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

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AIR QUALITY BUREAU

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Mr. Cubia Clayton, Chief
New Mexico Air Quality Bureau
Environmental Improvement Division
P. O. Box 968
Santa Fe, New Mexico 87504-0968

Dear Mr. Clayton:

An incinerator to burn low level waste and mixed waste (LLW/MW) is planned for Los Alamos National Laboratory. As part of this process, environmental regulations are being reviewed to ensure that the incinerator is in compliance with all applicable requirements. Two definitions may determine the applicability of the New Mexico Air Quality Control Regulations. The interpretation, by the Environmental Improvement Division, of "commence construction" and "potential emission rate" are vital to this applicability determination. We request that a determination of construction (40 CFR Section 61.06) and interpretations of these definitions as they apply to this incinerator be provided based on the information contained in the enclosure.

We would like to meet with you to discuss these issues since interpretation of these definitions may determine the schedule and sequence of our permit and regulatory actions. Please call Donna Lacombe of my staff at 667-5288 if you have any questions. Ms. Lacombe will contact you in several days to set up a meeting to discuss these issues.

Sincerely,

Harold E. Valencia
Area Manager

Enclosure

cc:
A. Tiedman, LANL, MS A120
A. Valentine (HSE8-88-636-1, 10/24), LANL, MS K490
R. Koenig, LANL, MS E518

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HAZARDOUS WASTE SECTION

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ENCLOSURE

PART I - COMMENCE CONSTRUCTION

Both "commencement" (AQCR 702) and "commenced" (40 CFR Section 61.02 and AQCR 751) apply to this incinerator. It is not clear which, if any, takes precedence. Based on the following information, will construction of the LLW/HW incinerator have started by December 31, 1988?

A Request for Proposal (Sept. 26, 1988) has been submitted for the design and construction of a controlled air incinerator with positive ash displacement for use in incineration of solid and liquid low level radioactive and mixed waste. The proposal will include:

a) Design (including certified fabrication drawings) of incinerator, complete with primary combustion chamber, secondary combustion chamber, high temperature interconnecting duct, waste feeding auger/shredder, burners, secondary chamber high temperature exit duct, ash removal flange, combustion and operating controls, instrumentation, and motors.

b) Fabrication and delivery to Los Alamos of the components described in (a) above (following approval of design).

c) Modifications (design) to unit for radioactive service, to include submittal of a not-to-exceed amount (cost plus profit) for modification and/or fabrication.

d) Several options, to be quoted separately, for modifications to standard components, to include:

   i) Water jacket for cooling of the auger feed tube;
   ii) Automatic underfire air port cleanout device;
   iii) Programmable controller interface.

The final contract agreement will consist of fabrication and/or procurement of the components listed above, as well as equipment layout drawings for installation in an existing building at the Laboratory. The major fabrication items are the primary and secondary chambers, the interconnecting and exit ductwork, and the modifications to the units for radioactive service. In addition, the shredder/auger, burners, motors, instrumentation and controls, and similar components are to be supplied per this contract. Bids were due by October 27, 1988. Once bids are received

and the contract is awarded, site preparation (such as pipe trenching and ash pit construction) will proceed based on contractor equipment layout drawings.

Estimated total cost of the items called for in this RFP are $650,000. In addition, purchase requests will be let by December 31, 1988 for additional equipment associated with this project (induced draft blowers, pumps, High Efficiency Particle Air (HEPA) filters and housings, etc.) which will obligate approximately another $300,000. Thus, financial obligations associated with procurement and fabrication of this system will be around $950,000 by December 31, 1988.

PART II - POTENTIAL TO EMIT

The definition of "potential to emit" is not clear. It does not include removal by air pollution control equipment "...which is not vital to production of the normal product of the source or to its normal operation." "Vital to production" is understood to be equipment that is a necessary component for producing a product while "vital to normal operation" means it is necessary for the normal operation. Based on the following information, is the control equipment vital to the normal operation of the source?

