

September 25, 2020

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Oregon Department of Environmental Quality  
475 NE Bellevue, Suite 110  
Bend, OR 97701

Re: Scope of RTO Source Testing Requirements  
NC #32430

Dear Mr. Bailey:

AmeriTies West LLC (AmeriTies) received your letter dated June 3, 2020 and approving our Notice of Construction application for construction of an enclosure around our retort doors and associated Regenerative Thermal Oxidizer (RTO) to destroy VOCs captured within this enclosure. Condition 6 of that approval letter contained several requirements for testing of the RTO including the directive to perform "Sampling for air toxics required to complete the Cleaner Air Oregon emission inventory and analysis." On June 30, 2020, our consultant, Maul Foster & Alongi (MFA) sought clarification on those requirements and later that day Thomas Rhodes sent MFA an email proposing the testing that DEQ would like to occur. The basis for some of that testing is clear, but we have concerns over other aspects. This letter outlines our thoughts based on review of the June 30 email. We note that testing is required within 3 months of completing startup. We anticipate completing starting up the new system in October or November and so anticipate completion of testing in the fourth quarter of this year or first quarter 2021. Therefore, we would like to finalize the scope of testing shortly so that we are able to obtain proposals and get our testing on the testing company's schedule.

### Specific Comments

We reproduce each of the requests below and note our comments and responses immediately thereafter.

- 1. PAH testing needs to be done at the inlet and outlet of the RTO to determine PAH specific removal efficiencies and to determine if any PAHs are produced in the RTO. PAH analyte list should include the PAH and PAH derivatives in OAR 340-245-8020 Table 2. Modified Method 23 may be used for this sampling.*

AmeriTies respectfully objects to the request to perform inlet and outlet testing for PAHs (as opposed to just outlet testing). Performing inlet and outlet testing adds significant expense



and complication while providing no information that can or will be used as part of demonstrating compliance with any requirements. AmeriTies proposes to perform inlet and outlet testing for VOCs (Method 25A) so as to validate the Destruction and Removal Efficiency (DRE) identified in the NOC application. No DRE was provided by the RTO manufacturer specific to PAHs individually or as a group and no commitment was made in the application. Therefore, there is no basis to require DRE testing for PAHs. AmeriTies proposes that it test PAHs on the outlet of the RTO and so the information needed to complete the Cleaner Air Oregon emissions inventory will be generated. Consistent with that proposal, we ask that the request for inlet PAH testing be dropped.

2. *Dioxin/Furan analysis needs to be included with the outlet PAH sampling due to the potential formation of D/F in the RTO.*

AmeriTies respectfully objects to the requirement to perform dioxin and furan testing of the RTO exhaust because this testing is extremely expensive, requires long test run times and there is no reasonable basis to conclude that dioxins or furans will be emitted. Dioxins and furans represent a collective group of organic compounds containing one to eight chlorine atoms. Dioxins and furans are known to form in the temperature range between 400°F and 700°F in the presence of chlorine.<sup>1</sup> AmeriTies' maximum treatment cycle temperature is approximately 210°F, and the proposed RTO operating temperature is approximately 1,500°F. As the retorts are opened, the retort exhaust (i.e., headspace) will be captured by a collection hood and routed through ductwork into the RTO combustion chamber where the exhaust temperature will quickly accelerate, spending essentially no time in the dioxin and furan formation temperature range. Also, the proposed RTO will exhaust through a heat recovery system and vertical stack directly to atmosphere. As a result, the exhaust gas will rapidly quench (i.e., go from approximately 1,500°F to ambient temperature within seconds). Use of rapid quenching has been shown to minimize dioxin and furan formation.<sup>2</sup> Both the operating (treatment cycle and proposed RTO) temperature range and rapid quenching should ensure avoidance of dioxin and furan formation at the facility, highlighting that testing is not necessary.

As mentioned above, the proposed RTO will operate at 1,500°F. Effective destruction of dioxins and furans can be achieved at temperatures exceeding 1,100°F.<sup>3</sup> As a result, should dioxins and furans be present in the exhaust stream, the proposed RTO combustion temperature will ensure efficient degradation prior to emitting to atmosphere. It is also important to note that there is no identifiable source of chlorine (allowing for the potential formation of dioxins and furans and the presence of hydrogen chloride) emitted from the retort headspace. Site-specific liquid sampling

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<sup>1</sup> USEPA. February 1996. Draft Technical Support Document for HWC MACT Standards. Volume IV: Compliance with the Proposed MACT Standards. Available at [https://archive.epa.gov/epawaste/hazard/tsd/td/web/pdf/v4\(2\)a.pdf](https://archive.epa.gov/epawaste/hazard/tsd/td/web/pdf/v4(2)a.pdf). Accessed Sept. 10, 2020.

