Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources.* AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

RECEIVED
SEP 11 1990
AIR QUALITY
TECH SERVICES

DIVISION OF ENVIRONMENTAL MANAGEMENT
RALEIGH REGIONAL OFFICE

Date: Sept. 10, 1990

M E M O R A N D U M

TO: Mike Aldridge

FROM: Kenneth Schuster/E. Fuller

SUBJECT: Request for Source Test Review
Company: Nello Teer, Wake Asphalt Plt.
County: Wake

It is requested that the attached subject source test dated 8/26/90 be reviewed. It is 1 of 2 copy(s).

Additional Comment: Test results appear to demonstrate compliance with Subpart "I" particulate standard of .04 gr/dscf and with opacity standard of 20% opacity. Highest 15-second reading was 5% opacity and highest 6-minute average was 1% opacity. The particulate concentration (content) was .00197 (4.9). The test observer's observation reports are attached to this document.

KS: The test reviewer should note that the plant operated at a rate of 150 TPH during the test. The plant is permitted at 400 TPH. According to plant personnel, the actual max the plant can run is 200 TPH.

Attachment

No equipment or personnel problems were encountered during the tests.

JAMES B. WINEGAR
Environmental Scientist

31 August 1990

NC DEM
Attn: Mark Feltner
3800 Barrett Dr.
Suite 101
Raleigh, NC 27609

Dear Mr. Feltner:

Enclosed you will find two copies of the Stationary Source Sampling Report for Nello Teer's Wake Asphalt Plant.

If you have any questions or comments just give me a call.

James B. Winegar

cc: File
Steve Edgerton

4511-201 Green Rd. • Raleigh, NC 27604 • (919) 872-9409

NORTH CAROLINA DIVISION OF ENVIRONMENTAL MANAGEMENT
Air Quality Action Request

AQ-22 issued _____
Computer _____

NAME	LOCATION	REG/CO/PREMISE NO.
NELLO L. TEER CO.	Wake Forest	5/92(Wake)/00454
CONTACT		TELEPHONE NUMBER
Mr. Ronald Boone, Plant Operator		919/556-7925
TYPE ACTION		
EE STO VEE		

AIR PROGRAM STATUS	CLASS	CHANGE	PERMIT
03 90	A1P-NSPS		3
ACTION REQUESTED BY	ADDRESS/PHONE		RECEIVED DATE

LAST INSP. DATE	ACTION DATE	NEXT INSP. DATE
8/6/90	8/23/90	8/30/91

PERMIT #	ISSUED	EXPIRES	STIP. #	MET Y/N	LAST NOTICE
5854R	7/31/89	5/1/91	4	Y	

RECOMMENDATIONS	SIGNATURE	DATE
	Ernie Fuller	8/24/90
Distribution: Yellow (Central File)/Blue (Region)		92-00454.STO

(1) FACILITY LOCATION: Located on the west side of US 1 North, Wake Forest, NC. From Raleigh, take US 1 North to Ponderosa Service Road.

(2) FACILITY DESCRIPTION: The facility is a 400 TPH hot mix asphalt plant, fired by No. 2 fuel oil (116 million BTU per hour maximum permitted heat input rate). Particulate emissions are controlled by a bagfilter (16,341 square feet of filter area).

(3) Today's visit was for the purpose of observing a particulate source test on the bagfilter emissions and to observe visible emissions testing of the source gas stream.

Inspection Determinations

Process:

(a) Plant in operation at 200 TPH. Max is permitted to be 400 TPH, but the operator and Mr. Britt (Nello Teer - Durham) stated during the inspection that 200 TPH was the practical maximum. Operating the facility at greater levels could create a damaging environment for the plant.

(b) The plant was producing heavy-duty surface material which is considered "worst case" for the generation of particulate emissions.

(c) No recycle is run at this plant.

(d) Bagfilter pressure reading was 2.0" H_2O. Max should be 5" H_2O. Bags had recently been changed and some bagfilter cages that did not fit precisely were observed thrown in a nearby dumpster. The plant is operating today at optimum conditions.

(e) VE from the bagfilter was 0% opacity.

Source Testing:

(f) The test was being conducted by Apex Environmental Services, Inc. No problems were experienced by the test team and no situation was observed which would cause questionable test results.

(g) A copy of the Test Observer's Checklist is attached to this report.

(h) Stack temperatures were averaging 150/154 ^{o}F.

(i) The tests had to be delayed between runs to allow enough trucks to back up so a full hour's production could be achieved. There was also a damper problem at the beginning of the second run. The dryer was shut down for a few minutes and testing also stopped until the dryer resumed.

-continued on next page-

(j) Today's testing meets the requirements of stipulation 4. Start-up is reported to be 3/10/90. Max production as per permit max cannot be achieved. Testing was done within the 180 day limit.
(k) Fugitive emissions were minimal today.
(l) Prior notification of construction and start-up was received at the RRO on 2/28/90.
(m) Prior notification of testing was received at the RRO on 8/9/90.

