South Coast
Air Quality Management District
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November 15, 2017
Via email

Ms. Jane Williams
Executive Director
California Communities Against Toxics

Mr. Jesse Marquez
Executive Director
Coalition for a Safe Environment

Ms. Cynthia Babich
Executive Director
Del Amo Committee

Ms. Robina Suwol
Executive Director
California Safe Schools

Ms. Magdalena Guillen
Director
Paramount Community Against Toxics

Re: Proposed Permit for Medical Waste Services, Facility ID 164820 (A/N 583623)

Dear Ms. Williams, Mr. Marquez, Ms. Babich, Ms. Suwol, and Ms. Guillen:

Thank you for your letter regarding the proposed permit for a medical waste destruction and air pollution control system for Medical Waste Services expressing concerns. The SCAQMD appreciates and values your input. Your interest and willingness to express your concerns, in response to the public notice for the above-referenced project, is the type of citizen involvement that is critical to the effort to achieve healthful air quality in Southern California.

The proposed permit describes the equipment as a batch process medical waste destruction and air pollution control system, consisting of a pyrolysis chamber, process blower, cold plasma chamber, holding chamber, and exhaust stack. We believe you are referring to the equipment description "miscellaneous, reaction" from our Facility Information Detail (FIND) program (which is a facility information search tool). The FIND equipment description is basically an abbreviated description primarily for internal use and categorization. The FIND equipment description does not dictate the permit equipment description.

Based on our evaluation, we have determined that the Medical Waste Services equipment is a pyrolysis unit and not an incineration unit. We agree that the final Hospital/Medical/Infectious Waste Incinerators NSPS (40 CFFR Part 60, Subpart Ec) defines pyrolysis as "the endothermic gasification of hospital waste and/or medical/infectious waste using external energy." We further agree that as indicated in the Preamble of the final Hospital/Medical/Infectious Waste Incinerators (HMIWI) NSPS (40 CFFR Part 60, Subpart Ec), "Pyrolysis technology is different from conventional incineration. Because air is generally not used in the pyrolysis treatment process, the volume of exhaust gas produced from pyrolysis treatment

is likely to be far less than the volume of gas produced from the burning of waste in an HMIWI." The proposed Medical Waste Services permit unit meets this description.

The proposed technology does not use air in the treatment process. After waste is placed in the chamber, the chamber is sealed. The chamber is evacuated for approximately 2 minutes to remove air/oxygen from the chamber prior to heating or processing the waste to prevent incineration/combustion (revised permit condition no. 26). Furthermore, natural gas burner exhaust is introduced into the chamber to drive off any remaining gases inside the chamber. The natural gas burners have a manufacturer set, non-resettable sub-stoichiometric (air lean) air to fuel ratio to ensure air is not introduced into the chamber (revised permit condition no. 14). Therefore air is not used in the treatment process and as a result the volume of gas produced from the treatment process is far less than the volume of gas produced from burning waste in a HWIWI. As such, the permit unit meets the definition of a pyrolysis unit.

The determination indicated in the correspondence dated February 2, 2000 from Stephen Rothblatt, Chief, Air Programs Branch to Paul Dubenetzky, Chief, Permits Branch, Office of Air Management, Indiana Department of Environmental Management is specifically regarding the Packed Tower Pyrolysis System™, not the system in the proposed permit for Medical Waste Services, although we agree that the correspondence identifies the key differences between pyrolysis and incineration: "The first being that pyrolysis technology is an endothermic reaction (absorbs heat), while combustion is an exothermic reaction (releases heat). Second, pyrolysis occurs in the presence of an insignificant amount of oxygen. Third and finally, pyrolysis has an external energy source."

The pyrolysis treatment process in the Medical Waste Services equipment is an endothermic process which absorbs heat, as heat is not released from the pyrolysis process. This is evidenced by the temperature profile of the pyrolysis chamber, which demonstrates that the temperature decreases when the chamber is not being heated, and the pyrolysis chamber temperature does not increase (or release heat) when it is not being heated. The pyrolysis treatment process occurs in the presence of an insignificant amount of oxygen, as described in the response above. The proposed permit unit also has an external energy source, which are natural gas burners that do not come into contact with the waste being processed. Similarly, as indicated in the correspondence dated February 2, 2000, air is removed from the chamber prior to heating or processing the waste, thereby preventing the reaction of the waste material with oxygen and instead gasifying the waste endothermically. The energy used to gasify the waste material comes from the heat supplied by the natural gas burner exhaust. The proposed permit contains conditions (revised permit condition no. 27) that do not permit gases to enter the pyrolysis chamber during the treatment cycle, except for exhaust gases from the sub-stoichiometric (air lean) air to fuel ratio burners. Operating procedures dictate that air can only enter the pyrolysis chamber after the treatment cycle has finished (post-pyrolysis) and the system is being cooled down.

