

**Fw: Merrimack metal cleaning**

Damien Houlihan to: John King  
Cc: Sharon DeMeo

05/04/2011 03:43 PM

From: Damien Houlihan/R1/USEPA/US  
To: John King/R1/USEPA/US@EPA  
Cc: Sharon DeMeo/R1/USEPA/US@EPA

FYI.

Damien Houlihan  
US EPA  
(617) 918-1586

----- Forwarded by Damien Houlihan/R1/USEPA/US on 05/04/2011 03:42 PM -----

From: palmeag@nu.com  
To: Damien Houlihan/R1/USEPA/US@EPA  
Cc: JohnP King/R7/USEPA/US@EPA  
Date: 05/04/2011 03:15 PM  
Subject: Re: Merrimack metal cleaning

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Damien, Sorry to take so long but I went round & round with a number of station folks to try and nail down all the details. After much discussion, and having just observed some of the U1 annual outage, I think this is the best answer:

"Gas Side Ash Washwater"

**Unit 1**

The Unit 1 air heater is typically washed 4 or 5 times a year. This process takes 12 to 18 hours and generates in the range of 200,000 to 400,000 gallons of washwater. The water is collected and treated, and is eventually discharged over a 1 or 2 day period.

Every 18 months, Unit 1 also has a maintenance outage where in addition to the air heater, the boiler, precip and stack are also washed. This process can take up to 4 or 5 days and might generate in the range of 400,000 to 600,000 gallons of wastewater. Because of the larger volume, treated washwater is continuously recycled back to the station for reuse in the wash. This recycling, added to the fact that the washwater is commingled with routine station wastewater, makes it difficult to specify the volumes generated. When the overall volume of water in the treatment plant eventually exceeds the demand of the wash return, treated wastewater is intermittently discharged to maintain manageable levels in the basins. As a rough guideline, 50,000 to 100,000 gallons of treated water will be discharged each day that the wash is being conducted.

**Unit 2**

Unit 2 is simpler as the wash is mostly confined to the one annual outage when the air heater, boiler, precip and stack are cleaned. With recycling, the wash generates on the order of a million gallons and may take 7 to 10 days to complete.

**Station Total**

Based on these events, the permit application provided the following average daily flow estimates:  
U1: 500,000 gallons, 5 times/year = 6850 gpd

U2: 1,058,500 gallons, 1 time/year = 2900 gpd

Treatment Process using the Washwater Return

In general, the basins are mostly empty going into each outage and all wastewater (routine station wastes and the fireside wash) is valved to Basin 1. The water is treated and pumped to Basin 3 where it is allowed to settle further before being pumped to Basin 2. The treated water is recycled back to the station as a source for the ongoing fireside wash. After a day or so the water level in the facility will reach a level that requires relief and excess treated water is pumped from Basin 3 to cause Basin 2 to overflow to the treatment pond. Operators might do this several times throughout the day as necessary to maintain workable levels. Again, the volumes must be estimated since the basin level is intermittently spilling over the top and into the discharge trench that leads to the treatment pond. The operator will generally spill in the range of 20,000 to 40,000 gallons of treated wastewater each time to maintain basin levels.

I hope this helps clarify things, give me a call if you have questions, Allan.

From: houlihan.damien@epamail.epa.gov  
To: Allan G. Palmer/NUS@NU  
Cc: King.JohnP@epamail.epa.gov  
Date: 03/31/2011 08:04 AM  
Subject: Merrimack metal cleaning

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Hi Allan -

I'm filling in for John King on Merrimack while he's recovering from hip surgery. One question I have for you is in regard to the gas side ash wash water. Your 5/10/10 application lists U1 air heater, boilers, precip., etc., with a total flow of 9750 gpd. Could you please let me know exactly what equipment the "etc." refers to? These need to be listed in the permit.

Specifically, please list any metal process equipment that is washed, including, but not limited to: U2 air pre-heater wash, SCR catalyst wash, furnace wash, stack and breeching wash, fan wash, and combustion air heater wash. Also, are these batch discharges? Please let me know the total amount discharged during these cleaning operations. Thanks.

Damien Houlihan  
US EPA  
(617) 918-1586

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