of up to 40 mg/L TSS will not result in any observable impact on Exceptional Tennessee Waters.

The Division has followed normal application review procedures and will issue a draft NPDES permit to the applicant, based on the finding of no degradation. The draft permit is being announced in the list contained in this public notice. Comments on the permit and this Notice of Determination will be received during a 30-day comment period. Please see the enclosed "Public Participation Opportunities" for complete procedures and deadlines.

Sincerely,



Don A. Owens

NPDES Program Manager

Division of Water Pollution Control, Mining Section

Cc Donald W. Allsbrooks, Manager
TVA Kentucky Lake Watershed Team
2835-A East Wood Street
WTB 1A-PAT
Paris, TN 38242-5948

Reasonable Potential Worksheet

Receiving Streams: 001- Unnamed tributary to Tennessee River near mile 145.8
 002- Short Creek embayment of Tennessee River near mile 145.7

Assess potential increase in TSS in Tennessee River due to new discharge at proposed Outfalls 001 and 002

$Cr = [Cd*Qd + Cs*Qs] / [Qd + Qs]$ from Chapter 6 in EPA Permit Writer's Manual,
 Cr = Concentration in receiving stream after mixing of effluent
 Cd = Concentration in the discharge = permit limit of 40 mg/L
 Qd = wastewater flow = 10-yr/ 24-hr total runoff volume ¹
 Cs = stream background concentration ²
 Qs = stream flow ³

Qd=

| |
|------|
| 8.81 |
|------|

 MGD ¹
 Qs=

| |
|------|
| 3878 |
|------|

 MGD ³

Increase in Pollutant = Cr - Cs (Concentration after mixing minus the initial concentration)

| Parameter | Cd (mg/L) | Cs (mg/L) | Cr (mg/L) | Increase in Pollutant (mg/L) |
|-----------|--------------|--------------|--------------|------------------------------------|
| TSS | 40 | 10.0 | 10.1 | 0.1 |

¹ Runoff due to 10y/24h rainfall is 901,369 c.f. (6.74 MGD) at 001 and 276,681 c.f. (2.07 MGD) at 002.
** The runoff volume will be less if the sediment basins are not full of water prior to rainfall, so that some runoff is stored in the basins and is not discharged. Usually, there is some infiltration and evaporation within the basins between rainfall events, so that there is some storage volume available. Also, water will be withdrawn for processing and dust suppression at the site. Therefore, it is conservative to assume the total volume of runoff is discharged.*

² No recent water quality data were available. Therefore, a TSS background concentration of 10 mg/L was assumed. The division collected 5 samples in 1999-2000 at mile 134.9 with an average TSS of 10.2 mg/L.

³ Stream low-flow data (1Q10) from NPDES permit TN0061387 in same stream reach at mile 157.2 (HUC TN06040001001-1000)