

N60478.AR.001471  
NWS EARLE  
5090.3a

TRANSMITTAL LETTER FOR THE STATE OF NEW JERSEY DEPARTMENT OF  
ENVIRONMENTAL PROTECTION COMMENTS ON TRIAL BURN PLAN FOR  
DEMILITARIZATION FURNACE NWS EARLE NJ  
3/15/1988  
STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION



ATTN: [unclear]

00000057

State of New Jersey  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF HAZARDOUS WASTE MANAGEMENT

John J. Trela, Ph.D., Director

401 East State St.

CN 028

Trenton, N.J. 08625

609-633-1408

E.P. Nicholson  
Captain, U.S. Navy  
Commanding Officer  
Department of The Navy  
Naval Weapons Station Earle  
Colts Neck, New Jersey 07722-5000

MAR 15 1988

Dear Captain Nicholson:

RE: TRIAL BURN PLAN FOR DEMILITARIZATION FURNACE, NAVAL WEAPONS STATION EARLE, COLTS NECK, MONMOUTH COUNTY, EPA ID No. NJ 017 002 2172

Your Trial Burn Plan for a Demilitarization Furnace, submitted 10/27/87, has been reviewed by the Division of Hazardous Waste Management and appropriate outside agencies including USPEA for compliance with the applicable regulations of the New Jersey Department of Environmental Protection and the requirements of USEPA. It has been determined that the trial burn plan is deficient in several areas and additional information will be required to make it complete.

The deficient items are noted and explained in the attached comment sheet.

It is recommended that the contents of this letter be reviewed by NWSE personnel and the Weapons Quality Engineering Center, Crane, Indiana. In view of the extent and complexity of the information requested by the Department, it is understandable that a meeting would be required to discuss and clarify the various issues involved. Accordingly, the facility will be contacted by Bureau personnel in approximately one week from date of issuance of this letter to set a date for a meeting which representatives of the facility, NJDEP, USEPA and other regulatory agencies can attend. The purpose of the meeting is to discuss this Notice of Deficiencies of the Trial Burn Plan for the Demil Furnace, and establish a time frame to achieve a complete Trial Burn Application so that a Permit for implementation can be issued with minimum delay.

} A

111111 (03) 50,228

MAR 15 1988

If you have any questions regarding these matters, please contact Sunila Agrawal at (609) 633-0723.

Very truly yours,



Ernest J. Kuhlwein, Jr., Chief  
Bureau of Hazardous Waste Engineering

EP61/1r  
Attachment

cc: Barry Tornick, USEPA-Region II  
Dhruva Kanzarpane, DHSM  
Milt Polakovic

COMMENT SHEET

1. Manufacturer's name and model number for the Demilitarization Furnace must be submitted to the Bureau of Hazardous Waste Engineering ("Bureau") in accordance with N.J.A.C. 7:26-12.9 (b) 1 (ii).(1). If unit is not of standard design, pertinent design data should be supplied as follows;
  - (a) Exact Linear dimensions of incinerator unit including cross-sectional area of the combustion chamber is needed in accordance with N.J.A.C. 7:26-12.9 (b) 1. (ii). (3).
  - (b) Capacity of prime mover in accordance with N.J.A.C. 7:26-12.9 (b) 1 (ii) 5 should be submitted.
  - (c) In the description of Demilitarization Furnace, nozzle and burner design is required pursuant to N.J.A.C. 7:26-12.9 (b) 1 ii (8).
  - (d) Construction materials must be indicated in accordance with N.J.A.C. 7:26-12.9 (b) 1 ii (9).
2. A soil sampling and analysis plan is required for soil testing around the incinerator and its storage area if there is exposed earthen areas in order to monitor any soil contamination at this location.
3. Soil sampling in the area around the bag house and cyclone will also be required to monitor contamination of exposed earthen areas at those locations.
4. An Air Pollution permit for Naval Weapons Station Earle's demilitarization furnace is required if the furnace was installed after June 1967 or it has been altered or modified in any way since the referenced date. Whether a permit is required by regulation or not, information on the quality and quantity of emissions from the furnace must be provided to the Bureau for evaluation.
5. With regards to the sampling and analytical procedures, the following items must be addressed before approval of the trial burn plan can be given:
  - (a) HCL sampling and analytical procedures must be included in the trial burn plan.
  - (b) Section 4.1(b) of the trial burn plan indicates that a one hour sampling period will be conducted for determining POHC levels and DRE. NWSE has shown calculations indicating that a one hour test will be sufficient. However, the NJDEP will not accept non-detected (ND) for POHC levels due to an insufficient sampling period. Each test run should be of sufficient length to insure that the POHC levels are above the analytical detection limits.

When extracts from a run have POHC concentrations under the detection limit, the detection limit is used as the concentration of that extract. This changes the DRE calculation significantly since there are eight samples for each run as described in sections 2.a and 2.c Recalculation of the predicated DRE on Page 3-16 gives 99.9979%. This makes the detection limit determination a more important factor. Please clarify.

