

RIZZO
ASSOCIATES
A TETRA TECH COMPANY

July 14, 2006

U.S. Environmental Protection Agency, Region I
Water Technical Unit (SEW)
One Congress Street, Suite 1100
Boston, Massachusetts 02114-8127**Re: Discharge Monitoring Report
June 1, 2006 through June 30, 2006
Greenbush/North Scituate Station
NPDES RGP Authorization MAG910215**

Dear Sir or Madam:

On behalf of Jay Cashman, Inc./Balfour Beatty Construction, Inc., JV (CBB), the operator of the construction groundwater dewatering, treatment and discharge system located at the Greenbush/North Scituate Station construction site in North Scituate, Massachusetts (the Site), Rizzo Associates, Inc. is providing this discharge monitoring report in accordance with the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP). This discharge monitoring report is required as a result of a detected exceedance of the NPDES RGP discharge limits specified in the authorization letter. Oral notification was made to EPA on Tuesday June 6, 2006, within 24-hours of the receipt of results indicating an exceedance of the effluent discharge limitations. This discharge monitoring report is being submitted pursuant to the following sections of the NPDES RGP:

- Part I, Section D, 4 of the NPDES RGP; and
- Part II, Section D, 1(d) of the General Requirements.

Discharge monitoring during this reporting period identified exceedances of the permitted discharge limits for the following parameters:

- ❖ Benzene, toluene, ethylbenzene, and xylenes (BTEX): The BTEX exceedance referenced here was observed in system effluent samples collected on Thursday, June 1, 2006; laboratory analysis of this sample yielded a total BTEX concentration of 595 µg/L, which exceeded the authorized NPDES RGP discharge limit of 100 µg/L. A 24 hour notification was made, followed up with written notification of this event. The receipt of laboratory analytical data was preceded by a scheduled change out of the granular activated carbon (GAC) filter unit. Following receipt of the laboratory analytical data indicating an

exceedance of the permitted effluent limits, it was determined that the addition of the new GAC unit was sufficient to address the exceedance of the BTEX. This was confirmed via the collection of additional effluent samples for the remainder of the reporting period indicating concentrations of BTEX below the 100 µg/L authorized discharge limit.

- ❖ **Naphthalene:** The Naphthalene concentration reported in the effluent sample collected on Thursday, June 1, 2006 was reported at 35 µg/L, which exceeded the discharge limit of 20 µg/L. A 24 hour notification was made concurrently with the BTEX exceedance detailed above. The 24-hour oral notification was followed up with written notification of this event. The receipt of laboratory analytical data was preceded by a scheduled change out of the granular activated carbon (GAC) filter unit. Following receipt of the laboratory analytical data indicating an exceedance of the permitted effluent limits, it was determined that the addition of the new GAC unit was sufficient to address the exceedance of the naphthalene.
- ❖ **pH:** Laboratory measurement of influent and effluent samples during this monitoring period occasionally yielded results outside the permit range (effluent results have occasionally been below 6.5, but still above 6.0, one effluent sample exhibited a pH above 8.0). However, the influent results have shown the same range. Additionally, in response to these results, we have tracked the pH of the receiving surface water from both upstream and downstream locations. The receiving water exhibits the same pH range as the influent and effluent samples, and does not appear to reflect a consistent impact from the discharged waters. We believe the observed conditions represent a normal range of pH for waters in Massachusetts, and exist in both the groundwater and surface water, and are not significantly impacted by the treatment system. We will continue to track this condition, and should conditions show warrant a filing of a Notice of Change for permit conditions, we will submit as needed.
- ❖ **One individual exceedance of the discharge limit for total suspended solids (TSS) and one individual exceedance of the discharge limit for total lead were identified during the June 2006 monitoring period. The TSS exceedance may have been due in part to blow through of fine residual particles present in the new GAC added to the system to replace spent GAC and mitigate effluent exceedances for BTEX and naphthalene. The TSS and lead concentrations did not result in an exceedance of the average monthly discharge limits for lead or TSS.**

Due to continuing challenges in achieving the laboratory analytical method detection limits specified under the NPDES RGP for certain compounds during startup testing, the selected analytical laboratory has worked to correct many of the detection limit issues during the June 2006 reporting period. In part, these detection limit issues are related to the intermittent

