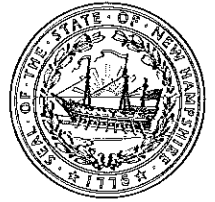


The State of New Hampshire
Department of Environmental Services

Thomas S. Burack, Commissioner



*Celebrating 25 Years of Protecting
New Hampshire's Environment*

WATER CONSERVATION PLAN APPROVAL

August 8, 2013

Warren Ames III
Twin State Sand & Gravel Co, Inc
PO Box 5243
West Lebanon, NH 03784

RE: Hartford, VT – Twin State Sand & Gravel Co., Inc
Water Conservation Plan, July 2, 2013, NHDES #

Dear Mr. Ames:

On July 2, 2013, the New Hampshire Department of Environmental Services (“DES”) Drinking Water and Groundwater Bureau received a Water Conservation Plan (the “Plan”), dated July 2, 2013, for Twin State Sand & Gravel Co, Inc.’s (“Twin State”) aggregate washing facility located on the Connecticut River in Hartford, Vermont. Pursuant to RSA 485:61 and Env-Wq 2101, new source water withdrawals requiring a federal 401 Water Quality certifications must comply with water conservation rules and more specifically implement a water conservation plan upon approval from DES.. Based on review of the Plan, DES has determined the Plan complies with Env-Wq 2101.08, *Requirements for Industrial, Commercial, and Institutional Water Users (ICI)*.

Pursuant to Env-Wq 2101.11, the Town of Lebanon and the Two Rivers-Ottauquechee Regional Planning Commission were provided the opportunity to comment on the Plan from July 8, 2013, the date of public notification, through July 29, 2013. DES received no comments.

This approval is conditioned upon the following:

1. On **August 8, 2016**, and every three years thereafter, the water system shall submit a detailed and completed compliance report form to DES documenting compliance with the Plan. Required information includes contact information for the water-system owner and for the individual responsible for carrying out plan tasks; dates tasks were performed; and data relating to meter readings and tanker truck filling.
2. A log shall be kept of the date and the number of times the water tanker truck is filled and the volume of each fill.
3. The meter make and model of the water meter to be installed on the water recycling system shall be submitted to DES for review prior to installation.
4. If the Signet Magmeter installed on the source withdrawal line is to be replaced with a different make and model, the make and model shall be submitted to DES for review prior to installation.
5. A water meter testing and maintenance plan shall be implemented.

www.des.nh.gov

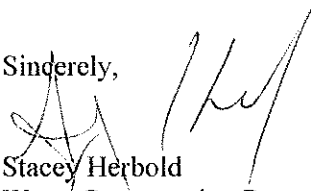
29 Hazen Drive • PO Box 95 • Concord, NH 03302-0095
(603) 271-3503 • TDD Access: Relay NH 1-800-735-2964

6. Twin State shall continue reporting to the DES Water Use Registration and Reporting Program (WUID# 20949). If you have any questions about Water Use Registration and Reporting please contact Derek Bennett at 271-6685 or derek.bennett@des.nh.gov.

7. Revisions to the Plan shall not be implemented without further approval from DES.

Please feel free to contact me with any questions at (603) 271-0659 or via e-mail at stacey.herbold@des.nh.gov.

Sincerely,



Stacey Herbold
Water Conservation Program
Drinking Water and Groundwater Bureau

cc: Greg Comstock, NHDES
Owen Davies, NHDES
Derek Bennett, NHDES
Seth Ames, Twin State
Two Rivers-Ottauquechee Regional Planning Commission
City of Lebanon

**Water Conservation Plan
Aggregate Washing Facility**

**Twin State Sand & Gravel Co., Inc.
Hartford, VT**

Introduction

This Water Conservation Plan has been prepared for the water use associated with Twin State Sand & Gravel's aggregate washing facility located at an active quarry and gravel extraction operation off of Quarry Road in Hartford, VT. The quarry and gravel extraction site (Hartland Quarry) is owned and operated by Twin State Sand & Gravel Co., Inc (TSS&G). This plan is required pursuant to Water Quality Certification # 2012-404P-004 and has been prepared in accordance with the New Hampshire Department of Environmental Services (NH DES) water conservation rules as defined in Env-Wq 2101.08. The applicant is as follows:

