



Proposed Reworld Tulsa Facility Regulated Medical Waste Project

Frequently Asked Questions

What is Reworld Tulsa proposing to do at the Tulsa Facility?

Reworld Tulsa is proposing to receive and process a limited subset of regulated medical waste (RMW) at the Tulsa Facility. The total amount of RMW would be limited to less than 10% of the permitted capacity of the facility and the waste will be subject to additional quality assurance and safety measures to protect the facility employees. A new, automated waste handling and feed system will allow for the sealed and separated RMW to be safely handled and processed at the facility.

Why is Reworld Tulsa seeking this permit change?

We are making the change to bring much needed local regulated medical waste (RMW) treatment capacity to Oklahoma. Today, locally generated RMW ships around the country to facilities hundreds of miles away or more. The Tulsa Waste-to-Energy Facility (Tulsa Facility) is a Thermomechanical Treatment Facility (TTF) that utilizes high temperature technology that has been industry proven for decades to process this material in an environmentally sustainable way. The Tulsa Facility can help meet this need while being protective of human health and the environment.

What exactly will the Tulsa Facility be processing?

Reworld Tulsa would process non-hazardous RMW approved by the Oklahoma Department of Environmental Quality (ODEQ) at the Tulsa Facility. The permit application includes the regulatory definition of non-hazardous RMW, along with Reworld Tulsa narrowly defined proposed acceptable RMW, primarily including:

- Surgical waste (gloves, gowns, sponges, tubes, and surgical equipment)
- Used and unused sharps
- Small sample vials or used bandages and gauze
- Renal dialysis waste (tubes and bags)
- Small tissue waste from laboratory procedures—slides and petri dishes
- Trace chemotherapy waste (trace amounts of less than 3%—bedding, tubes, IV bag, and gowns)
- Non-hazardous pharmaceutical waste (vials, IV bags, and tubes)
- Expired vaccines
- Pharmaceutical products and medical devices that contain a sharp

What RMW items will not be processed at the Tulsa Facility?

Items identified as unacceptable RMW in the permit applications submitted to ODEQ and thus will NOT be processed at the Tulsa Facility include:

- Human fetal tissue
- Any type of RMW generated by or originating from an outpatient medical facility or clinic that provides abortion services
- Large Pathological Waste (for example, torsos, heads, or large animal carcasses)
- Bulk chemotherapeutic waste. Only regulated medical waste, including drug bottles, containers, syringes, etc., with trace amounts of less than 3% of chemotherapeutic waste that are considered "empty" by law and will be acceptable for disposal at the Tulsa Facility)
- RCRA hazardous waste pharmaceuticals, universal waste, aerosols, or radioactive waste

For a complete list of proposed acceptable and unacceptable RMW, please see our Solid Waste permit application which can be accessed under "Tulsa County" at on the ODEQ's website at: [Permit Public Participation Process - Oklahoma Department of Environmental Quality](#)

How much regulated medical waste will the facility process? Are you expanding the facility?

We are not expanding the facility. The overall permitted facility processing throughput will remain the same. The RMW would displace other approved waste streams, such as non-hazardous commercial and light industrial special wastes that it currently processes. We have requested a change to the facility's permit to process no more than 40,000 tons per year of non-hazardous RMW, less than 10% of the facility's existing permitted waste throughput rate. Reworld has proposed adding a building for the automated waste handling system within the existing site boundary of the Facility.

Is it safe to process RMW at a Thermomechanical Treatment (Waste-to-Energy) Facility?

Yes, Thermomechanical Treatment (Waste-to-Energy) technology presents a safe and efficient solution to manage RMW and is accepted as a treatment technology by the U.S. EPA, and the states of Florida, Alabama, and Oregon.

TTFs are recognized as effective because they achieve a sufficiently high temperature (fuel bed temperatures of 2,000° F to 2,800° F) to ensure that pathogens are destroyed, and they have sophisticated air pollutant control systems that remove air pollutants. We have over 30 years'

experience managing RMW at the TTFs we operate in Marion County, Oregon; Lake County, Florida; and Huntsville, Alabama.