Visible Emission Testing:

(n) Mr. James B. Winegar conducted the EPA Method 9, visible emission observations. Mr. Winegar was last certified on 3/28/90 by Eastern Technical Associates, Inc., Raleigh, NC.
(o) Three 1-hour observations were conducted.
(p) The opacity is mostly 0%.
(q) A copy of the VEE Observer's Sheet is attached to this report.

(4) The facility is considered to be in compliance with odor, VE, and permit requirements at this time. Compliance with NSPS particulate emission limits has not yet been demonstrated, but is expected pending outcome of today's testing.

(5) Facility applicable to SIP, NSPS "Subpart I".

EF/jf

attachments

SOURCE TEST
OBSERVERS CHECKLIST

N. C. Division of Environmental Management / Air Quality Section

Source Name: Nello L. Teer Co.	Testing Firm: Apex Environmental Services, Inc.
Address: North Raleigh Asphalt Plant	Address: P.O. Box 172
U.S. Hwy 1 North	Apex, N.C. 27502
Plant Location: Wake Forest, N.C.	Phone: (919) 387-0462
Source Contact: MR. Ronald Bone, operator	Test Engineer: William H. Howe
Phone: (919) 556-7925	Assistant: Jamie Bacik

Other Personnel Involved	Affiliation
MR. BRITT, Nello L. Teer	

Process Description: 400 TPH hot mix Asphalt plant - Baghouse

Process Rate During Test: 200 TPH

Maximum Process Rate: 400 TPH

Burner Sizes (Incin.) Pri: \ Sec: \

Soot Blowing Parameters:

A = \ Hr B = \ Hr

R = \ Hr S = \ Hr

A = Hours of soot blowing during sample(s)
B = Hours not soot blowing during sample(s) containing soot blowing
R = Average hours of operation per 24 hours
S = Average hours of soot blowing per 24 hours

TEST PARAMETERS

Duct Size: 58 3/4" X 34"

Distance Before Ports: 36'

Distance After Ports: 34"

Number of Test Points: 4 Ports / 24 points

Number of Runs: 3

Sampling Time Per Run (min.): 25 min. per point

Pollutant Sampled: Particulate / Visible Emissions

E. P. A. Method No.: #5 & #9

If method differs from E. P. A. method, explain:

For Method 5 sampling train record ΔH@ 2.0

Y 0.999

		Run #1	Run #2	Run #3
Leakage Rate (ft^3/min.) (0.02 ft^3/min. or less)	Pre	.006 @ 15"	.008 @ 15"	
	Post	.006 @ 12"	.016 @ 10"	
Time Started	24 hr. Clock	0907	1322	
Time Ended		1125	1430	
Test Date(s)		08/23/90	08/23/90	/ /

See Graph on Reverse Side For Number of Test Points.
Use Reverse Side for Comments.

Request 2 Copies of Report

OBSERVERS SIGNATURE

AQ-92 4/1/86 WOGR

NAME: ...o L. Teer Co.

ADDRESS: ...orth Raleigh Asphalt Plant

U.S. Hwy 1 North

CITY	STATE	ZIP
Wake Forest	NC	

PHONE (KEY CONTACT)	SOURCE ID NUMBER
(919) 556-7925	92-00454

PROCESS EQUIPMENT	OPERATING MODE
400 TPH Hot Mix Asphalt Plant	Normal/max
CONTROL EQUIPMENT	**OPERATING MODE**
Bag filter	Normal

DESCRIBE EMISSION POINT: Rectangular stack above bagfilter housing.

HEIGHT ABOVE GROUND LEVEL	HEIGHT RELATIVE TO OBSERVER
39'	Start 0' End 0'
DISTANCE FROM OBSERVER	**DIRECTION FROM OBSERVER**
Start 250' End 250'	Start NW End NW

DESCRIBE EMISSIONS: Start NO VE observed End ——

EMISSION COLOR	IF WATER DROPLET PLUME
Start NO VE observed	Attached ☐ Detached ☐

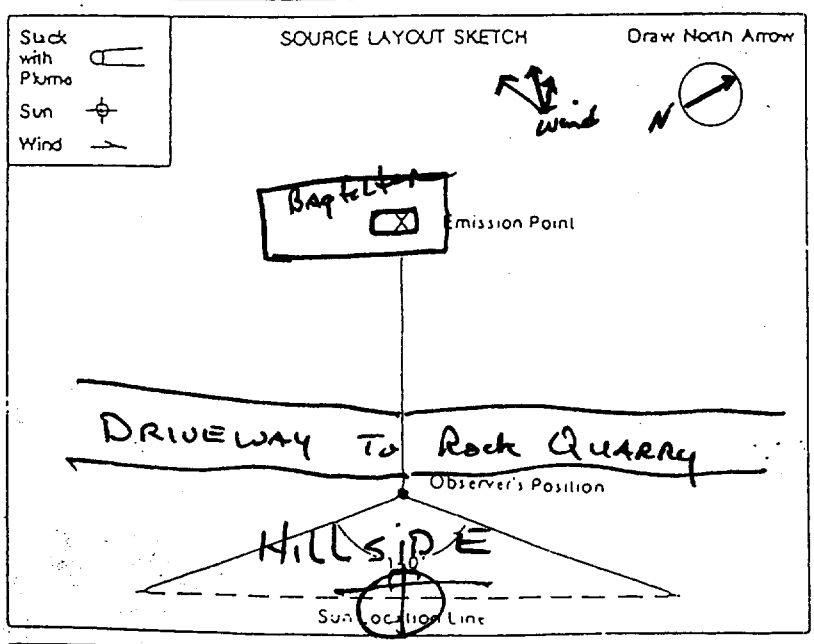
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED: Start 2 Ft above stack End ✓

