Los Alamos
NATIONAL LABORATORY
EST. 1943

Environmental Stewardship Division
Meteorology and Air Quality Group
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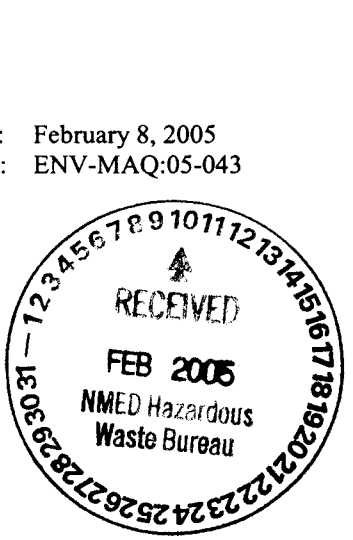
Date: February 8, 2005
Refer to: ENV-MAQ:05-043



Joni Arends
Concerned Citizens for Nuclear Safety
107 Cienega Street
Santa Fe, NM 87501

Dear Joni:

This letter provides additional information to follow up from the meeting at the NMED office on February 1, 2005.

1. No burning is being performed at the sandpits and they are undergoing RCRA closure.

2. The paper shredder was included in the operating permit with maximum emissions of 13 tons of particulates per year. The paper shredder was replaced with a data disintegrator which has a NSR permit (2195-H) to release 9.9 tons of particulates per year. The actual emissions from 5 months of data disintegrator operation are less than 200 pounds of total suspended particulates.

3. Two open burn activities at LANL were classified as open burning of hazardous waste, which is conducted in compliance with interim status regulations pursuant to the New Mexico Hazardous Waste Act. The activities, not subject to the NSR permitting under 20.2.72 NMAC, include the open burning of hazardous waste at TA-14 burn cage and some of the open burning at the TA-16-388 flash pad. (The non-hazardous waste treatment activities performed at the TA-16-388 flash pad are included in the 20.2.72 NMAC permit application in review with NMED's Air Quality Bureau.) In addition, LANL might have a need to perform emergency burning (regulated under 20.2.60.114 NMAC) and open burning of vegetative material (regulated under 20.2.60.111 NMAC).

4. The significant revisions for carbon monoxide and particulate matter emission estimates from fuel burning are based on emission factors developed by the National Institute of Standards and Technology/Building and Fire Research Laboratory. The website is <http://www.fire.nist.gov/>. LANL provided contact information in an email dated February 2, 2005.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5. Dugway's OB/OD studies and emission factors for high explosives can be purchased from the following website: <http://www.ntis.gov/search/product.asp?ABBR=PB99102105&starDB=GRAHIST> LANL has provided a copy to NMED's Air Quality Bureau.

I hope this letter addresses the outstanding issues from our meeting. Please contact me if you have additional questions. I can be reached at jhurtle@lanl.gov or 665-4380.

Sincerely,

Jackie Hurtle

Jackie Hurtle
Meteorology and Air Quality Group

JH:db

Cy:
Ted Schooley, NMED AQB
Mike Schneider, NMED AQB
John Kieling, NMED HWB
Kate Lynnes, NMED HWB
John Young, NMED HWB
Steve Fong, DOE/LA-AO, A316
Bill Blankenship, ENV-MAQ, J978
Dianne Wilburn, ENV-MAQ, J978
Jean Dewart, ENV-MAQ, J978
Ann Sherrard, ESA-WOI, C924
Franco Sisneros, DX-TSO, C925
ENV-MAQ ESA OB File
ENV-MAQ DX OB File
ENV-MAQ File

2. CCNS questions whether there are more current scientific reports to support LANL's assertion that a wood ash analysis will suffice for determining emissions. We are concerned that relying on the Environmental Protection Agency (EPA) AP-42, Chapter 1.9 Residential Fireplaces, 1996 to estimate hazardous air pollutant emission rates and hourly and annual criteria may not be the most protective of human health and the environment. We have learned a great deal about emissions from fires since the Cerro Grande fire. For example, we now know that more particulates are released from the smoldering part of the fire than from flashing. Does EPA AP-42 address smoldering emission rates?

In addition, how does LANL propose to address the smoldering issue? Do the fires burn so hot that there is full combustion and no smoldering?

3. CCNS questions whether there are more current scientific reports addressing high explosive emissions than the 1983 AP-42 report by EPA, Chapter 6.3 Explosives.

4. CCNS is concerned about the use of the default parameters for the modeling. Did NMED compare the default parameters to the data LANL has gathered from their series of meteorological towers?

5. Why was 1995 meteorological data for Los Alamos chosen for the model? Is there more recent monitoring data that could be used?

