Los Alamos
NATIONAL LABORATORY
EST 1943

Associate Directorate for Technical Services
P.O. Box 1663, A104
Los Alamos, New Mexico 87545
505-667-0079/Fax 505-665-1812

Date: January 25, 2005
***Refer** To:* ADTS:05-011

Program Manager, Compliance & Enforcement Section
New Mexico Environment Department
Air Quality Bureau
2048 Galisteo Street
Santa Fe, NM 87505

Reference: Excess Emissions from Power Plant at Technical Area 3 (IDEA ID No. 856)

Dear Sir or Madam:

Attached is an excess emissions report for the TA-3 power plant located at the Los Alamos National Laboratory (LANL). A test was performed on boiler #1 while operating without the Flue Gas Recirculation (FGR) to determine if the FGR system is contributing to the reduced performance of the boiler. The New Mexico Environment Department (NMED) was contacted, and approval granted, prior to the test. Also attached is the correspondence with the NMED representative. An excess emission of Nitrogen Oxides (NOx) was calculated to be 135.5 pounds over the course of the 10-hour testing period.

LANL will have a contracted boiler expert review the test data and make recommendations to improve boiler operation. If any changes are proposed, the LANL Meteorology and Air Quality group will evaluate them and notify the NMED Air Quality Bureau as needed.

Should you have any questions regarding the information provided in this notification, please contact Steve Story at (505) 665-2169 or David Paulson at (505) 665-8884.

Sincerely,

Carolyn Mangeng
Associate Director for Technical Services

CM:alb

Att:a/s

cy:
J. Gonzales, NWIS-UI, K718
J. Dewart, ENV-MAQ, J978
S. Fong, DOE-LA-AO, A316
K. Hargis, ENV-DO, J591

D. Stavert, ENV-DO, 5591
D. Wilburn, ENV-MAQ, 5978
S. Story, ENV-MAQ, 5978
J. Hurtle, ENV-MAQ, 5978
D. Paulson, ENV-MAQ, 5978
P. Wardwell, LC-ESH, A187
D. Plante, SSS-AE, A199
MAQ Title-V TA-3 Power Plant File
ADTS File
ENV-MAQ File

AIR QUALITY BUREAU—ENFORCEMENT SECTION 2048 GALISTEO STREET, SANTA FE, NM 87505

EXCESS EMISSION FORM (20.2.7NMAC)

TO BE **USED** FOR EMERGENCIES, FAILURES, DEVIATIONS AND MALFUNCTIONS

Note: This form with original signature must be submitted to the address above within 10 days of the 1st business day following the start of the deviation / emergency.

TRACKING NUMBER:_____

DATE OF SUBMISSION: January 25,2005	TIME OF SUBMISSION: 4:00pm	COMPANY NAME: Los Alamos National Laboratory (IDEA No.856)
NAME OF INDIVIDUAL REPORTING Steve Story	TITLE: LANL Title V Permit Team Leader	PHONE: (505) 665-2169
FACILITY: TA-3 Power Plant	COUNTY: Los Alamos	PERMIT NUMBER(S): NSR Permit # 2195BM1, Operating Permit #P100
FAILURE DATE: January 19,2005	CORRECTED DATE: January 19,2005	CORRECTED TIME: 5:00 PM (17:00)

DESCRIPTION OF EQUIPMENT:
Permitted boiler # 1. This boiler was manufactured by Edgemoor Iron Works and was manufactured in 1950. The input heat rating for the unit is 210 MMBtu/hr, which is derated for elevation to 178.5MMBtu/hr. A Robinson Industries Flue Gas Recirculation unit is installed on the boiler.

NATURE AND CAUSE
This excess emission resulted from a test performed on the boiler. The New Mexico Environment Department's (NMED) Air Quality Bureau approved the test. The test was performed to determine if the Flue Gas Recirculation (FGR) system is a causal factor in the inability of the boiler to reach loads greater than 35% without affecting the superheater temperatures. This test was performed to either confirm or eliminate the FGR fan as a factor in the high superheater temperatures. Approval to perform this test was provided by Dr. John Volkerding of the NMED Air Quality Bureau, in an e-mail sent January 11,2005.

