MEMORANDUM

TO: Standard 50 Nitrogen Task Group

RE: The charge of the Task Group, limitations and work plan

DATE: January 29, 2008

I tend to view the NSF testing process simplistically. For Standard 50, a manufacturer has a device that the manufacturer claims does something beneficial for swimming pool and spa water. NSF puts a standardized challenge water through a couple of the devices and measures what comes out, comparing that result with the performance requirement in the Standard 50. If the device meets the requirements, it can be listed (structure and material safety also have to meet the standard).

Some of the assumptions in this process are

1. That the performance requirement meets public health needs, but is reasonable enough so that most legitimate devices in the category can meet it.

2. That the level of the challenge parameter(s) is high, but not tremendously unrealistic.

3. That the test method provides consistent results when testing different devices of similar capability.

4. That the test method can be used by any competent testing organization and the results will be similar to the results of other test agencies.

5. That the cost of the test is reasonable to the manufacturer.

This task group is charged with determining a performance standard for devices and materials that purport to remove undesirable nitrogen and nitrogen-chlorine compounds from pool and spa water, and for determining a test method(s) to check devices and materials against that performance standard. It’s my intent to work with the technologies currently represented—ozone, UV, and zeolites—and not spend much, if any, time trying to anticipate future technologies. It’s also my intent to deal with the science we have, as best we know it, as a basis for our product.

It appears to me that we are working with two distinct processes for the removal of nitrogen from pool water. Zeolites remove nitrogen mainly by cation exchange and have
a capacity limit based on the mass of the zeolite in a specific pool system and the specific zeolite’s properties. Ozone and UV chemically change the nitrogen compounds to more benign compounds; the systems are process and design limited.

For zeolites the questions include:

1. What challenge solution will be used?
2. What performance will be required? Is a specific performance level necessary and how will it be defined?
3. Is a full scale test required or could the material be tested bench scale? What challenge method will be used and what are the appropriate analyses?
4. What claim will be allowed? Could the claim be limited to amount of challenge parameter removed per bulk weight? What documentation will the manufacturer/vendor be required to provide to the end user?

Among the decisions required for ozone and UV devices are:

1. Challenge solution parameters. What compound or combination of compounds will be used and at what concentration. What volume of challenge solution is required. The ability to make, maintain and analyze the solution consistently must be considered.
2. The required level of performance. Of the challenge that goes into the device, what is permitted to come out. Will the performance be required in one pass or after several turnovers.
3. The length of the test and how many data points are required. This may affect the issues in 1 and, of course, the overall cost of the procedure.
5. The specific wording of the claim that will be allowed.
6. The label requirements and the documentation to be provided to the end user by the manufacturer/vendor. This might include specific test conditions and performance, maximum flow rate, electrical requirements, and other limitations.

There are, I’m sure, lots of items not covered here. As usual, the devil is in the details. I apologize for rambling on, but I believe it’s important for the task group to focus on the limited, process-oriented details that fall within the purview of Standard 50.