6. Has LANL presented alternatives to the outdoor burning? Over the years, LANL has expressed its desire to stop all outdoor burning. We understand that DOE and Sandia Corporation operate a Thermal Treatment Facility at Sandia National Laboratories for thermal treatment of hazardous explosive wastes. These activities are regulated under the Resource Conservation and Recovery Act (RCRA) Permit NM5890110518-2. Does the thermal treatment result in fewer emissions?

7. We remain concerned about air quality in the Bandelier National Monument, a Class 1 designated area. Has NMED conducted a cumulative analysis regarding Title V emissions from LANL? Under the 2004 Title V permit, LANL proposed voluntary compliance emission limits that were, in some cases, 95% of the standard. CCNS requests that NMED review all of LANL's existing and proposed air permits to determine if they have now met or exceeded limits for regulated air pollutants, including particulate matter, nitrogen dioxides, carbon monoxide, volatile organic compounds and sulfur dioxides, as well as hazardous air pollutants.

We request a meeting with NMED the week of January 18, 2005 to discuss these issues at a time when representatives from IEER may participate by phone. Should you have any questions or comments, please contact me by phone or by email at jarends@nuclearactive.org.

December 15, 2004

By email to mike_schneider@nmenv.state.nm.us

Michael Schneider
Permit Section
Air Quality Bureau
New Mexico Environment Department
2048 Galisteo St.
Santa Fe, NM 87505

Re: Air Quality Permit No. 2195J and TEMPO Agency Interest ID No. 856-PRN-20040002 and Air Quality Permit No. 2195K and TEMPO Agency Interest ID No. 856-PRN-20040003 for Los Alamos National Laboratory (LANL) and Request for Extension of Time to Review the Department's Analysis

Dear Mr. Schneider:

Thank you for taking the time to discuss the concerns of Concerned Citizens for Nuclear Safety (CCNS) regarding the above-referenced draft air quality permits for Los Alamos National Laboratory (LANL). CCNS has received the analyses of the New Mexico Environment Department (NMED) for the Sled Track facility, TA-11 Fuel oil and wood fire open burning activities and the TA-16 Flash Pad, all of which include the modeling report, Statement of Basis, database summary and an Excel spreadsheet. CCNS has contacted its technical experts at the Institute for Energy and Environmental Research (IEER) regarding reviewing NMED's analyses. Unfortunately, they will not be able to review the analyses until after the beginning of the new year. Therefore, CCNS requests a forty-five (45) day extension of time to review NMED's analyses and make comments. CCNS also requests a public hearing on the proposed permits.

In the meantime, we have a few general and specific questions and comments about the proposed construction permits for existing open burn activities at LANL.

1. CCNS remains concerned about the open burning activities that do not utilize any air pollution control equipment. LANL is proposing to conduct a maximum of 383 open burning activities each year, containing 91,000 lbs. of wood, 3,717 lbs. of high explosives (HE), 1,584 lbs. of depleted uranium (DU) and 800 gallons of diesel fuel. Has LANL presented the most current emission factors for wood, HE, DU and diesel fuel to NMED?

Sincerely,

Joni Arends
Executive Director

cc: Arjun Makhijani, IEER
Brice Smith, IEER

LANL/NMED/CCNS Meeting 2/1/2005

Proposed Revised Emission Estimates for TA-11 Fuel Fire

Pollutant	Current Estimate		Revised Estimate	
	lb/hr	tpy	lb/hr	tpy
Particulate Matter	11.6	0.03	671.3	1.7
Carbon Monoxide	6.8	0.02	175.1	0.4
Volatile Organic Compounds	0.3	0.001	29.2	0.07
Sulfur Oxides	39.2	0.1	39.6	0.1
Nitrogen Oxides	23.5	0.06	23.5	0.06

Notes

1. PM, CO, and VOC from National Institute of Standards and Technology/ Building and Fire Research Laboratory studies on open burning of fuel and oil spills.
2. SO_x from material balance: 100% of S in fuel converts to SO_x.
3. NO_x unchanged because emissions are lower from open burning with lower temperature than enclosed combustion. No other factors available.
4. Hazardous air pollutant (HAP) emissions to be re-estimated based on EPA document *Emissions of Organic Air Toxics from Open Burning*, EPA-600/R-02-076.

From EPA - AP-42

2.5 Open Burning

2.5.1 General[1]

Open burning can be done in open drums or baskets, in fields and yards, and in large open dumps or pits. Materials commonly disposed of in this manner include municipal waste, auto body components, landscape refuse, agricultural field refuse, wood refuse, bulky industrial refuse, and leaves.

Current regulations prohibit open burning of hazardous waste. One exception is for open burning and detonation of explosives, particularly waste explosives that have the potential to detonate, and bulk military propellants which cannot safely be disposed of through other modes of treatment.