DESCRIBE PLUME BACKGROUND: Start Trees End Trees

BACKGROUND COLOR	SKY CONDITIONS
Start Dk Green End Dk Green	Start Cloudy End Cloudy
WIND SPEED	**WIND DIRECTION**
Start 0-2 End 0-2	Start E-SE End E-SE
AMBIENT TEMP	**WET BULB TEMP** / **RH, percent**
Start 85°F End 85°F	

Stack with Plume ⊂⊃
Sun ⊕
Wind →

SOURCE LAYOUT SKETCH — Draw North Arrow



ADDITIONAL INFORMATION

OBSERVATION DATE: August 23, 1990 | START TIME: 1354 | END TIME: 1418

SEC / MIN	0	15	30	45	COMMENTS
1	0	0	0	0	
2	0	0	0	0	0.0%
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
8	0	0	0	0	0.0%
9	0	0	0	0	
10	0	0	0	0	
11	0	0	0	0	
12	0	0	0	0	
13	0	0	0	0	
14	0	0	0	0	
15	0	0	0	0	0.0%
16	0	0	0	0	
17	0	0	0	0	
18	0	0	0	0	
19	0	0	0	0	
20	0	0	0	0	
21	0	0	0	0	0.0%
22	0	0	0	0	
23	0	0	0	0	
24	0	0	0	0	
25					
26					
27					
28					
29					
30					

OBSERVER'S NAME (PRINT): Clyde Ermie Fuller

OBSERVER'S SIGNATURE: [signature] | DATE: 8-23-90

ORGANIZATION: NC Dept EH & NR

CERTIFIED BY: ETA, Raleigh, N.C. | DATE: 3-28-92

State of North Carolina
Department of Natural Resources and Community Development
Division of Environmental Management
512 North Salisbury Street • Raleigh, North Carolina 27611

James G. Martin, Governor
William W. Cobey, Jr., Secretary

R. Paul Wilms
Director

July 31, 1989

Mr. Donald A. Lineberry, Vice President
Nello L. Teer Company
Post Office Box 1131
Durham, North Carolina 27702

Dear Mr. Lineberry:

Subject: Air Permit No. 5854R
Nello L. Teer Company
Raleigh, North Carolina
Wake County

In accordance with your completed application received May 2, 1989, we are forwarding herewith Permit No. 5854R to Nello L. Teer Company, Raleigh, North Carolina for the construction and operation of air emission sources or air cleaning devices and appurtenances.

If any parts, requirements, or limitations contained in this permit are unacceptable to you, you have the right to request an adjudicatory hearing within thirty (30) days following receipt of this permit, identifying the specific issues to be contended. This request must be in the form of a written petition, conforming to Chapter 150B of the North Carolina General Statutes, and filed with the Office of Administrative Hearings, Post Office Drawer 11666, Raleigh, North Carolina 27604. Unless such demand is made, this permit shall be final and binding.

This permit shall be effective from July 31, 1989, until May 1, 1991, is nontransferable to future owners and operators, and shall be subject to the conditions and limitations as specified therein.

Sincerely,

Mike Sewell for

R. Paul Wilms

Enclosures

cc: Mr. Arthur Mouberry

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT

DIVISION OF ENVIRONMENTAL MANAGEMENT

A I R P E R M I T N O. 5854R

Issue Date: July 31, 1989 Effective Date: July 31, 1989

Expiration Date: May 1, 1991 Replaces Permit: 5854

To construct and operate air emission sources or air cleaning devices, and for the discharge of the associated air contaminants into the atmosphere. In accordance with the provisions of Article 21B of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules and Regulations,

PERMISSION IS HEREBY GRANTED TO

Nello L. Teer Company
Asphalt Plant, Raleigh Quarry Location
U.S. Highway 1 North
Raleigh, Wake County, North Carolina

FOR THE

construction and operation of air emission sources or air cleaning devices and appurtenances consisting of:

a bagfilter (16,341 square feet of filter area) installed on a No. 2 fuel oil-fired, 400 tons per hour capacity, hot mix asphalt plant (116 million BTU per hour maximum permitted heat input rate),

to be constructed and operated in accordance with the completed application received May 2, 1989, and in conformity with the plans, specifications, and other supporting data, all of which are filed with the Department of Natural Resources and Community Development and are incorporated as part of this Permit.

