From: Nickel, Brian
To: Cynthia.Barrett@deq.idaho.gov; michael.camin@deq.idaho.gov
Subject: Draft mixing zone memo and Cormix input and output files
Date: Friday, June 10, 2016 4:48:00 PM
Attachments: Draft_MZ_Memo_2016.docx
Temp_Aug_V_Stratified_Avg_Eff_T_30Q5_HH.ses
Temp_Aug_V_Stratified_Avg_Eff_T_Acute.cmx
Temp_Aug_V_Stratified_Avg_Eff_T_Acute.jrn
Temp_Aug_V_Stratified_Avg_Eff_T_Acute.prd
Temp_Aug_V_Stratified_Avg_Eff_T_Acute.ses
Temp_Aug_V_Stratified_Avg_Eff_T_Harmonic_HH.cmx
Temp_Aug_V_Stratified_Avg_Eff_T_Harmonic_HH.jrn
Temp_Aug_V_Stratified_Avg_Eff_T_Harmonic_HH.prd
Temp_Aug_V_Stratified_Avg_Eff_T_Harmonic_HH.ses
Temp_Aug_V_Stratified_Avg_Eff_T_Harmonic_HH_WA_Line.cmx
Temp_Aug_V_Stratified_Avg_Eff_T_Harmonic_HH_WA_Line.jrn
Temp_Aug_V_Stratified_Avg_Eff_T_Harmonic_HH_WA_Line.prd
Temp_Aug_V_Stratified_Avg_Eff_T_Harmonic_HH_WA_Line.ses
Temp_Aug_V_Stratified_Avg_Eff_T.cmx
Temp_Aug_V_Stratified_Avg_Eff_T.jrn
Temp_Aug_V_Stratified_Avg_Eff_T.prd
Temp_Aug_V_Stratified_Avg_Eff_T.ses
Temp_Aug_V_Stratified_Avg_Eff_T_30Q5_HH.cmx
Temp_Aug_V_Stratified_Avg_Eff_T_30Q5_HH.jrn
Temp_Aug_V_Stratified_Avg_Eff_T_30Q5_HH.prd

Cindy, Michael:

As discussed, I have drafted a memo discussing the mixing properties of the Clearwater Paper discharge, which I evaluated using Cormix. My hope is that DEQ could eventually use this information to size the mixing zones for the facility.

To some extent it is a repackaging of the temperature assessment memo that I sent a couple of weeks ago (the discussion of ambient conditions and the discharge geometry is all the same), but this memo has some new analysis in it, focused on the critical conditions for *dilution*, as opposed to temperature. As discussed in the memo, I determined that, due to the strong vertical temperature stratification, the poorest mixing occurs in August and when the effluent temperature is at its average value (for the month of August), as opposed to the 31 °C temperature limit.

I have also attached the model files for August, which reflect this critical condition. The session reports (extension ".ses"), prediction files (extension ".prd") and processing records (extension ".jrn") are output files, and they will all open in any text editing program (e.g. Notepad). The input files (extension ".cmx") are only readable with the Cormix software.

Let's discuss this after you've had a chance to review it.

Thanks,

Brian Nickel, E.I.T.

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