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MAYOR'S OFFICE

CITY OF RAPID CITY

RAPID CITY, SOUTH DAKOTA 57701

Public Works Department Water Reclamation Division

300 Sixth Street

Telephone: (605) 394-4174 FAX: (605) 394-5478

Web: www.rcgov.org

Anthony Mueske

13 July 2012

Natural Resources Engineer - SDDENR

Joe Foss Building

523 East Capitol Ave

Pierre SD, 57501

Dear Mr. Mueske,

This letter is in response to your request for additional information regarding the recent fecal coliform violations that our facility has been experiencing. Below is a table of recent test results for the past several days.

Date	Fecal Coliform	T.S.S.	NH3	Dissolved Oxygen	B.O.D.*	Flow	UV Dosage**
July 3, 2012	490	11.0	2.31	7.90	8.8	9.61	488.5
July 5, 2012	18	10.7	4.03	7.88	10.5	7.95	500
July 6, 2012	NT	16.7	5.14	7.80	8.8	9.41	
July 9, 2012	480	19.3	5.57	7.86		8.53	459
July 10, 2012	92	12.0	8.80	7.84		9.70	493
July 11, 2012	590	13.7	6.97	8.09		8.80	474.5
July 12, 2012	64	10.7	4.31	7.71		8.99	500

*Test results for July 9 through 12 not available as of the date of the report

**Ave Dosage of both channels at time of sampling Mj/cm^2 .

Plant conditions and recent efforts to solve the problems are listed on the next page.



EQUAL OPPORTUNITY EMPLOYER



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The Rapid City Water Reclamation Facility has recently been experiencing increased effluent suspended solids. This condition seems to be related to algae growth in the final clarifiers, recent problems with a trickling filter distributor and a broken waste activated sludge line in the activated sludge system. The increased effluent solids appear to be reducing the effectiveness of the ultra violet disinfection system.

1. Immediately following the violation on July 3rd, a plant operator was assigned to virtually exclusive duty cleaning the effluent weirs, final channels and the UV system daily. This is yet again another increase in cleaning frequency from the time of the Fecal Coliform violations in May of this year. Our intent is to minimize the amount of algae growth appearing on our final clarifiers and in the channels immediately preceding the UV disinfection system. This effort has required 6 to 7 man hours daily.
2. Three weeks ago an operator discovered sludge leaking out of an electrical conduit leading from the aeration basin. Upon excavation of the area, staff found that settlement around the aeration basin had broken electrical conduits, fiber optic control conduits, and displaced the waste activated sludge line. The settlement caused the waste activated sludge line to deform the link seal where the line passed through the wall into the basin. This is where the leakage was occurring. Once all of the parts were assembled to repair the situation, the basin was dewatered on Monday July 9th. In the process of trying to complete the repairs it was discovered that the WAS line had actually cracked, in addition to the deformation of the seal. Operators completed the repairs to the line on July 12th, and the basin was returned to service on July 12th ..
3. Over the past several months, operations staff has discovered that our West trickling filter distributor has stopped rotating on several occasions. Although the condition is easily temporarily corrected by simply push starting the distributor, the problem has increased in frequency lately. This typically happens during the night time hours and appears to be related to low flows and a low head height on the vertical turbine pumps. This is why the City has requested proposals from consulting engineers to evaluate the trickling filters and effluent solids issues. The City will be interviewing consultants on July 18th. In the interim, staff has been making adjustments on distributor arm orifices, and wet well discharge gates to try to improve the flow from the trailing edge of the arms, and to increase recirculation flow to the distributors. Staff has also theorized that the distributor issues may be related to intermittent blockages of pretreatment screens which cause variations in flow through the plant. The existing screens are slated to be replaced starting the week of July 16th as part of the ongoing pretreatment renovation project.





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The Rapid City Water Reclamation Division staff will continue to work diligently to solve these high bacteria counts, and will keep the South Dakota Department of Environment and Natural Resources informed of our progress. If you have any further questions regarding this manner please contact me at the plant at 605 394-4174, or on my cellular phone at 605 390-0043.

Regards

A handwritten signature in cursive script, appearing to read "David Van Cleave".

David Van Cleave

Superintendent

Rapid City Water Reclamation Division

cc. Terry Wolterstorff, Mayor Sam Kooiker, File