Furthermore, we are taking important steps to minimize any chance of direct contact with RMW materials. We are investing in a state-of-the-art automated waste handling and feed system for the RMW. This equipment, coupled with additional receiving, handling, and processing requirements, serves to safeguard and protect both our employees and the public.

Is RMW more toxic than regular waste?

No, RMW is made of the same kinds of materials that are commonly found in regular household trash. In fact, regulations on what can be put into RMW are much more restrictive than what is permitted for households. The types of waste being processed as RMW are already present in our municipal waste stream, for instance, band aids, gloves, gowns, sponges, and IV bags from home health.

Given the long history of processing RMW at our Marion County, Oregon TTF, we have extensively studied our emissions data to see if there is any impact from processing RMW. After a careful statistical review of air emissions testing conducted between 2011 and 2021 while combusting RMW, we found no correlation between how much RMW was processed alongside MSW and emissions. We have provided our analysis to the Oklahoma Department of Environmental Quality (ODEQ) as part of our permit application, located online: [Permit Public Participation Process - Oklahoma Department of Environmental Quality](#).

Will Tulsa Facility employees handle this material? What safeguards are in place?

Reworld has developed Standard Operating Procedures for the acceptance and processing of RMW. The planned automated system will move the packaged regulated medical waste material from its receipt warehouse onto the handling system which conveys the waste to the combustor feed system so that minimal interaction with employees is required. This equipment is in addition to the mandatory personal protective equipment and “no-touch” procedures followed at Reworld’s facilities processing RMW. Reworld’s Thermomechanical Treatment (Waste-to-Energy) facilities in Lake County, Florida; Marion County, Oregon; and Huntsville, Alabama have been successfully processing RMW for many years, and we will apply best practices from those locations to the program at the Tulsa Facility.

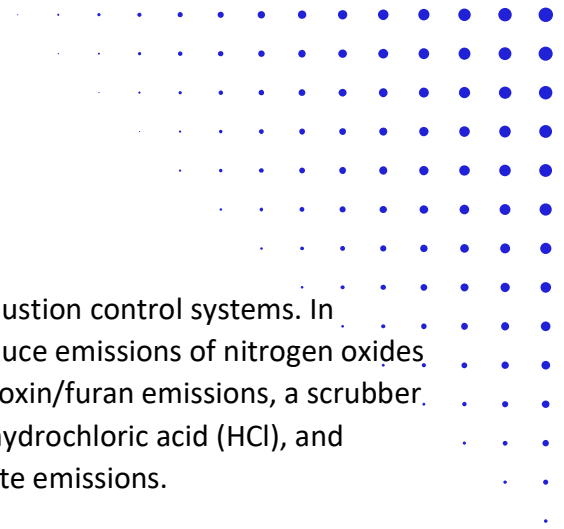
How will you ensure that only acceptable medical waste will be processed at the facility?

Reworld already has a robust quality control program that it uses to profile the special wastes before the material is shipped to the facility and to confirm that the delivered wastes are consistent with the approved profile. These processes ensure that the waste processed at the facility is consistent with the facility's waste acceptance policies. Our agreements with our customers give us the right to inspect any upstream customer's facility that receives, processes, or consolidates RMW that will be delivered to the Tulsa site. We have an audit program whereby our customers' sites are inspected as part of the initial approval process and again thereafter if deemed necessary.

All shipments of RMW will be inspected at the scale-house upon delivery to the Tulsa Facility. Trained personnel will review each RMW shipment, the shipping documents, along with the generator approved RMW list to minimize risk of receiving material inconsistent with our RMW program. RMW deliveries are not offloaded until all required generator-signed shipment documents, including the Reworld Facility Medical Waste Certification, are received at the facility. Discrepancies to Reworld's Standard Operating Procedures are recorded by QA/QC staff which then triggers customer notification and corrective action. Depending on the severity of the discrepancy, it may trigger a load rejection, customer suspension and/or automatic site inspection.

Will this change increase emissions from the Tulsa Facility?