This Permit shall be subject to the following specified conditions and limitations including any testing, reporting, or monitoring requirements:

A. SPECIFIC CONDITIONS AND LIMITATIONS

1. The Permittee shall comply with applicable Environmental Management Commission Regulations, including 15 NCAC 2D .0516, .0524(a)(6).

2. Sulfur dioxide emissions from the fuel burning equipment shall not exceed 2.3 pounds per million BTU heat input.

3. This Permit may be revoked unless the bagfilter and 400 tons per hour capacity asphalt plant are constructed in accordance with the approved plans, specifications and other supporting data. If the proposed operational date of October 31, 1989 is not met, then the Permittee must notify in writing the Regional Supervisor of the new operational date. Existing equipment being replaced is permitted to operate in compliance until the replacement equipment is operational.

4. For the 400 tons per hour capacity asphalt plant, the Permittee shall comply with all provisions, including the notification, testing, and monitoring requirements contained in Environmental Management Regulation 15 NCAC 2D .0524 "New Source Performance Standards" (NSPS) as promulgated in 40 CFR 60, Subpart I. NSPS performance testing is required for particulate and visible emissions using EPA Method(s) 5 and 9, respectively. Within 60 days after achieving the maximum production rate at which the facility will be operated, but not later than 180 days after initial start-up of the affected facility, the Permittee shall conduct the required performance test(s) and submit a written report of the tests results to the Regional Supervisor, Division of Environmental Management. The Method 1 requirements of 40 CFR 60, Appendix A, "Sample and Velocity Traverses for Stationary Sources", should be considered during any construction and be met for emissions testing purposes. All associated testing costs are the responsibility of the Permittee.

5. To afford the Division of Environmental Management Regional Office the opportunity to have an observer present, the Permittee shall provide the Regional Office in writing at least 15 days notice of any required performance test(s).

B. GENERAL CONDITIONS AND LIMITATIONS

1. All reports, test data, monitoring data, notifications, and requests for renewal shall be submitted to the:

   Regional Supervisor
   North Carolina Division of Environmental Management
   Post Office Box 27687
   Raleigh, North Carolina 27611

2. Reports on the operation and maintenance of the facility shall be submitted by the Permittee to the Regional Supervisor, Division of Environmental Management at such intervals and in such form and detail as may be required by the Division. Information required in such reports may include, but is not limited to process weight rates, firing rates, hours of operation, and preventive maintenance schedules.

3. Any changes in the information submitted in the application regarding facility emissions, or any changes that modify equipment or processes of existing permitted facilities, or any changes in the quantity or quality of materials processed that will result in previously unpermitted, new, or increased emissions must be reported to the Regional Supervisor, Division of Environmental Management. If appropriate, modifications to the permit may then be made by the Division of Environmental Management to reflect any necessary changes in the permit conditions. In no case are any new or increased emissions allowed that will cause violation of the emission limitations specified herein.

4. This Permit is subject to revocation or modification by this Division upon a determination that information contained in the application or presented in support thereof is incorrect, conditions under which this Permit was granted have changed, or violations of conditions contained in this Permit have occurred. The facility shall be properly operated and maintained at all times in such a manner to effect an overall reduction in air pollution.

5. Under the statutory authority of G.S. 143-215.3 (a)(2), no person shall refuse entry or access to any authorized representative of the Division of Environmental Management who requests entry for purposes of inspection, and who presents appropriate credentials, nor shall any person obstruct, hamper, or interfere with any such representative while in the process of carrying out his official duties. Refusal of entry may constitute grounds for permit revocation and assessment of civil penalties.

6. This Permit is nontransferable by the Permittee. Future owners and operators must obtain a new air permit from the Division of Environmental Management.

7. This Permit does not relieve the Permittee of the responsibility of complying with all applicable requirements of any Federal, State, or Local water quality or land quality control authority.

8. The Permittee at least ninety (90) days prior to the expiration of this Permit shall request its extension by letter. The letter should include the permit number, the appropriate renewal fee, description of any modifications, and should be sent to the Regional Supervisor, Division of Environmental Management.

9. A violation of any term or condition of this Permit shall subject the Permittee to enforcement procedures contained in North Carolina General Statutes 143-215.114, including assessment of civil penalties.

Permit issued this the 31st day of July, 1989.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

Mike Sewell for

R. Paul Wilms, Director
Division of Environmental Management
By Authority of the Environmental Management Commission

Air Permit No. 5854R

DIVISION OF ENVIRONMENTAL MANAGEMENT

Air Quality Section

November 14, 1990

MEMORANDUM

To: Ken Schuster

From: Shannon M. Vogel SMV

Subject: Nello L. Teer Company
Wake Asphalt Plant
Raleigh, Wake County, North Carolina
Particulate and Visible Emissions testing of a Hot Mix Asphalt Plant
Performed on August 23, 1990 by
Apex Environmental Services, Inc.

