From: Wilson, Scott [mailto:Wilson.Js@epa.gov]
Sent: Monday, April 02, 2018 12:52 PM
To: Jordan, Ronald; Shell, Karrie-Jo; Ramach, Sean; Pickrel, Jan
Cc: Laurel Rognstad
Subject: RE: Steam Electric Power Generation

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Laurel:

Your question was passed on to me for my thoughts on this issue and I had a couple of quick questions.

The email below says that the TVA effluent concentration for copper and nickel were much greater than in the intake water. Do you have data for the effluent concentrations that you could provide?

Also, did they provide information on the specific cooling tower maintenance chemicals that were used?

Thanks in advance for any information you can provide.

Scott Wilson

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From: Phillips, David
Sent: Wednesday, March 28, 2018 4:30 PM
To: Laurel Rognstad <Laurel.rognstad@tn.gov>
Cc: Jordan, Ronald <Jordan.Ronald@epa.gov>
Subject: FW: Steam Electric Power Generation

Laurel,

Unfortunately, it might be some time before I can focus on this inquiry. It might be more expeditious for you to consult our ELG expert on Part 423 for some input on Memphis' two questions (Ron Jordan - jordan.ronald@epa.gov or 202-566-1003), whom I've copied.

David R. Phillips

U.S. EPA Region 4 – Water Protection

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- Senior Environmental Engineer
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From: Balentine, Joshua [mailto:Joshua.Balentine@memphistn.gov]
Sent: Wednesday, March 28, 2018 4:17 PM
To: Phillips, David <Phillips.David@epa.gov>
Cc: Laurel.Rognstad@tn.gov; King, Tasha <Tasha.King@memphistn.gov>
Subject: Steam Electric Power Generation

David,

I have a new TVA Steam Electric Power Generation plant that I recently permitted. The federal regs at 40 CFR 423.17(d)(1) states that the pollutants discharged in cooling tower blowdown shall have no detectable amount for the 126 priority pollutants contained in chemical added for cooling tower maintenance (excluding Chromium and Zinc). The regs go on further to allow at the permitting authority's discretion, instead of the monitoring in 40 CFR 122.11(b), compliance with the standards for the 126 priority pollutants in paragraph (a)(4)(i) of this section may

be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR part 136.

TVA originally wanted to submit the Engineering Calcs that demonstrate the priority pollutants are not detectable at the final effluent. We verbally agreed that TVA would collect one set of samples to confirm that the priority pollutants were not present, and then we would approve the engineering calcs in lieu of sampling going forward. TVA's samples showed detectable values for copper (0.00228 mg/L) and nickel (0.00287 mg/L).

TVA is stating that the source of copper and nickel is not from the cooling tower chemicals, but from the source water. They have sampling data that does confirm this. Albeit, the concentrations in the source water are much lower than the values detected in the effluent. TVA claims that this is due to the evaporation of water and metals concentrating. The purpose of blowing down cooling water is due to minerals concentrating to the point that they are too high, and makeup water is added to the basin.

There are multiple options/questions I have for you to help assist me in:

1. Since TVA believes that the source of the pollutants is the source water and not the cooling tower chemicals themselves, TVA requests that the engineering calcs in lieu of monitoring state the following:

"At the discretion of the City of Memphis, instead of the monitoring, compliance with the standards for the 126 priority pollutants may be determined by engineering calculations which demonstrate that the regulated pollutants (126 priority pollutants contained in chemicals added for cooling tower maintenance) are not detectable in the final discharge by the analytical

methods in 40 CFR part 136."

Please note that the red text is different than what the federal regs state at 30 CFR 423.17(b)(ii). TVA assert that this is more consistent with the development documents and the final rule publication in the federal register as shown below:

47 FR 52290 Excerpt No. 1

Toxics. The discharge of one hundre twenty-four toxic pollutants is prohibited in detectable amounts from cooling tower discharges if the pollutants come from cooling tower maintenance chemicals. The discharge may demonstrate compliance with such limitations to the permitting authority by either routinely sampling and analyzing for the pollutants in the discharge, or providing mass balance calculations to demonstrate that use of particular maintenance chemicals will not result in detectable amounts of the toxic pollutants in the discharge. In addition, EPA is promulgating a daily maximum BAT limitation and NSPS for chromium and zinc based upon concentrations of 0.2 mg/l and 1.0 mg/l, respectively.

47 FR 52290 Excerpt No. 2

Commenters objected to the propos zero discharge requirement for maintenance chemicals, raising concerns about the regulation of maintenance chemicals instead of priority pollutants and the means of measuring compliance with a zero discharge limit. In response, we have substituted "no detectable" for "zero discharge" and made clear that the li applies to priority pollutants from maintenance chemicals, and not the chemicals themselves. EPA presently considers the nominal detection limit most of the toxics to be 10 μg/l (i.e., 1 parts per billion). See, *Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants*, EPA, 1977.

47 FR 52290 Excerpt No. 3

Another concern expressed by commenters was that EPA did not account for those prohibited toxic are present in new construction materials for cooling towers. For example, wooden supporting struc or other construction materials in or rebuilt cooling towers may cont preservatives which contain trace amounts of certain of the toxic pollutants. These may leach for a pe of time from contact with the coolin water. The Agency recognizes such situations. Thus, the prohibition in t final rule, as in the proposed rule, is applicable only to pollutants that ar present in cooling tower blowdown result of cooling tower maintenance chemicals.

2. Another approach could be that as long as the detectable amount is less than 0.01 mg/L (10μg/L), TVA could be considered compliant with the regulations, since the final rule (47 FR 52290) states that the minimum detection level required for analysis is 0.01 mg/L (10μg/L).

Commenters objected to the proposed zero discharge requirement for maintenance chemicals, raising concerns about the regulation of maintenance chemicals instead of priority pollutants and the means of measuring compliance with a zero discharge limit. In response, we have substituted "no detectable" for "zero discharge" and made clear that the limit applies to priority pollutants from maintenance chemicals, and not the chemicals themselves. EPA presently considers the nominal detection limit for most of the toxics to be 10 $\mu g/l$ (i.e., 10 parts per billion). See, *Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants*, EPA, 1977.

3. Another approach could be a Net/Gross variance based on the concentrations of nickel and copper in the source water. This is a valid approach (in my opinion) since our local limits for those two parameters are substantially higher than the current limit of no detectable amount.

4. The final approach is to leave the permit like it is, and make TVA meet the no detectable amount limits for all priority pollutants.

The City of Memphis really needs EPA to weigh in on this, so TVA will accept the decision that is made. Ultimately, I think the federal regs and the federal register publication are confusing with respect to No.1. I think that the federal register vaguely supports TVAs argument that the limit applies to the final discharge but only form pollutants added from cooling tower maintenance chemicals. However I can't get past the fact that the PSNS specifically states that the pollutants discharged in cooling tower blowdown shall have no detectable amount for the 126 priority pollutants. I am not comfortable agreeing to the modification TVA requested in NO.1 without TDEC or EPAs approval. However, if you are in agreement with No. 2, this would be just as easy of an option for all parties.

I know this is an information overload, so please give me a call if you have any questions, or are extremely confused by all of this. Thanks.

Joshua Balentine

Industrial Monitoring Manager

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