No. The basic materials in RMW, including plastics, metals, fabrics, paper, unused pharmaceuticals are similar to what is in regular household trash. The Lake County, Florida; Marion County, Oregon; and Huntsville, Alabama TTFs have been processing RMW for many years, and there has been no discernable effect on emissions. Continuous emissions monitoring and stack testing at these facilities, conducted while combusting regulated medical waste, has demonstrated that the emissions at the facilities have continued to be much lower than the permit limits.



How do you address air pollution?

The Tulsa Facility is equipped with state-of-the-art waste combustion control systems. In addition, we use selective noncatalytic reduction (SNCR) to reduce emissions of nitrogen oxides (NO_x) activated carbon injection for minimizing mercury and dioxin/furan emissions, a scrubber for neutralizing acidic gas emissions (i.e., sulfur dioxide (SO₂), hydrochloric acid (HCl), and hydrofluoric acid (HF)), and fabric filters for capturing particulate emissions.

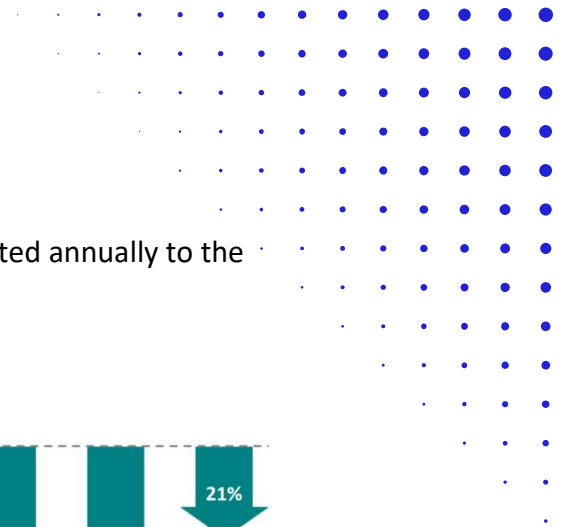
How does the facility monitor emissions?

The Tulsa Facility monitors its emissions both through annual stack tests and continuous emissions monitors (CEMS) as required by its air quality permit and related federal and state air emissions standards. The annual stack tests set certain operating parameters, including the rate of steam production and air pollution control equipment parameters, that become operational requirements until the next stack test. that the CEMS operate continuously, 24 hours a day, 7 days a week, 365 days a year, monitoring emissions and the combustion units and air pollution control systems. We continuously monitor opacity (a measure of particulate matter), nitrogen oxides, sulfur dioxide, and carbon monoxide. The monitoring requirements ensure that the facility is operated consistently and in compliance with its air quality permit.

What are the emissions from the Tulsa facility?

The air pollution control technologies employed by Reworld at the Tulsa Facility combine to achieve emission levels well below regulatory and permitted emission limits. Over the past five years, the Tulsa TTF has operated up to 99.3 percent below its permitted limits. You can see a summary of our emissions performance for 2023 [online here](#), and we also post a report on our daily emissions performance [here](#). Approximately 99.9+% of the facility's emissions are normal components of ambient air, including water vapor, nitrogen, and oxygen – all after passing through our emissions control systems.

The monitoring systems described above ensure we comply with permit limits. The Tulsa Facility is subject to 271,560 different overlapping compliance periods every year. In 2023, our compliance rate was 99.6 percent with continuous emissions monitoring standards, and we had a 100 percent compliance rate for our stack tests.



The facility’s emissions and compliance performance are reported annually to the state agency and are also available on the facility website:

[Tulsa | Reworld \(reworldwaste.com\)](https://www.reworldwaste.com).