Parameter		Quantity						Concentration						Frequency of Analysis	Sample Type
		Minimum	Average	Maximum	Units	No.	No. Ex.	Minimum	Average	Maximum	Units	No.	No. Ex.		
Nickel	Reported	1.6E-03	1.6E-02	8.0E-02	lbs/day	9	0	3.0	15.4	67.0	µg/L	9	0	9/30	Grab
	Permit Condition	NA	0.52	NA				NA	290	NA					
Selenium	Reported	0	1.4E-03	1.4E-02	lbs/day	9	0	0	1.3	12	µg/L	9	0	9/30	Grab
	Permit Condition	NA	9.0E-02	NA				NA	50	NA					
Silver	Reported	0	2.3E-04	1.2E-03	lbs/day	9	0	0	0.22	1.0	µg/L	9	0	9/30	Grab
	Permit Condition	NA	NA	2.2E-02				NA	NA	12					
Zinc	Reported	3.2E-03	5.7E-02	0.30	lbs/day	9	0	6.0	55.4	246	µg/L	9	0	9/30	Grab
	Permit Condition	NA	1.2	NA				NA	666	NA					
Iron	Reported	6.5E-03	0.70	3.4	lbs/day	9	0	12	671	2,810	µg/L	9	0	9/30	Grab
	Permit Condition	NA	NA	9.0				NA	NA	5,000					
Name of Principal Executive Officer		Title of the Officer				Date		I certify that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete, and accurate						Signature of Principal Executive Officer or Authorized Agent	
Doyle Jamie		Project Manager													
Last First MI		Title													

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May 24, 2006

U.S. Environmental Protection Agency
EPA-NE
RGP-NOC Processing
Municipal Assistance Unit (CMU)
One Congress Street, Suite 1,100
Boston, Massachusetts 02114-2023

**Re: Discharge Exceedance Notification
Greenbush/North Scituate Station
NPDES RGP Authorization MAG910215**

Dear Sir or Madam:

On behalf of Jay Cashman, Inc./Balfour Beatty Construction, Inc., JV (CBB), the operator of the construction groundwater dewatering, treatment and discharge system located at the Greenbush/North Scituate Station construction site in North Scituate, Massachusetts (the Site), Rizzo Associates, Inc. (RAI) is providing this written notification of an exceedance of the effluent limitations of the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) in the discharge from the above referenced treatment system. Oral notification was made to EPA on Thursday May 18, 2006, within 24-hours of the receipt of results indicating an exceedance of the effluent discharge limitations. This notification is being made pursuant to the following sections of the NPDES RGP:

- Part I, Section D, 2(e) of the NPDES RGP;
- Part I, Section D, 4 of the NPDES RGP; and
- Part II, Section D, 1(e) of the General Requirements.

Specifically, the exceedance for which this notification is being submitted was observed in system effluent samples collected on Friday, May 12, 2006; laboratory analysis of this sample yielded a total BTEX concentration of 112.5 µg/L, which exceeds our discharge limit of 100 µg/L. This result was reported by the laboratory on May 17, 2006, at which time the system was shut down for carbon change-out. EPA was notified within 24 hours of obtaining knowledge of this condition. This letter serves to provide background on system operations leading up to this event. We will provide additional information in our first Monthly Status Report, scheduled to be produced after we received results for analysis of samples collected up to and including May 30, 2006.

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Discharge Information

Groundwater dewatering and treatment operations are being conducted in accordance with the NPDES RGP under the provisions of a letter dated March 30, 2006 which identified the authorization as MAG910215.

Start up of the groundwater dewatering and treatment system began on April 27, 2006. The initial treatment system discharge startup procedures were conducted in accordance with Part I, Section D of the NPDES RGP. Start-up discharge was intermittent, with maximum flows during initial dewatering of the excavations and sustained flows to maintain the dewatered state during completion of excavation and construction activities. The dewatering system was in operation approximately 10 to 12 hours per day and maintained an average flow rate of approximately 42 gpm during operation. Prior to system shutdown on May 17, 2006, a total of 288,351 gallons of water were discharged. The discharge was directed to a small municipal separate storm drain system which subsequently discharges to Bound Brook.

Sources of intake water were limited to groundwater encountered within the construction site. No process wastewater or other sources of intake water contributed to inflows to the dewatering and treatment system discharging to Bound Brook.

Treatment System Information

The constructed wastewater treatment train consisted of three 21,000 gallon fractionation (frac) tanks to provide flow equalization and allow adequate retention time for solids to settle and separate. The frac tank discharges to treatment units via pumps rated at up to 50 gallons per minute (gpm) or 0.11 cubic feet per second (CFS). Water is directed through two BF-200 bag filter units equipped with filters with minimum filter size of 5 microns connected in parallel. Following solids removal the water flows through two 1,000 pound liquid phase granular activated carbon (GAC) filters connected in series. An instantaneous flow meter and flow totalizer were installed on the effluent discharge pipe prior to discharge.