It appears that any equipment which must be functional and operating for a source to commence and continue normal operation is "vital to normal operation". Since the design of an air pollution source determines the equipment and operating parameters under normal and extreme conditions, any equipment that must be functioning for the source to be operational should be considered vital. Usually any equipment that could simply be switched off or bypassed to increase emissions while continuing operation would not be vital. If extraordinary actions such as rewiring alarms, removing installed air pollution control devices, or adding a bypass stack are required to increase emissions to the atmosphere, they would be beyond the bounds of normal operation. Such actions would increase emissions and constitute a "modification".

The air pollution control equipment for the LLW/MW incinerator as described below is vital to its normal operation because it would not be possible to operate without extensive hardware modifications. The LLW/MW incinerator offgas air pollution control system consists of the following components:

i) Water-spray quench column;

ii) High energy variable throat venturi scrubber;
iii) Packed bed absorber column and demister;
iv) Offgas reheater;
v) Double (in series) HEPA filters (each with prefilters);
vi) Activated carbon filter;
vii) Final HEPA filter;
viii) Induced draft blowers.

The critical components in the offgas treatment system are the HEPA filters. Use of these filters in the LLW/MW incinerator offgas treatment system is required by the provisions of the Department of Energy (DOE) Order 6430.1, "General Design Criteria for Nuclear Facilities", and DOE Order 5480.11, "Requirements for Radiation Protection." To ensure the integrity of the HEPA filters, and to extend their useful service life, the LLW/MW makes use of pre-HEPA filtration offgas conditioning. This is accomplished through the quench column, venturi scrubber, packed bed absorber column and demister, and the offgas reheater. The pre-filtration gas cleaning operations are the primary protection for the HEPA filters because their useful life would be reduced dramatically without this treatment.

The air pollution control system is interlocked to the incinerator control system. Should operating parameters fall below preset operating levels, waste feed will be interrupted and the incinerator will go into a controlled shutdown mode. Under controlled shutdown, waste feed will automatically be interrupted, the burners are automatically placed in lowfire, and chamber temperature is reduced per programmed control. The following system parameters are monitored, controlled and interlocked to ensure safe and proper operating conditions:

i) Quench sump temperature;
ii) Venturi pressure drop;
iii) Scrub solution recycle flow to the absorber column;
iv) HEPA filter pressure drop.

Under the first three conditions, waste feed will be locked out until the problem is identified and corrected, and until all alarm conditions and process limits are satisfied. When the HEPA filter bank exceeds a set limit an alarm will sound and the gas flow will be routed through the backup parallel HEPA filter bank while the plugged HEPA(s) are replaced.

A drop in the differential pressure below a predetermined level could indicate a breach or hole in the filter.

Should this occur, an interlock will automatically place the LLW/MW incinerator in a fast shutdown mode. A fast shutdown interrupts waste feed, extinguishes the burners, and introduces snuffing steam into the lower chamber to extinguish combustion of any materials. This condition would require inspection of the HEPA filter system followed by identification and correction of the problem. These interlocks are necessary for operational and radioactive safety. The system will not be operable without them.

The LLW/MW incinerator will not possess a bypass exhaust stack, or any such analogous equipment, which would allow for the rerouting of incinerator exhaust offgas through other than the dedicated air pollution control devices mentioned above. Offgases will leave the secondary chamber and travel through a refractory lined exit duct directly to the waterspray quench column, and from there through the
rest of the offgas treatment system. The entire offgas train is hard-plumbed in series and cannot be altered during incinerator operations. Bypassing the air pollution control equipment is not possible, either intentionally or otherwise, without extensive hardware modifications.

Intentional sabotage of process equipment, control, and safety systems would be required before the LLW/MW could possibly pass uncontrolled emissions through the complete offgas treatment system and out to the environment. Extensive safeguards will be in place to prevent such an occurrence. Due to the complexity of process controls and safeguards, such sabotage, if at all possible, would require the active assistance of knowledgeable facility engineering staff and the complicity of shift personnel. Such an event could not occur without detection prior to the event due to the redundancy of system interlocksand alarmed safeguards. In addition, there is no advantage to the bypassing the control equipment. This is not a commercial enterprise which might realizesome gain by bypassing pollution controls. Operations personnel are well aware that the commission of such an act would not go unnoticed, and that the penalties fordoing so would be severe.