Twin State Sand & Gravel Co., Inc.
Physical Address: 73 Elm Street West
West Lebanon, NH 03784
Mailing Address: PO Box 5243
West Lebanon, NH 03784
Phone / Fax: 603-298-8705 / 603-298-6120

Project Background

TSS&G was established in 1947 and operated a gravel extraction operation for a number of years in West Lebanon, NH. In the early 1960's, TSS&G began gravel extraction operations at another existing gravel extraction site on the border of the towns of Hartland and Hartford, VT. In 1994, TSS&G began quarry operations at the same site. The gravel extraction site in West Lebanon is no longer active and has been depleted for a number of years. However, the aggregate processing facilities have historically been located at the West Lebanon site and water has been withdrawn from the Mascoma River for a number of years under Water Use Registration & Reporting Program ID# 20422 as required by Env-Wq 2102. In an effort to consolidate its operations, TSS&G is moving its aggregate processing facilities to the quarry and gravel extraction site (Hartland Quarry) in Vermont. The new aggregate washing facility at the Hartland Quarry and its associated water withdrawal will replace the aggregate washing facility that was historically located in West Lebanon. The permits obtained by TSS&G for its water withdrawal associated with the new aggregate washing facility are outlined below:

- US Army Corps of Engineers General Permit # NAE-2012-1951
- US Army Corps of Engineers General Permit # NAE-R-2012-00339
- NH Water Use Registration & Reporting Program ID# 20949

- NH Water Quality Certification # 2012-404P-004
- NH Wetlands Standard Dredge & Fill Permit # 2013-00781
- Vermont Land Use Permit 3W0711-6

Project Overview

TSS&G's water withdrawal will consist of a variable speed vertical shaft pump mounted on a floating platform in the Connecticut River. The floating platform will be anchored from shore by temporary waste blocks. The pump and float will be removed seasonally from the river. Water from the pump will pass through a section of flexible rubber piping before connecting to rigid PVC piping. The rigid PVC piping will run underground to the aggregate wash plant. Used washed water will be discharged into a settling pond via gravity flow. The wash water will percolate through natural gravels before eventually returning to the Connecticut River.

Proposed Water Conservation Plan Details

Env-Wq 2101.08 (a)

Industrial, Commercial, and Institutional Water Users (ICI) shall identify the location and amount of water used for existing and anticipated uses of water associated with the following:

- 1) *Heating*
- 2) *Cooling*
- 3) *Processing*
- 4) *Product Ingredient*
- 5) *Sanitary Use*
- 6) *Outdoor water use*

TSS&G expects an instantaneous withdrawal rate of 900 gpm or less when in operation. This withdrawal rate is 10% of the deminimus flow rate calculated based upon data from USGS Gage # 01144500 located in West Lebanon, NH, approximately 3.5 miles upstream from the water withdrawal site. The water withdrawal will occur from a location on the Vermont side of the Connecticut River in Hartford, VT and across from the Town of Lebanon, NH. The location is approximately 0.42 miles North of Trues Brook in NH.

Env-Wq 2101.08 (b)

ICI water users shall install and maintain water meters as described below prior to initiating a withdrawal from a new source of water:

- 1) *Water meters shall be installed for each groundwater and surface water source*
- 2) *Water meters shall be maintained in accordance with "Manual of Water Supply Practices, Water Meters-Selection, Installation, Testing, and Maintenance,"*

document identification number AWWA M6, American Water Works Association, 1999.

A source meter will be installed inline with the rigid PVC piping that runs from the pump to the aggregate washing facility. The meter will be selected, installed, and maintained in accordance with AWWA M6.

