

From: James Weddell james.weddell@tceq.texas.gov
Subject: RE: MF Challenge Test Removal Credit
Date: June 26, 2013 at 8:03 AM
To: Joel Klumpp joel.klumpp@tceq.texas.gov, Sylvana (Sam) Turner sylvana.turner@tceq.texas.gov
Cc: Vera Poe vera.poe@tceq.texas.gov, Ada Lichaa ada.lichaa@tceq.texas.gov, David Williams David.A.Williams@tceq.texas.gov

JW

Actually 40 CFR does place a **limit maximum on the concentration** in the feed water as noted in the EPA MFGM on Page 3-4 and 3-24. Simple fact is the EPA guidance in this area reflects 40 CFR. Therefore, it is not just guidance, it is required. However, Page 3-48 does talk about prior/grandfather challenge tests (before LT2 Adopted as I understood it) conducted at greater than allowed by LT2 rules

DOW (attached) report talks about NSF talking to EPA and finding out it was the requirement, not just guidance and went back and redid DOW's challenge test. We used the retest data and not the capped higher than allowed concentration for the DOW UF. As I understood it, the EPA left it to the discretion of the states to accept or not accept the incorrectly grandfather challenge test data. NSF is just trying to cover themselves. EPA is cutting our feet out from under us.

SO SOMEONE NEEDS TO HAVE A TALK WITH EPA ABOUT CUTTING OUR FEET OUT FROM UNDER US.

Finally, for IPR/DPR I do not have any comfort level with capping grandfather data. I wonder if Daniel told NSF or EPA they were going to be using the membranes for treating WWTP effluent for human consumption.

719.41(b)

(2) *Challenge testing.* The membrane used by the system must undergo challenge testing to evaluate removal efficiency, and the system must report the results of challenge testing to the State. Challenge testing must be conducted according to the criteria in paragraphs (b)(2)(i) through (vii) of this section. Systems may use data from challenge testing conducted prior to January 5, 2006 if the prior testing was consistent with the criteria in paragraphs (b)(2)(i) through (vii) of this section.

(i) Challenge testing must be conducted on either a full-scale membrane module, identical in material and construction to the membrane modules used in the system's treatment facility, or a smaller-scale membrane module, identical in material and similar in construction to the full-scale module. A module is defined as the smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.

(ii) Challenge testing must be conducted using *Cryptosporidium* oocysts or a surrogate that is removed no more efficiently than *Cryptosporidium* oocysts. The organism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate, in both the feed and filtrate water, must be determined using a method capable of discretely quantifying the specific challenge particulate used in the test; gross measurements such as turbidity may not be used.

(iii) The maximum feed water concentration that can be used during a challenge test is based on the detection limit of the challenge particulate in the filtrate and must be determined according to the following equation:

$$\text{Maximum Feed Concentration} = 3.16 \times 10^6 \times (\text{Filtrate Detection Limit})$$

So if the detection limit is 1 oocysts/liter, then 3.16×10^6 is the maximum concentration for the challenge solution. And a **detection limit of 1 oocyst/L is what NSF reported in the DOW UF membrane challenge test report.**

Red

From: Joel Klumpp
Sent: Wednesday, June 26, 2013 7:02 AM
To: Sylvana (Sam) Turner

To: Sylvana (Sam) Turner

Cc: Linda Brookins; Vera Poe; Ada Lichaa; David Williams

Subject: FW: MF Challenge Test Removal Credit

Hi Sam,

When you are back in the office on Friday, please begin work on drafting a response to Daniel's comments below. Please be sure to coordinate with other TROT staff who have worked on reviews of challenge studies in which the test water was seeded with a concentration greater than allowed in the EPA MFGM. It will be important to demonstrate that we have been consistent in our reviews of membrane challenge studies.

Thank you,

Joel

From: Daniel Nix [<mailto:daniel.nix@wichitafallstx.gov>]

Sent: Tuesday, June 25, 2013 5:32 PM

To: Joel Klumpp

Cc: Linda Brookins; Russell Schreiber; Kerry D. Maroney; Sylvana (Sam) Turner

Subject: Re: MF Challenge Test Removal Credit

Joel,

After I received your e-mail, dated May 9, 2013, stating that the TCEQ would not be approving the Challenge Study for the Siemens S10V MF membranes, I wanted to understand the process of Challenge Testing a little better. So, I read the Verification Report and began a series of discussions with the individuals and agencies that performed the Challenge Test back in 2009 on the Siemens S10V MF membranes. I was quite enlightened and surprised at what I learned.

The Environmental Technology Verification Report for the Siemens S10V MF membranes was performed by the National Sanitation Foundation, under contract with the US Environmental Protection Agency in order to verify "the performance of new environmental technologies", and "help businesses, communities, regulators and other decision makers identify solutions to the environmental problems and issues they face".

You stated in your e-mail that the TCEQ would not approve the Verification Study due to the fact that the test water had exceeded the microorganism concentration (Maximum Feed Concentration, page 3-24) that is "allowed" in the USEPA Membrane Filtration Guidance Manual. I had difficulty comprehending why the EPA would use a microorganism concentration that violated their own Guidance document. So, I contacted Mr. Jeff Adams, Head of the EPA's Drinking Water Systems Center, and asked him why the EPA would violate their very own Membrane Filtration Guidance Manual when conducting the verification study on the Siemens product. His replies were:

- The key word for the EPA Manual is "Guidance". It is not a hard and fast rule.
- The EPA intended the spirit of the Maximum Feed Concentration calculation to prevent the " 10^{10} " feed concentrations from happening. Not the " 10^7 's".
- The TCEQ is misinterpreting and over exaggerating what the Maximum Feed Concentration means to the verification test.

