The EPA received the attached letter from Northeast Ohio Regional Sanitation District (via the State of Ohio) in response to a request for further explanation from NEORSD documenting the basis of their requested **availability** waiver for the use of non-domestic steel reinforcement fibers. The EPA, as outlined in an associated Decision Memorandum to the State of Ohio, is unable to approve the waiver request based on product **availability**. However, in examining the attached letter, the EPA did find a potential explanatory rationale for the basis of a **public interest** waiver (CWA Section 608(b)(1)). As such, the EPA considers the attached letter a submission by the State of Ohio on behalf of NEORSD for a **public interest** waiver for the use of foreign steel reinforcement fibers for the Dugway Tunnel project. The EPA is soliciting public comment regarding this potential public interest waiver based on the rationale and information presented in the attached letter. Public comments should be submitted to CWSRFWaiver@epa.gov.

Northeast Ohio
Regional Sewer District

May 15, 2015

Valentine Mbah
Project Engineer
Ohio EPA – DEFA
Lazarus Government Center
50 W. Town St., Suite 700
P.O. Box 1049 Columbus, OH 43216-1049

Mr. Mbah:

The Northeast Ohio Regional Sewer District (the District) is sending the following correspondence in regards to a protest submitted by a domestic steel fiber manufacturer for the District's Dugway Storage Tunnel Project (the Project or DST). This protest was in response to a waiver request submitted by the District on March 23, 2015, seeking relief from American Iron and Steel (AIS) provisions under the Clean Water Revolving Loan Fund (CWSRF) for the Project.

Commonly, the AIS provisions are enforced when a duplicate domestic steel product can be used to replace a foreign-sourced steel product. For example, a domestic W12x58 beam can be provided in lieu of a foreign beam of the same steel grade since the products are relatively identical. The fiber product that was proposed by the domestic manufacturer is not a simple substitution of equals under which the only difference is the source of the raw steel – the District considers the domestic fiber product an ***alternative product*** and not an equivalent. The protesting manufacturer has submitted a different-shaped product from that specified in the District's contract documents, which has implications in the following categories:

1. Technical Requirements;
2. Product Experience;
3. Product Application;
4. Commercial Implications, and;
5. Public Interest.

TECHNICAL REQUIREMENTS

The specified steel fiber is made from a drawn wire with a circular cross section that is continuously deformed, including hooked ends on both ends of the fiber. These deformations and hooks are essential for producing the equivalent concrete bond length required to achieve the performance requirements. The proposed substitution is a flat profile fiber that has been twisted to create the deformations. Different profiles will behave differently and bond differently to the concrete.

Furthermore, required testing results have not been provided to demonstrate performance of the product. Specification 03 24 00 requires concrete washout tests for approval of steel fibers and the associated batching process (refer to paragraphs 1.5.D.1.d, 2.2, 3.5.A). Due to the nature of this application, it would typically take months to perform the proper testing and analysis to incorporate such an integral product into our design. The District will not compromise quality by foregoing this provision or attempting to accelerate the process in the interest of an alternative product.

PRODUCT EXPERIENCE

The District has not been issued a copy of the protest document, however, based on discussions with the Ohio EPA we understand that the protest alludes to a single application of this product in a subway tunnel in New York. We have requested access to these project details because the vague reference does not give any indication on the particular use, the degree of success, or the performance requirements necessary to show a history of direct and similar application. To compare the District's CSO tunnel, its structural, environmental and end use to this singular reference, is like comparing an "apple" to an "orange".

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On the other hand, the District-specified fibers are an industry standard and have been used for many years on ***multitudes*** of successful segmentally lined tunnel projects throughout the world, including the District's recently completed Euclid Creek Tunnel (ECT). The ECT project is a $198M, 24 feet finished diameter, single pass, segmentally lined tunnel constructed in Chagrin Shale. The ECT is exactly the same diameter, uses the same segmental liner handling and installation process and is constructed in same the geology as the DST tunnel. In fact, the same Tunnel Boring Machine and segment transporting trailing gear and erection equipment will be used to construct the DST. The ECT project is now at 96% complete, is projected to finish with less than 4% overall change orders, and the project did not have one claim associated with the tunnel liner fabrication, shipment, erection or service. This extensive local and world application of the specified fiber has provided valuable design experience related to composite fiber-concrete interaction, full scale testing data, and other results that have been used to connect the design theory with in-situ performance. It is the opinion of the District and the Engineer of Record that to seal a design that uses a product that does not offer the same demonstrated level of practical application and data certainty would be professionally unacceptable.

PRODUCT APPLICATION

The DST contractor has subcontracted with the same segment manufacturer that supplied the segmental liner for the ECT project. This manufacturer has considerable experience with the production of segmental tunnel lining; however, they have no experience with the proposed fiber alternative. Batching and uniform distribution of the steel fibers in the concrete mix is a critical step during manufacturing, and the custom production facility utilizes a proprietary system that has been specifically designed to handle and disperse the specified fibers and those used on the ECT project.

Aside from the profile differences between the fibers, packaging variances and batching requirements would require modifications to the production facility. These modifications, unknown until full scale manufacturing would begin, potentially include changes to the concrete curing times and form stripping strengths. Any changes to these parameters will impact the assembly line production cycle which can result in changes to manufacturing cost, schedule, and potentially the quality of the final product.