Env-Wq 2101.08 (c)

If water is used in a single-pass cooling system, the water user shall replace or retrofit the process by using one or more of the following methods to achieve maximum water efficiency within 5 years of initiating a withdrawal from a new source of water:

- 1) Recalculating cooling techniques*
- 2) The use of sensors and automatic shut-off devices to reduce water used for cooling purposes*
- 3) Implementation of water treatment processes*
- 4) Air cooling techniques*
- 5) Alternative technology that produces results equivalent to processes described in (1) through (4) above*

TSS&G's water uses do not involve any type of cooling system. Therefore, this section does not apply.

Env-Wq 2101.08 (d)

Processes that result in the discharge or disposal of unused water shall be identified and modified as described below:

- 1) Any processes where water is used to control temperature*
- 2) Any processes where water within a given process may be discharged or otherwise disposed of unused through an overflow shall be identified*

Used washed water will be discharged into a settling pond via gravity flow. The wash water will percolate through natural gravels before eventually returning to the Connecticut River. There will not be any direct discharges or return of water to the Connecticut River.

Env-Wq 2101.08 (e)

Processes identified in (d), above, shall be modified within 5 years of initiating a withdrawal from a new source of water by using one or more of the following methods:

- 1) Automatic shut-off devices preventing the discharge of water to waste shall be installed for all processes identified in (d), above*

- 2) *Sensors that optimize the use of water shall be installed for all processes identified in (d), above*

Automatic shut-off devices cannot be installed as wash water must be discharged to operate the aggregate washing facility. Water optimizing sensors are not possible to incorporate because the amount of water that is used is dictated by the type of raw aggregate, the amount of fines in the raw aggregate, and the required final gradation(s) of the finished product. Adjustments have to be made based upon visual examination of the aggregates and upon sieve analysis of the aggregates. Therefore, this section does not apply.

Env-Wq 2101.08 (f)

Water conservation practices not described in paragraphs (a) through (e), above, shall be implemented as described below:

- 1) *The water user shall provide the department a description of water conservation best management practices or best available technologies that might be applicable to the types of water-using processes at the facility.*
- 2) *The water user shall develop a plan and schedule to implement the plan that demonstrates these processes will be implemented within 5 years*
- 3) *The water users shall implement the plan according to the schedule upon obtaining approval from the department pursuant to Env-Wq 2101.12*

The following are some of the best management practices and technologies for aggregate washing systems and TSS&G's plan to implement them:

- Incorporate dry sorting techniques
TSS&G has already implemented dry screening of its aggregate products. Only the aggregates that need to be washed will be run through the aggregate washing facility.
- Implement reuse / recycling systems
TSS&G will implement a water recycling system within two years of the approval of this Water Conservation Plan.
- Wash only the products that are required to be clean
TSS&G has already implemented this as part of its best management practices.
- Dredge earthen settling ponds regularly
TSSG will maintain the settling pond on a regular basis.

Env-Wq 2101.08 (g)

ICI Water Users shall not be required to implement a measure described in (c) through (f), above, if an economic analysis prepared by a person employed or contracted by the water system who

has training and experience in preparing economic analyses shows that the payback period for the measures is more than 4 years.

It is not anticipated that an economic analysis will be necessary. Therefore, this section does not apply.

Env-Wq 2101.08 (h)

The economic analysis in (g), above, shall factor the true cost of the water use, including:

- 1) The cost of energy to pump and transmit water*
- 2) The cost of treating pumped water*
- 3) Cost of disposing of wastewater*
- 4) Capital costs associated with developing new sources of water*
- 5) All other costs or fees associated with obtaining or disposing of the water*

It is not anticipated that an economic analysis will be necessary. Therefore, this section does not apply.

Env-Wq 2101.08 (i)

The department shall approve the economic analysis in (g), above, if the analysis:

- 1) Contains all of the information required by (h), above*
- 2) Is accurate*

It is not anticipated that an economic analysis will be necessary. Therefore, this section does not apply.

Env-Wq 2101.08 (j)

If an ICI water user is establishing new lawn, it shall immediately implement the following water efficiency processes:

- 1) All new automatic water devices used to irrigate the lawns, shall be equipped with technology that will prevent the systems from starting automatically and that will shut down the systems when not needed.*
- 2) All automatic watering systems installed after the effective date of this document shall be audited at no less than once every 3 years to ensure the technology required by (1), above, is functioning properly*
- 3) All new lawn areas shall be underlain by 6 inches of loam*

TSS&G will not be establishing any lawns. Therefore, this section does not apply.