The following Source Classification Codes (SCCs) pertain to open burning:

Government		
	5-01-002-01	General Refuse
	5-01-002-02	Vegetation Only
Commercial/Institutional		
	5-02-002-01	Wood
	5-02-002-02	Refuse
Industrial		
	5-03-002-01	Wood/Vegetation/Leaves
	5-03-002-02	Refuse
	5-03-002-03	Auto Body Components
	5-03-002-04	Coal Refuse Piles
	5-03-002-05	Rocket Propellant

2.5.2 Emissions[1-22]

Ground-level open burning emissions are affected by many variables, including wind, ambient temperature, composition and moisture content of the debris burned, and compactness of the pile. In general, the relatively low temperatures associated with open burning increase emissions of particulate matter, carbon monoxide, and hydrocarbons and suppress emissions of nitrogen oxides. Sulfur oxides are a direct function of the sulfur content of the refuse.

2.5.2.1 Municipal Refuse -

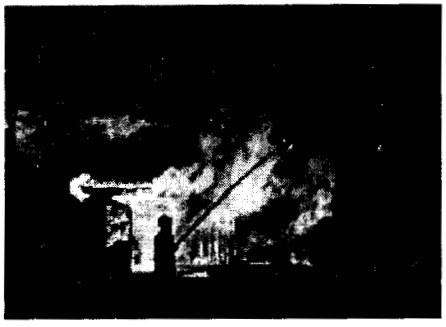
Emission factors for the open burning of municipal refuse are presented in Table 2.5-1.

2.5.2.2 Automobile Components -

Emission factors for the open burning of automobile components including upholstery, belts, hoses, and tires are presented in Table 2.5-1.

Emission factors for the burning of scrap tires only are presented in Tables 2.5-2, 2.5-3, and 2.5-4. Although it is illegal in many states to dispose of tires using open burning, fires often occur at

Fire on the Web

Fire on the Web is a collection of resources from the Building and Fire Research Laboratory's Fire Research Division at NIST. These Web pages provide links to fire related software, experimental fire data and mpeg/quick time movies of fire tests that can be downloaded and/or viewed with a Web browser.

Fire Tests/Data

- **Fire Experiment Results** - a collection of actual test data for a range of commodities which may be found in residential and commercial applications. These data include video and still pictures of the fires, graphs of important measurements made during the testing, and data which can be

Software/Models

- **NIST Fire Dynamics Simulator and Smokeview** - FDS is a computational fluid dynamics (CFD) model of fire-driven fluid flow. Smokeview is a visualization program that is used to display the results of an FDS simulation.

Publications Information

- **BFRL Publications Online** - A collection of recent publications (since 1993) available for free download published by and for BFRL staff.
- **Factsheets** - providing fire safety information especially for people

United States
Environmental Protection
Agency

EPA-600/R-02-076
October 2002

EPA

Research and Development

Emissions of Organic Air Toxics from Open Burning

Prepared for

Office of Research and Development

Prepared by

National Risk Management
Research Laboratory
Research Triangle Park, NC 27711

Table 3-5 – Emissions of Air Toxics from Burning Pools of Liquid Fuels[1] (mg/kg burned)

Class	Compound	Fuel Oil	Crude Oil
VOCs	benzene	1022	251
	toluene	42	
	ethylbenzene	10	
	xylenes	25	
	ethyltoluenes[2]	22	
	1,2,4-trimethylbenzene[2]	32	
Carbonyls	formaldehyde	303	139
	acetaldehyde	63	32
	acrolein	39	11
	acetone[2]	35	20
	propionaldehyde		
	crotonaldehyde[2]	6	
	methyl ethyl ketone	13	7
	benzaldehyde[2]	104	44
	isovaleraldehyde[2]	17	5
	valeraldehyde[2]		
	p-tolualdehyde[2]		13
	methyl isobutyl ketone	11	
	hexanal[2]		
	2,5-dimethylbenzaldehyde[2]	13	
PAHs	naphthalene	162	44
	acenaphthalene	99	4
	acenaphthene	10	
	fluorene	1	0.5
	1-methylfluorene	26	0.2
	phenanthrene	13	6
	anthracene	15	1
	fluoanthene	20	4
	pyrene	2	5
	benzo[a,b]fluorene	4	0.3
	benzo[a]anthracene	5	1
	chrysene	9	1
	benzo[b&k]fluoanthene	7	2
	benzo[a]pyrene	5	1
	Indeno[1,2,3-cd]pyrene	5	1
	benzo[g,h,i]perylene		
PCDDs/Fs	TCDD		
	PeCDD		
	HxCDD		
	HpCDD		$7.07(10^{-5})$
	OCDD		$1.34(10^{-4})$
	TCDF		$2.05(10^{-4})$
	PeCDF		
	HxCDF		$1.86(10^{-5})$
	HpCDF		
	OCDF		
	Total PCDDs/Fs		$4.28(10^{-4})$

[1] Source: pollutant concentrations from Fingas et al., 1996, and PM and CO emission factors from Booher and Janke, 1997

[2] Compound of interest not on HAP list