A report of the subject testing has been reviewed and is found to be acceptable. The results appear reliable and demonstrate that compliance with the applicable emission standard was achieved at a production rate of 180 tons per hour.

The emission standard that applies to the test facility is 40 CFR 60, Subpart I, STANDARDS OF PERFORMANCE FOR HOT MIX ASPHALT FACILITIES. Subpart I limits particulate emissions to 0.04 grains per dry standard cubic foot and visible emissions to 20 percent opacity.

The maximum production rate stated in Permit No. 5854R is 400 tons per hour. According to plant personnel, the actual maximum production rate is 200 tons per hour. During testing, the average production rate was 180 tons per hour. The average particulate concentration demonstrated by the test results was 0.003 grains per dry standard cubic foot. These results can reasonably be assumed to demonstrate compliance at production rates up to 200 tons per hour. It is suggested that a permit limitation be considered or a retest be performed at a higher production rate.

cc: Central File via Earl McCune
Mike Aldridge

Acceptable Results M5

Nello Teer Company
Raleigh, Wake County, North Carolina
EQUIPMENT DESIGNATION (EX. BOILIR NUMBER)
TEST DATE

	RUN NUMBER	1	2	3
	RUN DATE	08/23/90	08/23/90	08/23/90
	RUN START TIME RUN FINISH TIME			
N	NUMBER OF SAMPLE POINTS	24	24	24
Theta	TEST RUN TIME, MINUTES	60	60	60
Dn	NOZZLE DIAMETER, INCHES	0.179	0.179	0.179
An	NOZZLE AREA, SQ. IN.	0.0252	0.0252	0.0252
Cp	PITOT TUBE COEFFICIENT	0.840	0.840	0.840
Y	GAS METER CAL. FACTOR	0.999	0.999	0.999
Pbar	BAROMETRIC PRESSURE, IN. HG	29.76	29.76	29.76
Delta H	AVG. PRESS. DIFFERENTIAL OF ORIFICE METER, IN. H2O	1.230	1.460	1.520
Vm	ACTUAL METERED GAS VOL. CF	37.120	39.704	40.206
TmF	GAS METER TEMP,. DEG. F	107	112	111
Vm(std)	METERED GAS VOLUME AT DRY STANDARD CONDITIONS, DSCF	34.427 34.414	36.555 36.541	37.068 37.053
Vwc	VOLUME OF WATER COLLECTED IN IMPINGERS & DESICCANT, ML	111.2	114.9	116.0
Vwc(std)	VOLUME OF WATER VAPOR, SCF	5.234 5.234	5.4085 5.408	5.460 5.460
%M	MOISTURE, % BY VOLUME	13.198 13.2	12.888 12.9	12.83 12.8
fm	MOLE FRACTION OF DRY GAS	0.868	0.871	0.872
%CO2	CO2, % BY VOLUME, DRY	1.9	1.9	1.8
%O2	O2, % BY VOLUME, DRY	17.8	18.4	18.6
%CO	CO, % BY VOLUME, DRY			
%N2	N2, % BY VOLUME, DRY	80.3	79.7	79.6
Md	DRY MOLECULAR WT., #/#-MOLE	29.02	29.04	29.03

Nello Teer Company
Raleigh, Wake County, North Carolina
EQUIPMENT DESIGNATION (EX. BOILIR NUMBER)
TEST DATE

	RUN NUMBER	1	2	3
Ms	WET MOLECULAR WT., #/#-MOLE	27.56	27.62	27.62
Pstatic	GAS STATIC PRESS,. IN. H2O	-0.35	-0.45	-0.45
Ps	ABSOLUTE GAS PRESS, IN. HG.	29.73	29.73	29.73
TsF	STACK GAS TEMP., DEG. F	161	164	157
SSR DP	SUM OF SQUARE ROOTS OF VELOCITY PRESS. VALUES	26.9410	28.7950	29.3728
vs	FLUE GAS VELOCITY, FT/SEC	70.2	75.1	76.2
Ds	DUCT DIAMETER, INCHES			
As	DUCT AREA, SQUARE INCHES	1997.5	1997.5	1997.5
AsF	DUCT AREA, SQUARE FEET	13.872	13.872	13.872
Qs	GAS FLOW RATE, WET ACFM	58395 58396	62511.6 62511	63400.5 63409
Qstd	GAS FLOW RATE, DRY SCFM	42841 42812	45788 45759	47006.2 46969
mn	SAMPLE WEIGHT, GRAMS	0.0078	0.0075	0.0059
cs	PART. CONCENTRATION GR/DSCF	0.0034959 0.0035	0.0031658 0.0032	0.0024559 0.0025
pmrc	POLLUTANT MASS RATE CALC. FROM CONCENTRATION, #/HR	1.28 1.284	1.24 1.2428	0.99 0.9898
pmra	POLLUTANT MASS RATE CALC. FROM AREA RATIO, #/HR	1.37	1.31	1.03
%I	% ISOKINETIC	106.375 106.3	105.7 105.6	104.4 104.4
pmr avg	AVERAGE OF pmra & pmrc	1.32	1.28	1.01
%EA	% EXCESS AIR	523.7	696.8	770.4

Apex Environmental Services, Inc.