<sup>2</sup> *Id.*

<sup>3</sup> Lundin, L., and S Marklund. 2005. Thermal Degradation of PCDD/F in Municipal Solid Waste Ashes in Sealed Glass Ampules. *Environmental Science & Technology*. 39(10):3872-3877.



and safety data sheets representative of the treatment solutions used at the facility reveal no sources of chlorine-based chemicals. For the wood preservation industry, use of pentachlorophenol treatment solutions (i.e., a chlorine-based treating solution) represents a potential formation pathway for dioxins and furans. AmeriTies uses blends of creosote and slurry oil, and copper naphthenate treatment solutions only, and does not utilize pentachlorophenol treatment solutions.

The Washington State Department of Ecology examined the theory that an RTO could emit dioxins and furans as a part of a Tier I review for the Pasco Sanitary Landfill. Ecology found no evidence that dioxins and furans might be formed by the RTO to warrant permit limits or emissions testing.<sup>4</sup> The important aspect for the Ecology determination was that the RTO the RTO exhaust stream is rapidly quenched below the dioxin and furan formation temperature range. Ecology found that the RTO heat recovery system rapidly reduced the exhaust temperature, which is then further reduced upon exhausting to ambient air. The RTO being constructed at our facility is similar in design and operation to the RTO reviewed by Ecology. As a result, we respectfully request that DEQ follow the determination by Ecology and not require testing for dioxins and furans.

*3. HCl testing will need to be included on the outlet of the RTO.*

As mentioned above, there is no identifiable source of chlorine to allow for the presence or formation of hydrogen chloride emitted from the retort headspace. Site specific liquid sampling and safety data sheets for the treatment solutions used at the facility document the absence of chlorine-based chemicals. For the wood preservation industry, use of pentachlorophenol treatment solutions (i.e., a chlorine-based treating solution) represents a potential formation pathway for hydrogen chloride. AmeriTies does not utilize pentachlorophenol treatment solutions and so this pathway is not present. Therefore, we respectfully request that DEQ not require testing for this chemical.

*4. If Permanent Total Enclosure cannot be demonstrated, then the actual capture efficiency will need to be determined.*

AmeriTies anticipates demonstrating as part of the initial performance test that the controlled area meets the criteria for a permanent total enclosure.

*5. Perform testing while using P1/oil for both empty cell runs and green wood runs*

Our normal treatment process is empty cell treatment. Green wood runs (known as Boultonizing, or full cell treatment) are comparatively rare. Our normal daily operating scenario is to run four of our cylinders empty cell with creosote and, at most, one cylinder per day empty

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<sup>4</sup> Washington Department of Ecology. October 27, 2016. Technical Support Document for Synthetic Minor No. 16AQ-E031 Approval Order. Available at <https://fortress.wa.gov/ecy/gsp/DocViewer.ashx?did=62557>. Accessed Sept. 9, 2020.



cell of copper naphthenate. We rarely perform Boultonizing runs and when we do, it is only in one cylinder. Therefore, it is not practical to isolate emissions from a Boultonizing run. Furthermore, we do not anticipate any difference in the emissions between the two types of runs as both involve the same creosote formulation and the charge characteristics at the time that the retort door is opened are essentially the same. As a result, the emissions profile should not differ. Therefore, we propose that testing occur during our normal operating scenario of operating four cylinders on creosote, empty cell and, as explained below, one cylinder on copper naphthenate, empty cell.

6. *Perform testing while using copper naphthenate for both empty cell runs and green wood runs*

We only have the ability to run copper naphthenate in one cylinder (No. 3) and that cylinder is run, at most, once per day. Copper naphthenate is typically run empty cell; we rarely run the copper naphthenate cylinder full cell. It is not feasible for us to just treat one cylinder of copper naphthenate to isolate emissions from that process. However, because cylinder 3 is the only cylinder that can run copper naphthenate and it is dedicated to that treatment chemical, that should not be necessary. Therefore, we propose that testing occur during our normal operating scenario of operating four cylinders on creosote, empty cell and one cell on copper naphthenate, empty cell. That will present a realistic worst case emissions scenario.

Please let me know if you have any questions after reviewing this letter. We appreciate the ability to work collaboratively with you as we define the appropriate testing to be performed. Revising the scope of testing consistent with this letter should generate the data required for demonstrating compliance with the construction approval, improve our Cleaner Air Oregon inventory, and save roughly \$100,000 in testing costs. We trust that you will agree that the proposed approach is practically and technically sound.

Sincerely,



Jeff Thompson  
President  
AmeriTies Holdings LLC

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