



Department of Energy
Albuquerque Operations
Los Alamos Area Office
Los Alamos, New Mexico 87544

OCT 27 1988



Mr. Michael Horan
P. O. Box 2262
Taos, NM 87571

Dear Mr. Horan:

The following is provided in response to your letter of October 3, 1988 requesting information on the Los Alamos National Laboratory (the Laboratory) Controlled Air Incinerator (CAI).

1. The process carbon bed filter is installed in series with the offgas treatment train, downstream of the high efficiency particulate air (HEPA) filter banks. It is the HEPAs that are installed in parallel and which allow switching to an alternate filter bank, if required, due to excess pressure drop during system operation.
2. The Trial Burn was conducted to verify both "4 nines" destruction of Part 261, Appendix VIII compounds (40 CFR 264.343(a)(1)) and "6 nines" destruction of F027 compounds (40 CFR 264.343(a)(2)).

The primary organic hazardous constituent (POHC) used for the "4 nines" demonstration was carbon tetrachloride (CCl_4). Choice of this POHC followed accepted Trial Burn procedure of using a low heat of combustion compound (0.24 kcal/gm) under the rationale that demonstration of effective destruction of a low heat of combustion compound is valid proof of equivalent or greater destruction of compounds having higher heats of combustion. This performance was proven during the Trial Burn.

In the case of the "6 nines" destruction test, trichloroethylene (TCE) was chosen as the POHC. Choice of this compound as a surrogate dioxin precursor for Trial Burn purposes was requested by, and had the approval of the New Mexico Environmental Improvement Division (EID). Per 40 CFR 264.343(a)(2), 99.9999% destruction performance must be demonstrated on POHCs that are more difficult to incinerate than tetra-, penta, and hexachlorodibenzo-p-dioxins and dibenzofurans. TCE has a heat of combustion of 1.74 kcal/gm. Tetrachlorodibenzo-p-dioxin (TCDD) has a heat of combustion of 3.43 kcal/gm. Thus, the choice of TCE was appropriate and performance was demonstrated for this test during the Trial Burn.

3. Particulate emissions did vary between 0.0066 and 0.024 gr/dscf, corrected to 7% oxygen, during the Trial Burn. There is evidence that this was probably an inflated representation of actual process

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particulate emissions, resulting from entrainment of iron-based particulate in the offgas ductwork prior to the EPA Method 5 sample train. Inspection of the carbon steel induced draft blowers following the Trial Burn showed that they were extensively corroded. Analysis of Trial Burn particulate samples collected by EPA Method 5 sampling showed higher than expected levels of iron. These findings are consistent with the theory that entrainment of fine particulates from these corroded blowers, which were located downstream of the offgas treatment system components and upstream of the offgas sample system ductwork, was responsible for higher than normal particulate readings.

High moisture content in the offgas is undoubtedly responsible for this corrosion. This condition is not surprising since these blowers have been in service since the mid-1970's. The Laboratory has taken steps to correct this problem by replacing these blowers, which should help to reduce particulate emissions. In any case, the measured particulate levels were well within the present hazardous waste incinerator standard of 0.08 gr/dscf as required in 40 CFR 264.343(c).

Reference to a California Air Resources Board (CARB) particulate limit of 0.008 gr/dscf is misleading. This guidance is taken from a CARB evaluation of air pollution control devices entitled "Air Pollution Control at Resource Recovery Facilities (May 24, 1984), specifically, the projected performance capabilities of fabric filter (baghouse) types of particulate control. The report goes on to mention that fabric filters have "greater than 99% collection efficiency" and that, typically, particles of 2-3 microns tend to "bleed" through the filter. In contrast, HEPA filter collection efficiencies are tested and certified at greater than 99.97% for 0.3 micron particles, and thus exceed those of baghouse units.

The CARB report and its recommendations are intended to establish particulate emission guidelines for California air pollution control districts in siting new resource recovery facilities (municipal waste incinerators). They are not, per se, directed at hazardous waste incinerators, nor are any incinerator facilities located outside the State of California, municipal or otherwise, subject to these guidelines.

The EID and the U.S. Environmental Protection Agency (EPA) are the only regulatory bodies with authority over hazardous waste incinerator permitting in the State of New Mexico. The Laboratory is in compliance with the applicable guidelines of these regulatory agencies (HWMR-4, Part II, Section 206.C.10 and 40 CFR 265, Subpart 0). It is therefore incorrect to state that we are in violation of State of California guidelines, to which we are not subject or that we are in violation of State of New Mexico and EPA guidelines, to which we are subject.

4. The Laboratory has made stack gas samples for 2, 3, 7, 8-tetrachlorodibenzodioxins (TCDD) and tetrachlorodibenzofurans (TCDF) as part of a research project involving incineration of polychlorinated biphenyls (PCBs) for the U. S. Environmental Protection Agency (EPA). This test was to determine what incinerator operating conditions might favor the formation of these compounds. Results of offgas analyses by both the Laboratory and an independent analytical laboratory (Southwest Research Institute of San Antonio, Texas) were inconclusive as to the conditions necessary to produce these compounds as products of combustion from PCB incineration. In fact, results as to whether TCDD or TCDF were generated at all were inconclusive in that in no case did results from these two laboratories agree as to the presence of TCDD or TCDF when separate analyses of individual sample splits were performed. Results from offgas analyses for the presence of PCBs indicate greater than 99.9999% destruction and removal efficiency and led to the issuance of a Toxic Substances Control Act (TSCA) permit for PCB incineration in this incinerator by EPA.
5. The Laboratory has demonstrated, via the Trial Burn, that the CAI is in compliance with the 40 CFR 264.343(b) standards for HCl emissions. The CAI not only emitted less than the limit of 4 pounds/hour of HCl during this test (actual maximum emissions were 0.422 lbs/hr) but also removed more than the required 99.0% of the HCl in the offgas in all cases (actual minimum removal efficiency was 99.585%, well within the standard).

As for your request to visit the CAI, I remind you that the CAI is not operational at this time. Therefore, once the CAI is operational, we will let you and Mr. Bates know when a tour of the facility is planned so that you can visit the CAI.

I hope this information clarifies your questions and misconceptions concerning the CAI.

Sincerely,

Donna M. Lacombe

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cc:
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