CORRECTIVE MEASURES:
The FGR system was intentionally turned off for this test. After the test was performed, the FGR system was reengaged. Excess emissions were calculated using data from emission testing performed prior to the installation of the FGR system. The pre-installation emission rate for NOx was 0.187 lb/mmbtu at 100% load. The metered natural gas use for the test period was 1183.16 mscf. Using the measured average natural gas heat content of 1031.67 btu/scf, the excess NOx emission was calculated at 135.5 lbs.

LANL Operating Permit (Permit No.P100) limit for NOx for this boiler is 9.0 lb/hr.

DURATION OF EXCESS EMISSIONS (HOURS) NOx: **10.25 hrs** S02: PM: SULFUR: OTHER

The FGR system was turned off at 6:45am and was restarted at 5:00pm on January 19,2005.

ESTIMATED EMISSIONS (LBS) NOx (excess): **135.5 lbs** S02: PM: SULFUR: OTHER:

After reasonable inquiry, I certify this report as true, accurate and complete. **SIGNATURE OF PERSON RESPONSIBLE FOR TITLE V:** Carolyn Mangeng **Carolyn Mangeng**	**TITLE:** Acting Associate Director for Technical Services	**BASIS OF ESTIMATE** ___ COMPLIANCE TESTING ___ CONTINUOUS EMISSION MONITOR _X_ CALCULATION ___ OPERATING LOGS
SIGNATURE OF REPORTING PERSON: S. L. Story **Steve Story**	**TITLE:** Title V Team Leader	**PHONE:** (505) 665-2169
SIGNATURE OF SOURCE CONTACT: Jerome J. Gonzales **Jerome Gonzales**	**TITLE:** Staff Member - Utilities and Infrastructure	

Version: 02/25/04

POWER PLANT 1/19/05

	Plant Time	Steam Flow klb/hr Boiler No. 1	Totalizer B#1 Gas Flow scf	Totalizer B#3 Gas Flow scf	Totalizer B#2+B#1 Gas Flow scf/h	Boiler No. 1 Gas Flow mscf	mmBTU (1031.67 BTU/scf)	lb NOx @0.187 lb/mmBTU	Excess NOx above 9.0 lb/hr	Percent of Full Load
FGR OFF	6:45	8.42	56745.36	83664.42	22.86	14.27	14.72	2.75	0.00	0.07
	7:00	32.91	56759.63	83673.01	81.2	53.99	55.70	10.42	1.42	0.27
	8:00	46.12	56813.62	83700.22	99.72	73.42	75.75	14.16	5.16	0.38
	9:00	70.9	56007.04	83726.52	153.46	110.45	113.95	21.31	12.31	0.59
	10:00	72.27	56997.49	03769.53	150.75	104.43	107.74	20.15	11.15	0.60
	11:00	86.91	57101.92	83815.85	184.59	127.26	131.29	24.55	15.55	0.72
	12:00	100.19	57229.18	83073.18	222.79	146.83	151.48	28.33	19.33	0.83
	13:00	108.32	57376.01	83949.14	212.5	155.06	159.97	29.91	20.91	0.90
	14:00	109.9	57531.07	84006.58	200	150.21	154.97	28.98	19.98	0 92
	15:00	113.81	57681.28	84064.37	208.28	150.62	155.39	29.06	20.06	0.95
	16:00	73.62	57831.9	84122.03	187.84	96.62	99.68	18.64	9.64	0.61
FGR ON	17:00		57928.52	84213.25						
Total						1183.16	1,220.63	220.26	135.50	