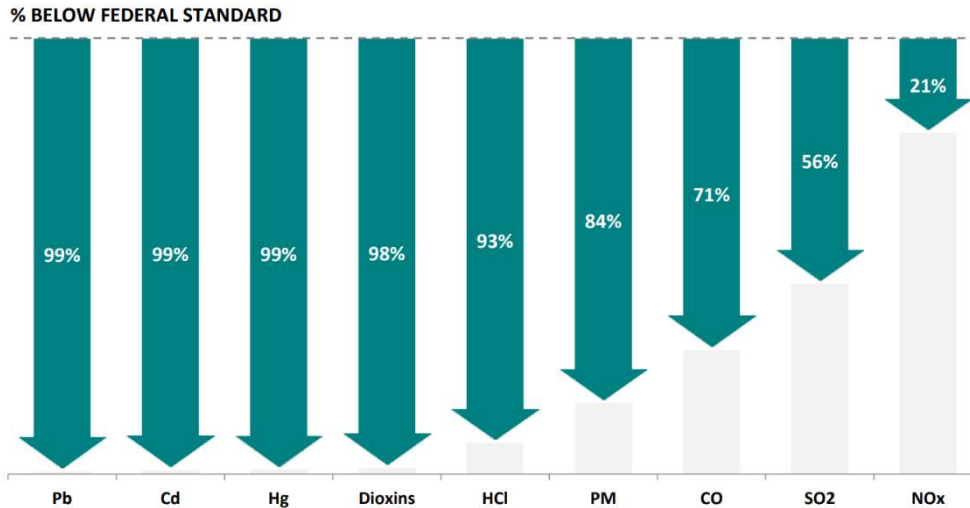


Figure 1 – 2023 Facility Performance Relative to Federal Standard

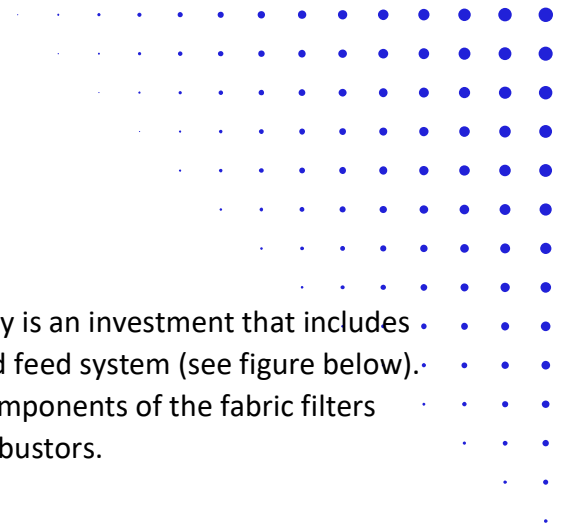
Isn't Thermomechanical Treatment (Waste-to-Energy) an old technology?

While humans have been combusting their waste for centuries, TTF is modern technology. The combustion process is managed by highly trained and certified operators who monitor the waste processing system, steam generation, and the air pollution control data to ensure compliance with regulatory standards. These standards have been demonstrated to be protective of human health and the environment.

Similar technology is used extensively worldwide, with over 1,200 facilities installed in Europe and Asia processing 275 million tons per year (TPY), including in leading, sustainable countries like Sweden, Austria, Germany, and Switzerland.

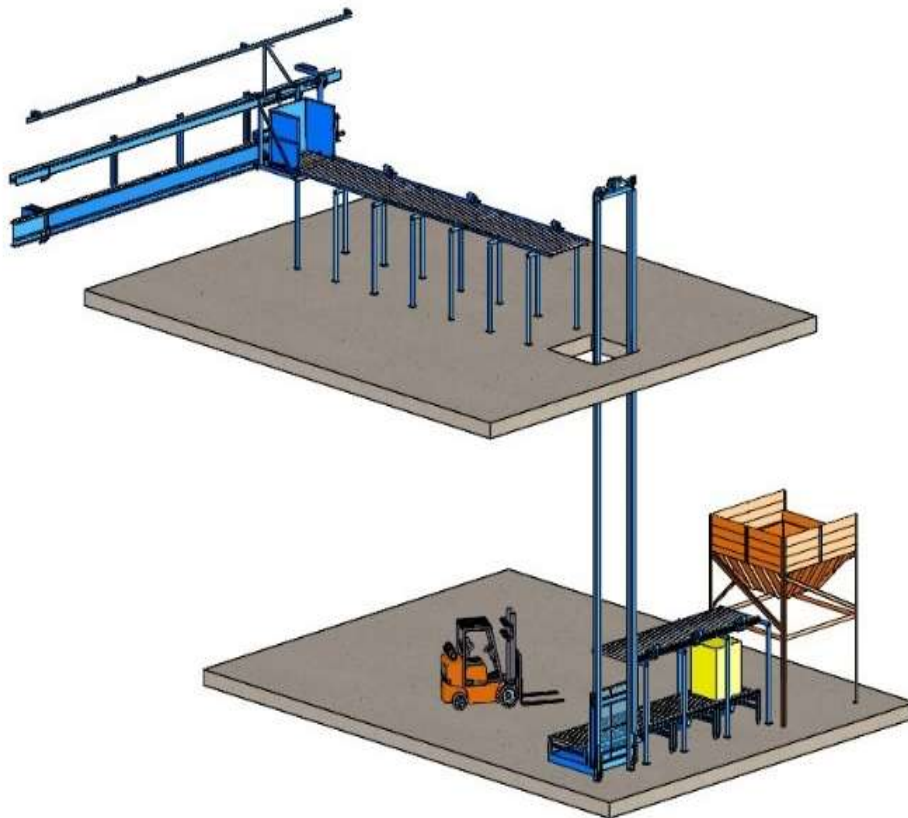
Is the Tulsa Facility at the end of its life?