- (c) Information of the EPA approval of the USAEHA Modified Five Sampling train should be submitted. This information should include date and responsible person from EPA who has approved the USAEHA MM5 sampling procedures.
  - (d) If the POHC sampling period is greater than one hour, NJDEP will require that the stack gas moisture be determined using the MM5 train.
  - (e) The trial burn plan indicates that the continuous emission monitor, (CEM) sampling points are upstream of the sampling points. All continuous emission monitor (CEM) sampling points should be downstream (prior) to the manual stack sampling point to avoid dilution of the exhaust gas.
  - (f) Information on where the calibration standards are to be introduced for the CEMs (sampling probe or instrument) must be supplied. If the calibration standards are to be introduced at the instrument, information on how the sample transport system will be checked for leaks must be submitted.
  - (g) Description of the CO Monitor must be provided so that its acceptability can be determined.
6. Describe your plan for eliminating and controlling your fugitive emissions from the combustion zone in accordance with N.J.A.C. 7:26-10.7 (f) 4.
  7. Complete data are required for all munitions on the Approved Data List (ADL), Appendix 4, as is listed in Appendix 1, before we can complete the review of this test plan. Please include chemical names for all components of munitions on the list.
  8. Detailed protocols for Performance Specification Tests (PSTs) for CO and O<sub>2</sub> Continuous Emission Monitor Systems (CEMS) are required before we can complete the review of this plan. Requirements for PSTs can be found in 40 CFR Part 60 Appendix B. These tests should be performed at least 30 days prior to the test burn and submitted to Mrs. Ann Zownir at U.S. EPA, monitoring Management Branch, Woodbridge Avenue, Edison, New Jersey 08837.
  9. The selection of 2,4-dinitrotoluene and nitroglycerin as Principal Organic Hazardous Constituents (POHCs) would be acceptable for most of the munitions on the Approved Data List (ADL) in Appendix 4. However, if the shot gun shells in this appendix have plastic cases, these POHCs will not be appropriate. In this case, POHCs or

Products of Incomplete Combustion (PICs) will have to be determined which will represent the possible partial combustion products from the type of plastic used. If the munitions similar to those on pages 1-14 and 1-15 are to be destroyed in this furnace, further work on PIC or POHC selection will be necessary. Due to the low temperatures used for demilitarization, these compounds will not be adequately destroyed without the use of an after burner. If this is not to be provided, these items must be removed from the ADL, or additional test burns performed with these munitions.

10. The high potential concentration of lead and other Appendix VIII metals in the fly ash and good quality assurance practice necessitate the measurement of these metals on the filter and probe and in the water of the impingers.
11. The high NOx concentration expected from the combustion of these highly nitrated compounds may require some exhaust gas clean-up. Estimates indicate the emission rate may exceed 50 lbs/hr.
12. A baghouse is not usually recommended as the air pollution control device for oil-fired furnaces or boilers because of the tacky character of the particulate emissions. This may cause maintenance problems. Please discuss whether any such maintenance problems have been encountered.
13. The high carbon content and small particle size of the fly ash, along with the high O<sub>2</sub> concentration will pose a severe fire hazard in the baghouse. The use of an automatic fire extinguishing system should be addressed.
14. Baghouses operate at a maximum efficiency only after a filter cake has been established on the bags. These tests will be too short. Sampling from the baghouse will be very difficult, as cited in this plan, because of the small amount of ash generated. Samples from the different tests will mix on the bags. Please indicate how this problem will be dealt with.
15. As solution to the waste feed measurement problem, the Navy should consider dividing the feed stock into six groups, each to be fed into the furnace in ten minutes  $\pm$  1 minute. If such a solution is not used, how will the waste feed be measured?
16. Page 2, Section 2.1 of Trial Burn Plan  
Additional items can not be included on the ADL without NJDEP and EPA concurrence.
17. Page 4, Paragraph 1  
The last sentence is unclear. Please Clarify.
18. Page 6, Section 2.2(e)  
Specific methods must be cited along with detailed descriptions and any options offered by the method.
19. Page 9, Paragraph 4

Delete "Air Products" once.

20. Page 12, Section 4.1.3  
The Navy should address the possibility of contaminated fugitive emissions from the hot waste residues (scrap).

21. Page 13, Section 4.1.4.  
The methods for the measurement of the combustion temperature and combustion gas velocity should be described along with the instrumentation, calibration procedure, calibration frequency, and location.

Location and description of temperature, pressure, and flow indicating devices and control devices are needed pursuant to N.J.A.C. 7:26-12.9 (b) 1 ii (10).

22. Page 13, Table 1  
Scrap metal should be added in both residues sampling requirements.

23. Page 16, Table 3  
EPA Method 3 is not appropriate for CO, NOx or SO<sub>2</sub>.  
Method 10 should be used for CO measurements. The measurement methods for measurement of NOx and SO<sub>2</sub> should be described along with quality control procedures, perhaps using 40 CFR Part 60 Appendix B as a guide. If an Orsat analyzer is not to be used for O<sub>2</sub> or CO<sub>2</sub>, then those procedures must also be included in this trial burn plan.