STATIONARY SOURCE SAMPLING OF PARTICULATE EMISSIONS AT WAKE ASPHALT PLANT

FOR

NELLO L. TEER COMPANY
PO BOX 1131
DURHAM, NC 27702

919/682-6191

29 AUGUST 1990

P. O. BOX 172
APEX, NORTH CAROLINA 27502

(919) 387-0462

TABLE OF CONTENTS

I. INTRODUCTION

II. SUMMARY OF RESULTS

III. SAMPLING AND ANALYTICAL PROCEDURES

APPENDIX

A. FIELD AND ANALYTICAL DATA
B. CALIBRATION DATA
C. SAMPLING AND ANALYTICAL PROCEDURES
D. WEIGH TICKETS
E. CERTIFICATION

Section I

Introduction

Stationary source compliance testing was conducted at Nello L. Teer Company's Wake Asphalt Plant on 23 August 1990. Three EPA Methods 5 and 9 runs were conducted by Apex Environmental Services, Inc. (AES) on the dryer exhaust stack to determine compliance for particulate matter emissions (Figure 1).

This asphalt plant is a batch-type facility rated at 400 tons per hour, with a baghouse utilized for particulate control. During the test series the plant was operated a rate of 180 tons per hour (production rate is based on weigh tickets; Appendix D).

Test participants included William H. Howe , James B. Winegar and James A. Bacik; Ernie Fuller from the North Carolina Department of Environment, Health, and Natural Resources; and Harry Britt representing Nello L. Teer Company.