Thermomechanical Treatment (Waste-to-Energy) Facilities, like the one in Tulsa, can run for 50 years or more with proper maintenance. Reworld has developed and continues to improve upon its robust maintenance programs to ensure all facilities remain a safe place to work and waste processing remains consistent and compliant with facility permits and quality assurance practices.

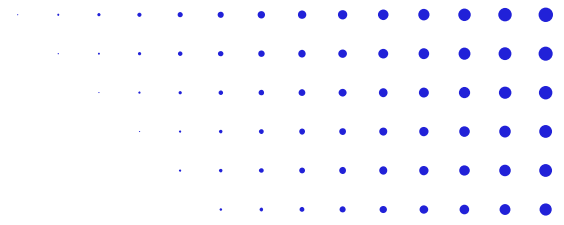


What investments are you making in the Facility?

Adding RMW as an allowable waste stream for the Tulsa Facility is an investment that includes the installation of the proposed automated waste handling and feed system (see figure below). Reworld Tulsa is in the process of replacing (in kind) various components of the fabric filters and scrubbers which control air emissions from the waste combustors.



Example Automated Feed System Schematic, from forklift delivery to bins on a conveyor system, to an elevator delivery, to a conveyor belt above the combustor feed grate, and then return of reusable bins to the starting point.



What benefits does the Thermomechanical Treatment Facility (Waste to Energy) bring to the local economy?

Over the next 15 years, the Tulsa facility will return \$140 million of direct wages and benefits for the local community. In addition, we spend approximately \$20 million annually at the facility on equipment, supplies, and services, most of which is within the local economy. Over the next 15 years, we estimate that the facility will return \$800 million to the Tulsa region economy.

Are there any environmental benefits of this technology for processing RMW?

TTFs present a safe and secure method to destroy RMW and provides many environmental benefits. After the waste is fed into the combustors, the elevated temperature and long residence time ensure that the pathogens are destroyed and pose no harm to the public. Compared to traditional RMW incinerators, TTFs have several important advantages:

- *Location.* TTFs can be closer to the point of generation, reducing the impacts from transportation,
- *Energy Recovery.* The Tulsa Facility recovers energy in the form of steam for use, displacing the need to burn fossil fuels, and
- *Metal Recycling.* The Tulsa Facility recovers and recycles ferrous and non-ferrous metals contained in MSW and RMW from the ash stream generated at the Facility.

Will there be more trucks on local roads?

No, the Tulsa Facility does not anticipate any impact on local traffic due to this change. As previously mentioned, the Tulsa Facility is requesting a permit change for the type of waste that the facility may accept, not an increase in the permitted waste processing rate.

How will RMW be transported to the Facility?

The United States Department of Transportation (DOT) is the governing body that develops and enforces the regulations for the safe transport of RMW. Regulated medical waste generated at local hospitals is currently transported within the City of Tulsa. The RMW delivered in containers to the Tulsa Facility will be transported by haulers licensed by the DOT as is legally required. All transport vehicles must be properly labelled and equipped with spill cleanup equipment for use in the unlikely event of an accident resulting in a spill.

For additional information about Reworld please visit <https://www.reworldwaste.com/>