And, finally,

- The EPA considers the Siemens S10V MF Membrane Verification Study to be a highly successful Challenge Study that yielded valid results.

Mr. Adams went on to recommend that I contact Bruce Bartley with the National Sanitation Foundation to answer specific questions about the test and the dosing issue.

I spoke with Mr. Bartley about why the EPA would allow the overfeeding of the surrogates and the ultimate acceptance of the verification results. He stated that the overfeed of the surrogates was well within the “normal error” of the verification analysis. The NSF had conversations with the EPA at the time of the verification study and the EPA developed the following protocol in dealing with these overdosing issues.

“If the verification test is overdosed (exceeds the Maximum Feed Concentration), then the EPA will cap what it will approve at the intended 6.5 log, so long as the membranes demonstrated that 6.5 log was attainable at that microbial feed concentration .”

The EPA Office of Groundwater and Drinking Water approved the application of this protocol for the assignment of Log Removal Values, and the NSF and EPA both have been working under this approval protocol ever since. Additionally, when a manufacturer wants their product verified, the NSF notifies them upfront that their intent is to dose 0.2 log under the 6.5 log maximum, and that if the manufacturer wants to dose more than that for marketing purposes, that they do so at their own risk of only being approved for the 6.5 log removal.

The NSF went on to say that the EPA rules utilize the word “must” rather than the word “shall” which allows them more latitude in the interpretation of the application of maximum feed concentrations during the verification studies.

Mr. Bartley also mentioned that he had had the same discussion with a TCEQ representative named Vera Poe. He said that it was odd that the TCEQ did not approve the results of the Siemens S10V Study, since he had the impression that Mrs. Poe understood all of the protocols and accepted the 6.5 log cap as the industry standard. This begs the question of why the TCEQ would talk to the NSF and find out that the EPA had developed a protocol that dealt with the overdosing of microorganisms, and then simply turn around and deny the approval of the verification results. Given this information, it is hard for me to resist the temptation to think that the TCEQ is not being objective in applying sound scientific, regulatory demonstrated pathogen removal credits to available technology, and that it is a deliberate attempt to hinder the City’s efforts to gain the ever changing pathogen removal credits the TCEQ requires.

The evidence, as I have detailed above, supports an approval of the NSF/EPA Verification Study findings. Therefore, I respectfully request that the TCEQ re-evaluate the NSF/EPA approved Verification Study for the Siemens S10V MF membranes and grant the City of Wichita Falls the 6.5 log removal credit for *Cryptosporidium* and 3.0 log removal credit for Viruses that was scientifically verified in the study. Given the critical nature of Log Removal Values for the Microfiltration Plant for both the Normal Operation of the Water Treatment Facilities and the Emergency DPR project, I would like to hear something back from you on this matter within the next couple of weeks.

On Thu, May 9, 2013 at 6:55 AM, Joel Klumpp <joel.klumpp@tceq.texas.gov> wrote:
Daniel,

At this time, we are unable to approve the Challenge Study for the Siemens S10V MF membranes

At this time, we are unable to approve the Challenge Study for the Siemens S10V MF membrane modules because the water used in the study had higher concentrations of test microorganisms than the EPA Membrane Filtration Guidance Manual allows. TCEQ staff will contact Siemens regarding this and work with Siemens to find a path forward for approval.

Please call me at [512-239-4453](tel:512-239-4453) with any questions.

Thanks,

Joel

Joel Klumpp | Team Leader | Technical Review and Oversight Team | TCEQ

12100 Park 35 Circle, Bldg. F | Austin, Texas 78753 | [☎ \(512\) 239-4453](tel:512-239-4453) Fax: [\(512\) 239-6050](tel:512-239-6050) | [✉](mailto:Joel.Klumpp@tceq.texas.gov):

Joel.Klumpp@tceq.texas.gov

From: Daniel Nix [mailto:daniel.nix@wichitafallstx.gov]

Sent: Wednesday, May 08, 2013 10:54 AM

To: Joel Klumpp

Cc: Russell Schreiber; Kerry D. Maroney

Subject: MF Challenge Test Removal Credit

Joel,

We are in the final stages of the Preliminary Engineering Report compilation. I wanted to touch base with you one more time to see if the TCEQ had completed its review of the Challenge Test Report for the USFilter (now Siemens) CMF-S7, Module Part No. 119023, S10V MF membrane modules, that is referenced on Page 8 of 14 in your February 8, 2013 letter. If it is available, the City would like to include the TCEQ approved LRC_{c-test} for the MicroFiltration in its PER submittal to you.

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Daniel K. Nix

Public Utilities Operations Manager

City of Wichita Falls

Physical Address: 4801 Big Ed Neal Drive, Wichita Falls, Texas 76310

Mailing Address: P.O. Box 1431, Wichita Falls, Texas 76307

[940-691-1153](tel:940-691-1153) FAX: [940-691-4121](tel:940-691-4121)

Daniel.Nix@wichitafallstx.gov

Those who have the privilege to know have the duty to act. ~Albert Einstein

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Daniel K. Nix

Public Utilities Operations Manager

City of Wichita Falls

Physical Address: 4801 Big Ed Neal Drive, Wichita Falls, Texas 76310

Mailing Address: P.O. Box 1431, Wichita Falls, Texas 76307

940-691-1153 FAX: 940-691-4121

Daniel.Nix@wichitafallstx.gov

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12162010.pdf**
495 KB



**Dow_SFD-2880_ETV report-Jan
2011.pdf**
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