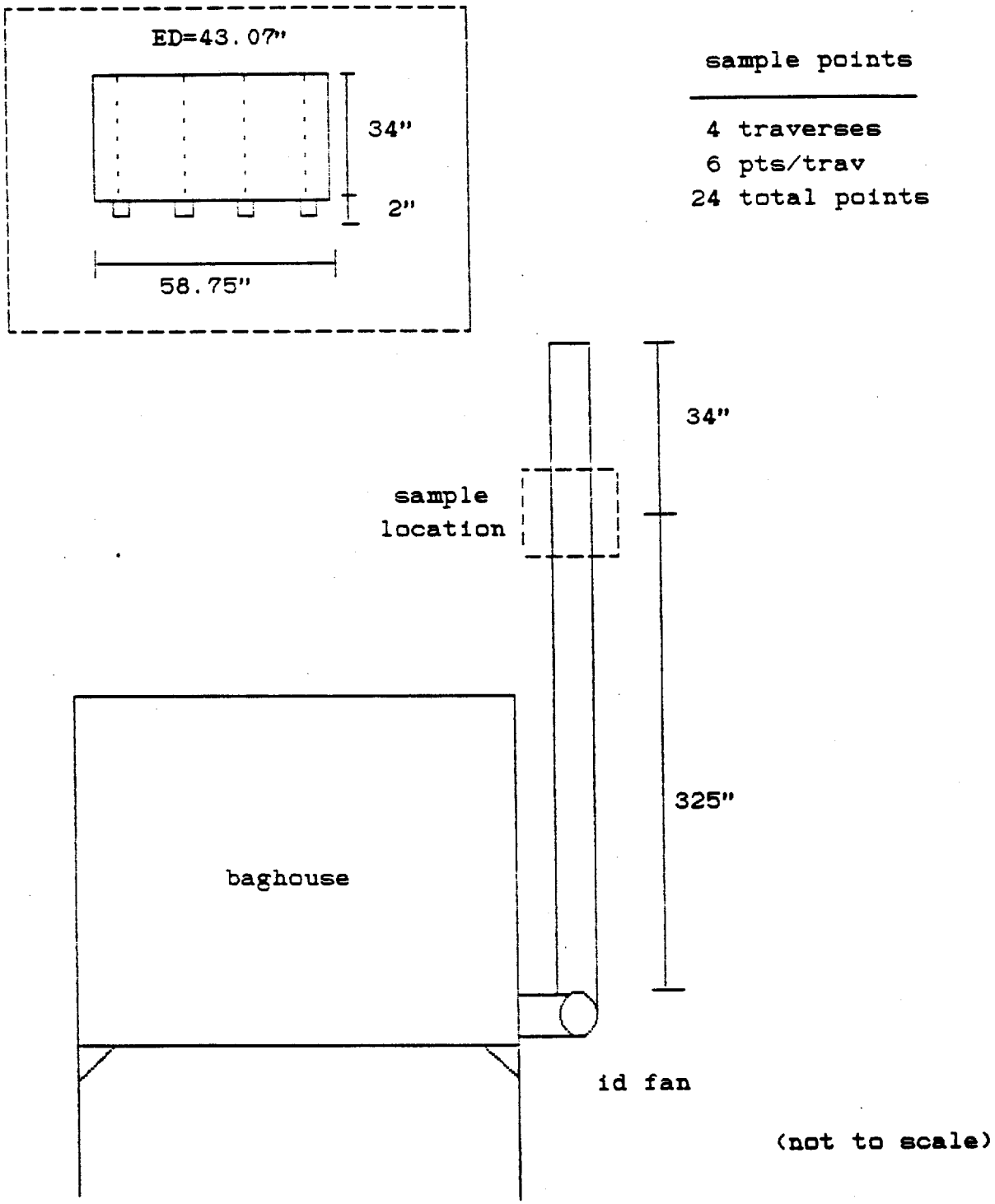


Figure 1: Stack testing location

Section II

Summary of Results

A summary of the emission results is presented in Table I. The full test results are presented in Appendix A, along with the field data and example calculations. The pertinent calibration data is presented in Appendix B and the sampling and analytical procedures are presented in Appendix C.

The particulate concentrations of the stack gas (corrected to EPA standard conditions) were 0.0002266, 0.0002052, and 0.0001592 grains per dry standard cubic foot (gr/dscf) for compliance runs 1,2, and 3, respectively. The emission rates calculated from stack gas flow determinations were 1.284, 1.243, and 0.990 pounds per hour.

Opacity data was collected concurrently with the Method 5 testing. Results of data reduction show a six-minute high of 1%, 1% and 0% opacity for compliance runs 1, 2 and 3 respectively.

TABLE I

PARTICULATE EMISSION SUMMARY

RUN #	SAMPLE VOLUME (dscf)	MOISTURE (%)	ORSAT ANALYSIS CO2 (%)	ORSAT ANALYSIS O2 (%)	STACK FLOW RATE (acfm)	STACK FLOW RATE (dscfm)	AVERAGE STACK TEMP. (F)	ISOKIN-ETIC (%)	PM CONC. (gr/dscf)	EMISSION RATE (LB/HR)	EMISSION RATE (OPACITY)*
1	34.428	13.20	1.9	17.8	58394.81	42841.11	160.8	106.4	.0002266	1.284	1
2	36.555	12.89	1.9	18.4	62511.60	45788.89	163.9	105.7	.0002052	1.243	1
3	37.068	12.84	1. 8	18.6	63400.49	47006.22	156.7	104.4	.0001592	0.990	0

* Highest six-minute average, EPA Reference Method 9.

Section III

Sampling and Analytical Procedures

Particulate Sampling Procedures:

AES performed three EPA Method 5 particulate tests along with ancillary Reference Methods 1,2, and 3 as required. The sampling system utilized for the test series was as specified in 40 CFR Part 60. Stack gas was drawn through a stainless steel button hook type nozzle, a heated 5 foot borosilicate glass lined probe, and through a 110mm Whatman 934AH glass fiber filter. The filter temperature was maintained at approximately 248 degrees F during the run.

The sampling train, plus pitot and orsat lines,were leaked checked prior to and, following each test run. The meter box, nozzles, and thermocouples were calibrated prior to deployment. At the conclusion of the test, a post calibration check of the meter box was found to be acceptable. The pertinent calibration data are presented in Appendix B.

Sample Recovery:

Upon completion of the test run and following the post leak check, the probe was disconnected from the remainder of the sampling train. The probe and nozzle were rinsed with acetone and brushed until the wash was visibly free of particulate matter. The rinse was collected in borosilicate glass bottles. The filter holder for each run was sealed and transported back to the AES laboratory for sample recovery. Particulate matter adhering to the front half of the filter holder was rinsed with acetone and brushed and combined with the probe rinse.

Moisture Determination:

The first two impingers of the sampled train were charged with 200 milliliters of water prior to each run. During sample recovery, the final water volumes were measured to determine net moisture catch. The fourth impinger was charged with a known weight of silica gel and subsequently weighed after the run to determine moisture catch.

Molecular Weight Determination and Oxygen Concentration:

Integrated gas samples were collected via a stainless probe, polyethylene tubing, and a peristaltic pump into a leak free tedlar gas sample bag. The gas sample was collected at a constant rate from each sample point during the particulate run except that no sample was collected the 2 nearest points to the sample port. Since ambient air could be drawn in through the ports and dilute the gas sample.

The samples were analyzed with an orsat analyzer with 0.1% divisions for oxygen and carbon dioxide concentrations.

Particulate Analysis:

Particulate matter was determined gravimetrically in accordance with the procedures specified in Method 5.

Quality Assurance Procedures:

Calibrations are conducted in a manner and at a frequency which meet or exceed the EPA specifications. The procedures are followed in accordance with the applicable EPA reference methods and those recommended within the Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III (EPA-600/4-77-027b, August, 1977). Pertinent calibration data is presented in Appendix B.

Opacity Data:

All opacity data was collected concurrently with the Method 5 test runs following the directives of EPA Reference Method 9.

