

Gray, Jeff

From: Purkey, Ronald E
Sent: Monday, August 28, 2006 12:43 PM
To: Knight, Tony Alan
Cc: Gray, Jeff
Subject: FW: KIF CO2 Flowrate

Tony,
Please take each deliverable below and either answer or refer to the email to Jeff for answers. Thanks.

Ron

3. Tony Knight will lead the effort to obtain the information in item 2. Tony will have the final information available 8/24/06. The deliverables will be as follows:

- a. Look at alternatives to CO2 and NaOH
- b. Feed rate for CO2
- c. Feed rate for NaOH (or other)
- d. Method of chemical feed recommendations
- e. Location of chemical feed recommendations
- f. Safety considerations for all chemicals
- g. Tank Material recommendations

-----Original Message-----

From: Gray, Jeff
Sent: Monday, August 28, 2006 12:03 PM
To: Purkey, Ronald E; Johnson, Linden Printz; Shaffer, Douglas P; Dixon, Melisa D; Campbell, Linda F
Cc: Petty, Harold L; Gray, Jeff
Subject: FW: KIF CO2 Flowrate

FYI,

Thanks,
Jeff L. Gray
EDS, Civil Engineering
423-751-7693
423-751-6116 (Fax)

-----Original Message-----

From: Knight, Tony Alan
Sent: Monday, August 28, 2006 11:52 AM
To: Gray, Jeff
Subject: KIF CO2 Flowrate

Jeff,

I have reviewed the data from the lab in Muscle Shoals that performed the CO2 titration. Using the titration data and the ashpond discharge flowrate of 43 MGD combined with the runoff from the Dredge Cell 10 year 24 hour

storm event gave a total of 56 MGD that would need to be treated.

The daily CO₂ usage is approximately 3.9 tons/day at an efficiency of 90% with the liquid injection system. Gas sparging is only 50-60% efficient and would require almost 8 tons/day.

The data from the Emory River samples showed pH's in the 7.5 range and would not need treatment. Additional samples will need to be collected during the winter system to obtain data to design a system to increase the pH. We will continue to investigate treatment systems for increasing pH's.

I have included the workbook with the data that was used for calculating the CO₂ usage. Please let me know if anything additional needs to be added.

Thanks
Tony Knight
423.751.7332

Gray, Jeff

From: Purkey, Ronald E
Sent: Wednesday, August 30, 2006 8:39 AM
To: Gray, Jeff
Subject: FW: KIF ash pond pH control

-----Original Message-----

From: Rehberg, Robert L
Sent: Wednesday, August 30, 2006 8:16 AM
To: Purkey, Ronald E
Cc: Cahill, Donald Patrick; Beckham, Michael T
Subject: KIF ash pond pH control

Ron, as a result of our phone call yesterday, I talked to Mike Beckham this morning about his thoughts on the ash pond pH control project. He is in favor of proceeding with the implementation in FY07. Since we know it's a problem that will only get worse as we increase our PRB blend and increase the usage of the SCR's, and since we have an approved project in place in FY07 that includes this work, we need to proceed with design, engineering and implementation with the target completion date of no later than Sept 30, 2007. Early in the discussions about the need for pH control there was some thought that we might want to delay implementation a few years when the problem got worse. However, in light of the data trends, planned operating conditions and Lindy Johnson's report on the matter, Mike's of the opinion that we should proceed full steam ahead rather than delaying or installing an interim system.

Hope this clears up any confusion that may have existed. If you have any questions or need to discuss more, let me know.

Thanks

08/30/2006

TVA-00006259

Gray, Jeff

From: Gray, Jeff
Sent: Monday, August 28, 2006 12:03 PM
To: Purkey, Ronald E; Johnson, Linden Printz; Shaffer, Douglas P; Dixon, Melisa D; Campbell, Linda F
Cc: Petty, Harold L; Gray, Jeff
Subject: FW: KIF CO2 Flowrate

FYI,

Thanks,
Jeff L. Gray
EDS, Civil Engineering
423-751-7693
423-751-6116 (Fax)

-----Original Message-----

From: Knight, Tony Alan
Sent: Monday, August 28, 2006 11:52 AM
To: Gray, Jeff
Subject: KIF CO2 Flowrate

Jeff,

I have reviewed the data from the lab in Muscle Shoals that performed the CO2 titration. Using the titration data and the ashpond discharge flowrate of 43 MGD combined with the runoff from the Dredge Cell 10 year 24 hour storm event gave a total of 56 MGD that would need to be treated.

The daily CO2 usage is approximately 3.9 tons/day at an efficiency of 90% with the liquid injection system. Gas sparging is only 50-60% efficient and would require almost 8 tons/day.

The data from the Emory River samples showed pH's in the 7.5 range and would not need treatment. Additional samples will need to be collected during the winter system to obtain data to design a system to increase the pH. We will continue to investigate treatment systems for increasing pH's.

I have included the workbook with the data that was used for calculating the CO2 usage. Please let me know if anything additional needs to be added.

Thanks
Tony Knight
423.751.7332

Gray, Jeff

From: Knight, Tony Alan
Sent: Monday, August 28, 2006 11:52 AM
To: Gray, Jeff
Subject: KIF CO2 Flowrate

Jeff,

I have reviewed the data from the lab in Muscle Shoals that performed the CO2 titration. Using the titration data and the ashpond discharge flowrate of 43 MGD combined with the runoff from the Dredge Cell 10 year 24 hour storm event gave a total of 56 MGD that would need to be treated.

The daily CO2 usage is approximately 3.9 tons/day at an efficiency of 90% with the liquid injection system. Gas sparging is only 50-60% efficient and would require almost 8 tons/day.

The data from the Emory River samples showed pH's in the 7.5 range and would not need treatment. Additional samples will need to be collected during the winter system to obtain data to design a system to increase the pH. We will continue to investigate treatment systems for increasing pH's.

I have included the workbook with the data that was used for calculating the CO2 usage. Please let me know if anything additional needs to be added.

Thanks
Tony Knight
423.751.7332

Gray, Jeff

From: Gray, Jeff
Sent: Monday, August 28, 2006 12:03 PM
To: Purkey, Ronald E; Johnson, Linden Printz; Shaffer, Douglas P; Dixon, Melisa D; Campbell, Linda F
Cc: Petty, Harold L; Gray, Jeff
Subject: FW: KIF CO2 Flowrate

FYI,

Thanks,
Jeff L. Gray
EDS, Civil Engineering
423-751-7693
423-751-6116 (Fax)

-----Original Message-----

From: Knight, Tony Alan
Sent: Monday, August 28, 2006 11:52 AM
To: Gray, Jeff
Subject: KIF CO2 Flowrate

Jeff,

I have reviewed the data from the lab in Muscle Shoals that performed the CO2 titration. Using the titration data and the ashpond discharge flowrate of 43 MGD combined with the runoff from the Dredge Cell 10 year 24 hour storm event gave a total of 56 MGD that would need to be treated.

The daily CO2 usage is approximately 3.9 tons/day at an efficiency of 90% with the liquid injection system. Gas sparging is only 50-60% efficient and would require almost 8 tons/day.

The data from the Emory River samples showed pH's in the 7.5 range and would not need treatment. Additional samples will need to be collected during the winter system to obtain data to design a system to increase the pH. We will continue to investigate treatment systems for increasing pH's.

I have included the workbook with the data that was used for calculating the CO2 usage. Please let me know if anything additional needs to be added.

Thanks
Tony Knight
423.751.7332