Env-Wq 2101.08 (k)

The requirements of (j), above, shall not apply to lawns associated with golf courses or agricultural uses.

TSS&G will not be establishing any lawns. Therefore, this section does not apply.

Public Notification and Involvement

This Water Conservation Plan and a copy of the requirements of Env-Wq 2101 will be submitted within 7 days of the approval of this plan to the following municipality and regional planning commission(s) in accordance with Env-Wq 2101.11:

- City of Lebanon
- Upper Valley Lake Sunapee Regional Planning Commission
- Connecticut River Joint Commissions

Addendum

This addendum was added to the original plan to provide specific information addressing questions from the New Hampshire Department of Environmental Services and the means and methods it describes are hereby incorporated as part of the plan.

- a. Will water be used for sanitary purposes, product ingredient (i.e. asphalt), and/or dust suppression and if so, which best management practices will be implemented to reduce water usage?

Water withdrawn from the Connecticut River will also be used for dust suppression. The portion of water that will be used for dust suppression is expected to be insignificant when compared to the water use for the aggregate wash plant. Calcium Chloride will be applied to the main haulage ways to reduce the amount of water required for dust suppression.

- b. Will dewatering be necessary for aggregate and/or quarry stone extraction? If so, where will the water be discharged to?

Dewatering will not be required for stone or gravel extraction as the water table is below the permitted depth of the final elevation of the quarry and gravel extraction site (VT Land Use Permit 3W0711-6). The quarry and gravel extraction site are within the borders of Vermont and therefore are not within New Hampshire's jurisdiction. Direct discharge of water to the Connecticut River will not occur under this project. Any onsite discharges of water are covered under TSS&G's Underground Injection Control Permit 6-0080 and Storm Water Pollution Prevention Plan 5133-9003, filed with the State of Vermont.

- c. How will the volume of water recycled, used for dust suppression, and other water uses be calculated? Please provide a plan to install additional meters or alternative means of measuring water use demonstrated to be within 10% accuracy of actual usage.

TSS&G uses a water tanker truck for dust suppression purposes. It has a known volume of 4,580 gallons. Water used for dust suppression will be tracked based upon the number of times the water tanker truck is filled in a day. There is a sight gage on the water tanker truck that enables the operator to determine when the tank is full. A water meter will be installed with the water recycling system to determine the amount of water being recycled.

- d. What are the specifics of the plan to re-use water from the settling pond?

The specifics of the water recycling system have not completely been worked out as it will not be installed for two years, as stated in Env-Wq 2101.08 (f) above. The basics are as follows: Water will be pumped from the settling pond to a surge tank(s). The water in the surge tank(s)

will be used to supply the aggregate wash plant. The river pump will supply make-up water as needed to the surge tank(s).

- e. How will the settlement pond be designed and maintained to reduce evaporative losses?
 - I. What will the frequency of dredging the pond be?

Sediment will be excavated from the settling pond on an annual basis, or as needed.

- II. What will the size of the pond be (square footage x depth)

The settling pond is approximately 100' wide x 375' long x 5' deep.

- f. What technologies will be used to reduce the volume of water used for washing materials? Will high pressure, low volume spray nozzles be used?

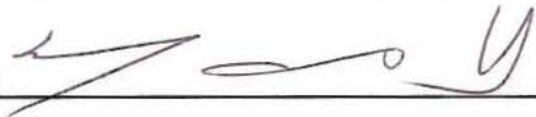
High pressure, low volume spray nozzles have already been installed.

- g. How will the line from the river to the wash station be monitored for leaks (ex. pressure test, acoustic test)? How often will the line be tested?

The water line will be pressure tested annually before the beginning of the water withdrawal season.

I certify that I have read this Water Conservation Plan, understand the responsibilities of the water system as referenced in the plan, and that all information provided is complete, accurate, and not misleading.

Owner Name (print): Warren Ames III

Owner Signature:  Date: 7/2/13