



March 4, 2011

Dexter Matthews, Director  
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Subject: Environmental Management Commission (EMC) Groundwater Committee Meeting on March 9, 2011, to Consider a Petition to Request the Amendment of Underground Storage Tank (UST) Secondary Containment Standards Contained in 15A NCAC 02N .0903(a).

Dear Mr. Matthews,

NACE International recently became aware of changes related to corrosion control of USTs installed in North Carolina when it was contacted by the Steel Tank Institute. NACE is an individual member association of more than 25,000, specializing in corrosion control; NACE is not a trade organization that represents one industry's economic interests. NACE represents best practice technology and education thereon. In accordance with NACE policy, it assembled a Technical Review Team (TRT) to review the revisions made to Section 15A of the subject rule.

With respect to NCDENR, our members' interest is in the wording of new subsection (a) which reads:

“Tanks must be protected from external corrosion in accordance with 40 CFR 280.20(a)(1), (3) or (5)”.

Of particular concern is the change in the new subsection that omits previous reference to 40 CFR Section 280.20(a)(2), which states “The tank is constructed of steel and cathodically protected in the following manner:....”

The NACE TRT believes that the rationale for this change is that NCDENR has the view that monitoring a cathodic protection (CP) system is resource intensive, involving considerable operation and maintenance that sometimes is not executed thoroughly by owners.

Conversely, the corrosion control experts serving on the NACE TRT have the position that cathodically protecting steel tanks provides an efficient and effective means of protecting the environment from product releases.

- As a technical organization, NACE supports the fact that the use of coatings in conjunction with a CP system, when both are maintained properly, is highly effective.
- Other agencies, such as the US Department of Transportation, have researched and then promulgated rules for corrosion protection that emphasize the use of CP, because of its long-term effectiveness.
- Monitoring any underground structure is challenging because of access problems. The fact that CP can be monitored is beneficial, not detrimental. When correctly monitored and maintained, a CP system (1) provides a reliable picture of the integrity of a tank that is otherwise inaccessible except by excavation or other exposure means, and (2) can help assure a corrosion-free UST.



NACE agrees that maintaining a CP system can be challenging to someone without experience or training in this technology. Because CP is an effective corrosion control technology, NACE developed a globally recognized, four-level CP training and certification program with almost 2,500 card holders in the USA<sup>1</sup>; other nonprofit educational organizations also offer CP training.

NACE respectfully requests that NC DENR consider allowing the use of cathodically-protected steel tanks, while specifying that persons inspecting CP systems be duly qualified and experienced, or certified through NACE CP training or equivalent.<sup>2,3</sup> Most technologies require experience and training for a job as important as protecting tanks from product leaks, and using cathodically protected steel tanks should be a viable alternative for UST owners, with the same attention to personnel qualifications.

In summary, it is well-documented that a properly operated cathodic protection system can protect underground steel structures from the effects of corrosion for decades<sup>4</sup> when part of an overall integrity program. This is demonstrated in (1) the US DOT's requirements for the use of CP to maintain the integrity of pipelines that carry the same product often stored in USTs, while enforcing specific requirements for personnel qualifications; and (2) several states' recognition that properly maintained CP systems are effective (and allowed) when operated by qualified persons (references to two states are shown below<sup>5-6</sup>). The key to greater success with corrosion prevention is with accurate monitoring by qualified persons.

We look forward to your response and hope to work with you on this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "H. Seelinger", is written over a horizontal line.

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<sup>1</sup>The four levels: CP Tester, Technician, Technologist, and Specialist, are described at [www.nace.org](http://www.nace.org).

<sup>2</sup>EPA CFR 40 Chapter I Part 280.12 describes the following qualification categories for persons working with cathodic protection systems:

- “*Cathodic protection tester* means a person who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metal piping and tank systems. At a minimum, such persons must have education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of buried metal piping and tank systems.”
- “*Corrosion expert* means a person who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be accredited or certified as being qualified by the National Association of Corrosion Engineers or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks.”

<sup>3</sup>US EPA Memorandum of 4/16/2001; Subject: Update to the Regulatory Interpretation Request: Clarification of “Corrosion Expert” and “Cathodic Protection Tester”;

<http://www.epa.gov/swrust1/compend/adn30lh2.pdf>

<sup>4</sup>NACE is unable to compile data references in the time that it has to submit this communication. However, both industry and government have data on the effectiveness of properly maintained cathodic protection systems used as part of an integrity program, and NACE would be pleased to develop a reference list if of interest to NC DENR.

<sup>5</sup>Indiana Department of Environmental Management; Title 329 IAC article 9, Underground Storage Tanks; <http://www.in.gov/legislative/iac/T03290/A00090.PDF>.

<sup>6</sup>Wisconsin Department of Commerce, Bureau of Petroleum Products and Tanks, Office of the State Fire Marshall—Division of Petroleum and Chemical Safety; Wisconsin Administrative Code Comm 10 - Flammable and Combustible Liquids; <http://commerce.wi.gov/ER/ER-BST-C-CorrosionProtectionReq.html>.