COMMERCIAL IMPLICATIONS

While the AIS provisions were included in the Project's contract, and it is understood that the contractor accepted these provisions as a condition to awarding the contract, it is unreasonable to assume that the contractors have the ability to survey the entire US market for any new or alternative product lines that are produced domestically during the time of bid. The District promoted the Project in trade magazines during the design phase, at a major industry trade show in advance of bidding, and further advertised the Project in construction bid publications and the newspaper. This provided substantial time and opportunity to promote an alternative product at the proper time during design and pre-bid.

This project is a critical component in the District's capital plan as it relates to meeting the Consent Decree milestones established with the United States EPA and US Department of Justice. Submittals for the precast concrete segments are currently being assembled and issued by the contractor, and the schedule anticipates full-scale production to begin this summer by July 2015. Production of the segments is on the critical path for the Project, so a delay to this activity would inevitably delay the date when the tunnel can be put in to service – potentially jeopardizing the deadline established in the Consent Decree and delaying the opportunity to capture millions of gallons of CSO from being discharged directly to the environment. The Consent Decree stipulates fines for non-compliance which would add to any commercial exposure of the Project.

This Project has been procured under Ohio's public competitive bidding laws, and changes subsequent to the taking of bids have potential to result in commercial claims. The magnitude and

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full extent of such claims are impossible to forecast at the present, however, the potential is high since the tunnel lining is a vital component to the Project.

As the District is subject to the Ohio Public Records Act, the contractor and the segment manufacturer have access to the District's and the Engineer of Record's statements that the District does not consider the proposed fiber alternative to be "or equal" to the fibers specified in the District's contract documents. Segments manufactured using the specified fibers have a long track record of ensuring consistent composite fiber-concrete performance during production, handling, installation and long-term durability. The required manufacturing time, control of cracking during shipment or during install, concentricity issues, misalignment issues, fracture of the segments during TBM thrusting off of the segments, squatting before or after grouting and cracking during the warranty period are all well understood and have been accounted for in design and previous manufacturing using the specified fiber. The District, the Engineer of Record, the contractor and the overall tunnel construction and segment manufacturing community do not have any previous experience with the alternate fiber.

By specification the contractor has agreed to place his bid into escrow (escrow documents) and to the provision of a Dispute Resolution Board (DRB). In the case of claims that cannot be successfully settled prior to the DRB claim resolution process, the District and the DRB may remove the bid documents from escrow and use them to understand the basis of the contractors bid. The basis of the bid would be compared to the current state and production rate of the construction as well to the rate of other previously completed similar projects (the Districts ECT tunnel). Variances in production rate or performance and quality involving the composite segments that contributed to the basis of claim can be more easily interpreted by experts in claim situations when the composite segments are manufactured with the specified fibers which are the standard of the industry. This will not be the case with composite segments manufactured with non-specified fibers.

The schedule for the fiber technical submittal is June. If the waiver is not granted, the District may be required to review the non-specified fiber technical submittal. By EPA's own admission, the non-specified fiber manufacturer has been reticent in supplying information to EPA to substantiate their position of an "or equal" to the fibers specified in the District's contract documents. If the required information is missing or not fully supplied during the technical submittal review phase in a timely manner or does not meet the technical aspects of the requirement, it is likely that one or more resubmittals may be required and ultimately a rejection may result. Rejection is a high probability since, as stated previously, it appears that the alternative fiber has not been used in the same technical role in a segmentally lined tunnel and its short- and long-term performance characteristics have not been established and documented. If a submittal rejection were to occur, then a submittal of the specified fibers would be necessary. As the critical path of the project is essentially the construction of the tunnel and the segment production is a part of that critical path, the extended timeline associated with an alternative fiber submittal rejection and a submittal and approval of the specified fiber would delay the critical path. This delay could potentially provide the contractor sufficient case to seek a compensable extended overhead claim.

Additional commercial impacts of an extended construction schedule and the resulting defense of contractor claims are the direct labor and indirect costs associated with utilizing consultants, including engineers and lawyers, and the District's additional labor and overhead costs of its engineering staff.

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A delay to the completion date of the tunnel can jeopardize the Consent Decree date for tunnel completion and activation. The Consent Decree stipulates fines for non-compliance, which would be added to any commercial exposure under the project.

PUBLIC INTEREST

Expenditures on a project to cover claims is by definition a public interest issue in that additional costs will be added to a project with no additional value brought to the rate payer. Additional costs to the District contribute to increased sewerage rates to customers as well as a decrease in public services.

A delay to the completion of the tunnel will also delay the environmental benefits of having the tunnel in service. The environmental benefits at risk include overall stream and lake water quality, public and private beach cleanliness and restoration of the wetlands that have been disturbed at the tunnel mining site. Restoration of the wetlands needs to occur in certain seasonal periods. It is unknown if a tunnel completion delay would push the restoration of the wetlands into a different season, thereby delaying that restoration timeline until the next allowable restoration season. Any extra delay due to seasonal restoration concerns could even further inflate a claim of extended overhead.

A delay to the completion of the tunnel will also require that the District's mining site (which is located in a residential area) remain functional for a longer period of time. A longer construction period will result in construction traffic and noise for a longer period of time in the residential area.

In closing, the District and the Engineer of Record do not consider this product an "or equal" to that specified. For the numerous reasons stated above we look forward to the timely processing of the waiver document.

Sincerely,

James D. Bunsey, PE
Director of Engineering and Construction
Northeast Ohio Regional Sewer District

cc: K. Rotunno D. Lopata D. Gabriel R. Auber J. Jones NEORSD
B. Pintabona M. Vitale B. DiFiore MWH/HMMJV
File

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