As indicated previously, the correspondence dated February 2, 2000 provides recommendations specific to the confidential design of the Packed Tower Pyrolysis System™. The recommendations reflect concerns of the variable air to fuel ratio of the pre-combusted natural gas in the chamber prior to waste processing because of concerns that the particular unit may have air intrusion. The specific monitoring parameters (air-to-fuel ratio, O2 level, and chamber pressure), named in your letter, were important to that specific evaluation to ensure the unit did not have air intrusion, but are not intended to be applied to all pyrolysis units. We believe that the operational procedures of the Medical Waste Services pyrolysis unit identified above, which include evacuating the sealed pyrolysis chamber of air prior to heating and driving off remaining gases with burner exhaust from a manufacturer set sub-stoichiometric non-resettable air to fuel ratio natural gas burner, adequately ensure there is an insignificant amount of air in the pyrolysis process and ensure the unit will operate as a pyrolysis and not an incineration unit. Namely operational procedures ensure that the unit operates as (1) an endothermic reaction, with (2) an insignificant amount of oxygen, and (3) has an external energy source. Furthermore, specific monitoring parameters could not apply here because oxygen or air to fuel ratio monitoring instrumentation would not

properly function in this specific chamber. Even if it were possible, the chamber is not designed for combustion operating parameters in the first place and the air to fuel ratio of the burners is set by the manufacturer and cannot be changed.

With regards to your comment regarding the Public Resources Code Division 13, Chapter 14, Section 21151.1, Medical Waste Services has chosen to revise and limit the processing throughput limit to less than 3,000 pounds per day of medical waste to qualify for an exception to the mandatory Environmental Impact Report requirement. A California Environmental Quality Act (CEQA) evaluation was conducted, and a Health Risk Assessment was prepared, to ensure there was no reasonable possibility that the project could have a significant impact on the environment.

In addition, the proposed permit is subject to Rule 1401, which also requires a health risk assessment. Specifically, a Tier 4 health risk assessment was conducted which uses stochastic risk and site specific details. Please see the Health Risk Comparison Table below for the Tier 4 health risk assessment results. Specifically, our analysis showed that even at the maximum emission levels, the calculated Cancer Risk and Hazard Index values for both long term (chronic) and short term (acute) non-cancer health impacts are well below the established health protective risk limits in SCAQMD Rule 1401, New Source Review of Toxic Air Contaminants. The Cancer Risk is more than 15 times below the rule threshold. The Acute Hazard Index and Chronic Hazard Index are more than 100 times and 60 times below the rule threshold, respectively. The Reference Exposure Levels (REL) used in calculating the Hazard Index values are based on health protective values and include safety margins designed to protect the most sensitive individuals in the population. The health risk calculations are determined by state experts from the California Office of Environmental Health Hazard Assessment.

Health Risk Comparison Table

	Tier 4 Health Risk Assessment Results	**Rule 1401 Thresholds**
Cancer Risk (MICR)	0.58 in a million	10 in a million
Cancer Burden	N/A, as MICR is less than 1 in a million	0.5
Acute Hazard Index (HIA)	0.00948	1.0
Chronic Hazard Index (HIC)	0.0159	1.0

In order to determine whether stack emissions are compliant with National Ambient Air Quality Standards (NAAQS), air dispersion modeling was conducted using the stack emissions to calculate the ambient emissions. The air dispersion modeling result of the lead stack emissions is 0.00007 $\mu g/m^3$, which is well below the National Ambient Air Quality Standard of 0.15 $\mu g/m^3$.

Additionally, we have revised the proposed permit to further clarify the operating conditions, included a more restrictive processing throughput and operation schedule, and imposed additional recordkeeping requirements. The SCAQMD's proposed permit contains strict monitoring, recordkeeping, and reporting requirements, and when granted, will allow Medical Waste Services to operate the medical waste processing and air pollution control equipment. We regularly conduct unannounced inspections to confirm that facilities operate in compliance with applicable rules and permit conditions.

Please note that the decision on the appropriateness of locating the facility at this site in Paramount, based on land use and zoning, is not within the purview of the SCAQMD. Questions regarding land use and zoning decisions should be discussed with the appropriate local planning authority, i.e. the city or county planning department. Once the local planning authority allows a facility to be located at a specific site, the SCAQMD must evaluate the project compliance with air quality rules and regulations.

In conclusion, based on our consideration of your concerns and further detailed evaluation of the proposed equipment and operation, SCAQMD has determined that the equipment will comply with all

applicable air quality rules and regulations. Therefore, SCAQMD has determined to issue the Permit to Operate.

Also, in the future, if you have any air quality complaints about odors, dust, or other air contaminants associated with a facility or operation, please call SCAQMD's 24 hour complaint number at 1-800-CUT-SMOG. Again, thank you for your concern regarding the air quality in our District. Please don't hesitate to contact Andrew Lee, Senior Air Quality Engineering Manager, at (909) 396-2643, with additional questions or concerns.

Very truly yours,

For Laki Tisopulos, Ph.D., P.E.
Deputy Executive Officer
Engineering & Permitting

cc: A/N 583623
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