The design maximum flow of the constructed treatment system is approximately 50 gpm (0.11 CFS). The average flow through the treatment system during operation was approximately 42 gpm (0.094 CFS) and the maximum flow was 45 gpm (0.10 CFS).

Following treatment, the effluent water was discharged to the storm drainage system for subsequent discharge to Bound Brook. Energy dissipation measures were not required since discharge was conducted to the storm drain system and not directly to the surface water body.

Initial Treatment System Startup

The treatment system discharge was initiated on April 27, 2006. Monitoring and sampling activities were completed in accordance with the authorization letter and the provisions of the NPDES RGP.

The analytical results from Day 1 sampling indicated influent concentrations of total suspended solids (TSS) and iron exceeding NPDES discharge limits. Effluent samples showed a reduction of iron to levels below the NPDES discharge limits, however TSS remained elevated. The Day 1 sampling indicated 78% to 80% removal efficiency for TSS and iron respectively. The elevated concentration of TSS in the effluent was attributed to "blow-out" of particulate contained within the new GAC filters. In addition, the effluent pH was elevated (9.42) compared with the influent pH (6.61), suggesting that sample may have been collected prior to stabilization of the treatment system.

The next set of samples was collected on May 1, 2006. No exceedences of the NPDES discharge limits were detected in the second sample. The effluent TSS concentrations were observed to have been reduced to levels below the discharge limits, suggesting that the GAC had stabilized and no additional "blow-out" was occurring.

The Day 6 samples were collected on May 3, 2006 during a period of heavy wet weather. Increased groundwater inflow rates coincided with elevated influent TSS (310 mg/L), lead (32 µg/L), iron (11,400 µg/L), benzene, toluene, ethylbenzene, and xylenes (BTEX) (278.5 µg/L) concentrations. During the wet weather period increased runoff generated additional inflow of fine soils/sediment with the influent waters. As a result effluent samples indicated exceedences of the NPDES discharge limits for TSS, lead and iron. In addition, the observed treatment efficiency of solids by the system was reduced to 53%, likely due to the presence of fine solids in the influent. In response, smaller aperture size filters were installed down-gradient from the 5-micron filters. This event is considered the first start-up related corrective shut-down, and pursuant to NPDES RGP Part I, Section D, is subject to reporting in our Monthly Status Report, which is scheduled to be developed after we receive laboratory results for sampling events up to and including May 30, 2006. The removal efficiency of BTEX from the system was 99%, indicating that the GAC filters were operating in accordance with design specifications.

After additional bag filters were added, the system was restarted and influent and effluent samples were collected on May 8, 2006 during continued wet weather. Effluent concentrations of TSS and metals were reduced to levels below the NPDES discharge limits. Removal efficiency of BTEX from the system was 97%, indicating continued acceptable performance from the GAC filter units. Both influent and effluent samples exhibited lower pH, possibly due to increased precipitation (rain with low pH) during this wet weather period.

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May 24, 2006
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On May 10, 2006 additional influent and effluent samples were collected. Results from this sampling event indicated slightly increased TSS concentrations, as well as increased BTEX and naphthalene concentrations in the influent. Effluent sampling indicated continued acceptable performance of the GAC filters (94% removal efficiency), and solids removal (90% removal efficiency). As observed during the May 8, 2006 sampling event, continued low pH in the influent and effluent was observed and attributed to increased precipitation or natural conditions.

Additional samples were collected on May 12, 2006. An increase in the BTEX concentration (1,210 µg/L) was observed in the influent (an 84% increase from the May 10, 2006 sampling event); in addition, benzene (10 µg/L) and naphthalene (120 µg/L) were detected in the influent at slightly higher concentrations than previously observed. Effluent sampling indicated reasonable removal efficiency of the GAC filters (91% efficiency). However, the higher influent concentrations, the total effluent BTEX concentration (112.5 µg/L) exceeded the NPDES discharge limits of 100 µg/L. The system was shut down upon receipt of the results and the EPA was notified verbally of the exceedence.

System Status and Notice of Change Submittal

Detailed monitoring reports and additional system modifications will be summarized in future submittals, including our first Monthly Status Report, which is scheduled for development after we receive laboratory results from sampling events conducted on dates up to and including May 30, 2006. We are currently evaluating system performance and anticipate submittal of a Notice of Change (NOC) to address issues related to system capacity and what we suspect may be a naturally occurring low pH condition in the vicinity of this construction project.

Please contact me at (508) 903-2000 or contact Mr. Jamie Doyle of CBB at (781) 335-5001 if you have any questions.

Very truly yours,



Michael E. Billa, P.E., P.G., L.S.P.
Senior Project Manager

CC: Massachusetts Department of Environmental Protection, SERO

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