From: "John Volkerding" <john_volkerding@nmenv.state.nm.us>
To: "Steve Story" <story@lanl.gov>, <donald_flores@nmenv.state.nm.us>,
"Debra McElroy" <debra_mcelroy@nmenv.state.nm.us>
Cc: "David Paulson" <dpaulson@lanl.gov>
Date: Tue, 11 Jan 2005 15:55:59 -0700
Subject: RE: LANL Boiler No. 1 Superheater Test (FGR Shutdown)
X-Mailer: Microsoft Outlook IMO, Build 9.0.6604 (9.0.2911.0)
Importance: Normal
X-Proofpoint-Spam: 0
X-PMX-Version: 4.7.0.111621

Steve; In speaking with our attorney's their feeling is that the request does not fall under the definition of 'scheduled maintenance'. With that said, the Bureau understands LANL's intent and we believe that the test is valid exercise. LANL should submit an excess emission report for the testing event and include in the description that the Bureau approved the test.

It should be noted that while the Bureau approves this test, this approval is not precedent setting such that LANL or other facility can rely upon this approval for other tests. Each of these requests is evaluated on a case-by-case basis and the merits of the individual tests are weighed.

If you have any questions, please feel free to ask. Thanks, John

-----Original Message-----
From: Steve Story [mailto:story@lanl.gov]
Sent: Thursday, January 06, 2005 3:06 PM
To: john_volkerding@nmenv.state.nm.us; donald_flores@nmenv.state.nm.us
Cc: David Paulson
Subject: LANL Boiler No. 1 Superheater Test (FGR Shutdown)

John & Donald,

Thanks for taking the time to meet with us this morning. Per our conversation, here's the email discussing LANL's request to shut down the Power Plant FGR system for 4 - 8 hours in January. I've also attached an excel spreadsheet with our estimate of emissions. The test will not be conducted until we receive concurrence and guidance from you. Again, thanks for your time and interest!

Steve

>X-Sieve: CMU Sieve 2.2
>X-Sender: u193629@harold-mail.lanl.gov
>X-Mailer: QUALCOMM Windows Eudora Version 6.0.0.22
>Date: Mon, 03 Jan 2005 09:44:54 -0700
>To: story@lanl.gov
>From: David Paulson <dpaulson@lanl.gov>
>Subject: Fwd: Boiler No. 1 Superheater Test
>X-PMX-Version: 4.7.0.111621

>X-PMX-Version: 4.7.0.1 11621
>
>Steve, here is the information on the boiler start-up w/o FGR operating.
>Dave
>
>>X-Sender: u078269@poboxl663.lanl.gov
>>X-Mailer: QUALCOMM Windows Eudora Version 6.1.2.0
>>Date: Mon, 03 Jan 2005 09:40:25 -0700
>>To: David Paulson <dpaulson@lanl.gov>
>>From: "Jerome F. Gonzales" <jerome@lanl.gov>
>>Subject: Boiler No. 1 Superheater Test
>>Cc: tswain@lanl.gov, allidap@lanl.gov
>>X-PMX-Version: 4.7.0.1 11621
>>
>>David,
>>
>>We have been experiencing problems with high superheater temperatures
>>(<800 deg F) on Boilers No. 1 and No. 2 at the TA-03 Power
>>Plant. Generally this occurs when boiler load is greater then 35% of
>>full capacity. It has been suggested that this is due to increase gas
>>flows from the FGR fan. However, in September of 2002 when emission
>>testing was conducted on these boilers superheater temperatures were
>>within the normal range. To either confirm or eliminate the FGR fans as
>>factor in the high superheater temperatures I propose to operate No. 1
>>Boiler this month (Jan-05) without the FGR system in operation for a
>>period of 4 to 8 hours. Please contact NMED and let me know if they are
>>agreeable with LANL conducting this test. Thanks.
>
>David L. Paulson, CHMM, CSP
>URS Corp/Meteorology and Air Quality Group,
>Environmental Stewardship Division (ENV)
>Los Alamos National Laboratory
>MS J978, Phone: 665-8884, Fax: 665-8858
>dpaulson@lanl.gov

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