24. Page 20, Section 4.1(b).1.c  
Please provide validation data for the nitroglycerin and 2,4-dinitrotoluene analysis and detection limit.

25. Page 20, Section 4.1(b).1.d  
Background is due to contamination of equipment, samples, or reagents, and therefore cannot be subtracted from the results. The source of contamination must be corrected.

26. Page 27, Section 4.4.5.b.1  
Please show the location of this dilution air damper in Appendix 3, figures 1 and 2.

27. Page 27, Section 4.4.5.b.2  
A method for measurement of the auxiliary fuel should be described, along with calibration methods and accuracy.

28. Page 1-15  
Please provide the chemical composition for Green Dye (Mil-D3709).

29. Page 3-1, Section 3  
Because one CO monitor and one O<sub>2</sub> monitor are to be left with the furnace permanently, they should have their own sampling system.

30. Page 3-2, Section 3.3

U

ATTN: Code 50222

The sample conditioner may reduce measured concentrations due to condensation along with the water, but this may not show up while using dry calibration and span gases. The Navy should describe how this problem will be addressed.

31. Page 3-3,  
Where is Section 8? Is this a numbering error? Please clarify.
32. Page 3-3, Section 7  
Please refer to specific test methods; SW-846 is in four volumes.
33. Page 3-4  
Because of the thermal instability of nitroglycerin, the temperature range cited here is important. Thermocouples must be provided to measure the probe and filter Temperatures. The location of such temperature sensing devices must be clearly indicated.
34. Page 3-7, 2.c.2  
Impingers should also be rinsed with toluene.
35. Page 3-10, Section 2e  
This seems to be a duplication of section 2a. Please clarify.
36. Page 3-13, Section 4  
Holding times should be stated in this section. It is recommended that the Navy use the forty days required for 2,4-dinitrotulene used in the Contract Laboratory Program.
37. Page 3-32  
Please provide data to show that nitroglycerine does not decompose at these gas chromatography conditions.
38. An automatic shutdown of the Waste feed system is needed to comply with RCRA regulations. Such an automatic shut-down system is installed on Army demilitarization furnaces. This automated system could be applied to the Navy Earle demilitarization furnace. Please discuss how the shut-down system might be automated. A copy of Department of the Army Memorandum: "automatic Waste Feed Monitoring and Shut Off of Waste Feed" is enclosed for your convenience.
39. Please provide an indication of the frequency throughout the year that the bypass duct is actived directing the combustion gases around the baghouse. Proposed amendments to the RCRA incinerator regulations discourage the use of a bypass stack. Please discuss how its use might be reduced or eliminated.
40. A set of munitions is manually placed on the feed conveyor for each type of feed at a rate that assures maximum safety for personnel and a minimal possibility of damage to equipment in the event of an incident. Describe how this speed rate was calculated. Discuss the feasibility of using a device to automatically control feed rates.
41. A temperature of 500 to 600<sup>o</sup>F is identified as the acceptable temperature for this waste. Is this temperature high enough to ensure

complete waste destruction within the proposed incinerator retention time? To ensure complete waste combustion rotary incinerator designs normally include an afterburner. Please discuss whether or not an afterburner is needed at the Navy Earle incinerator to ensure complete waste destruction.

42. The location of the thermocouples must be clearly indicated. The exit temperature at the stack needs to be clarified. It is also not clear how the 650<sup>o</sup>F temperature of the gas at the furnace is lowered to 400<sup>o</sup>F which is the maximum temperature allowable at the cyclone and baghouse. Shouldn't a quench chamber be used in order to reduce the temperature of the hot gases leaving the incinerator? Please discuss.
43. From the Appendix 2 Feed List for the proposed trial burn the retention time is given as 4 minutes. On Appendix 4, the retention time is given as 4 seconds. Please indicate which one is correct.
44. Spark detectors and temperature sensors are located in the ductwork preceding the baghouse to protect the filter bags from the possibility of fire. Discuss the need for a fire extinguishing system. A by-pass duct directs the combustion gases around the baghouse in an extreme situation of very intense heat. Please clarify if the feed cut-off to the baghouse is automatic.
45. The high positive pressures created by explosions create the need for controlling fugitive emissions. Please clarify how this will be accomplished.
46. According to N.J.A.C. 7:26-10.7(f) 2 i, the carbon monoxide levels in the stack exhaust gas must be measured continuously during the trial burn. EPA believes that a CO level of 100 ppm represents the level in the stack that shouldn't be exceeded to ensure that no products of incomplete combustion (PICs) are formed. Please discuss the capability of the demil furnace to meet such standards.

DOCUMENT: COMM/NAV  
FOLDER: LXRMCB