Appendix A

Field and Analytical Data

APEX SOURCE TEST
EPA METHODS 2-5
DEFINITION OF TERMS

PARAMETER	DEFINITION
Tt(min.)	TOTAL SAMPLING TIME
Dn(in.)	SAMPLING NOZZLE DIAMETER
Ps(in.H2O)	ABSOLUTE STACK STATIC GAS PRESSURE
Vm(cu.ft.)	ABSOLUTE VOLUME OF GAS SAMPLE MEASURED BY DGM
Vw(gm.)	TOTAL STACK MOISTURE COLLECTED
Pm(in.H2O)	AVERAGE STATIC PRESSURE OF DGM
Tm(F)	AVERAGE TEMPERATURE OF DGM
Pb(in.Hg.)	BAROMETRIC PRESSURE
% CO2	CARBON DIOXIDE CONTENT OF STACK GAS
% O2	OXYGEN CONTENT OF STACK GAS
% N2	NITROGEN CONTENT OF STACK GAS
SQR(DELPS)	AVE. SQ. ROOT OF S-PITOT DIFF. PRESSURE-TEMP. PRODUCTS
As(sq.in.)	CROSS-SECTIONAL AREA OF STACK(DUCT)
Ts(F)	TEMPERATURE OF STACK
Vm(dscf)	STANDARD VOLUME OF GAS SAMPLED ,Vm(std),AS DRY STD. CF
Vm(dscm)	STANDARD VOLUME OF GAS SAMPLED,Vm(std),AS DRY STD. CM
Vw gas(scf)	VOLUME OF WATER VAPOR IN GAS SAMPLE,STD
% moisture	WATER VAPOR COMPOSITION OF STACK GAS
Md	PROPORTION, BY VOLUME,OF DRY GAS IN GAS SAMPLE
MWd	MOLECULAR WEIGHT OF STACK GAS,DRY BASIS LB/LB-MOLE
MW	MOLECULAR WEIGHT OF STACK GAS,WET BASIC LB/LB-MOLE
Vs(fpm)	AVERAGE STACK GAS VELOCITY
Flow(acfm)	AVERAGE STACK GAS FLOW RATE(ACTUAL STACK COND.)
Flow(acmm)	AVERAGE STACK GAS FLOW RATE(ACTUAL STACK COND.)
Flow(dscfm)	AVERAGE STACK GAS VOLUMETRIC FLOW RATE(DRY BASIS)
Flow(dscmm)	AVERAGE STACK GAS VOLUMETRIC FLOW RATE(DRY BASIS)
% I	PERCENT ISOKINETIC
% EA	PERCENT EXCESS AIR IN STACK GAS
DGM	DRY GAS METER
Y	DRY GAS METER CORRECTION FACTOR
Pg	STACK STATIC GAS PRESSURE
Cp	PITOT COEFFICIENT
dH	ORIFICE PLATE DIFF. PRESS. VALUE
dP	PITOT DIFF. PRESS. VALUE

*** EPA STANDARD CONDITIONS	Temperature = 68 deg-F (528 deg-R) Pressure = 29.92 in. Hg.

APEX SOURCE TEST
EPA METHOD 2-5
(RAW DATA)

PLANT : NELLO TEER-WAKE ASPHALT
PLANT SITE : RALEIGH , NC
SAMPLING LOCATION : STACK
TEST # : 118-1
DATE : 08/ 23/90
TEST PERIOD : 0907.5-1125

PARAMETER	VALUE
Sampling time (min.)	60
Barometric Pressure (in.Hg)	29.76
Sampling nozzle diameter (in.)	.179
Meter Volume (cu.ft.)	37.12
Meter Pressure (in.H2O)	1.23
Meter Temperature (F)	107.4
Stack dimension (sq.in.)	1997.5
Stack Static Pressure (in.H2O)	-.35
Stack Moisture Collected (gm)	111.0164
Absolute stack pressure(in Hg)	29.73427
Average stack temperature (F)	160.8333
Percent CO2	1.9
Percent O2	17.8
Percent N2	80.3
Delps Subroutine result	27.96979
DGM Factor	.999
Pitot Constant	.84

APEX SOURCE TEST
EPA METHODS 2-5
FINAL RESULTS

PLANT : NELLO TEER-WAKE ASPHALT
PLANT SITE : RALEIGH , NC
SAMPLING LOCATION : STACK
TEST # : 118-1
DATE : 08/ 23/90
TEST PERIOD : 0907.5-1125

PARAMETER	RESULT
Vm(dscf)	34.42764
Vm(dscm)	.9749906
Vw gas(scf)	5.234424
Vw gas (scm)	.1482389
% moisture	13.19756
Md	.8680244
MWd	29.016
MW	27.56216
Vs(fpm)	4209.688
Vs (mpm)	1283.442
Flow(acfm)	58394.81
Flow(acmm)	1653.741
Flow(dscfm)	42841.11
Flow(dscmm)	1213.26
% I	106.3755
% EA	523.6526

Program Revision:9/10/89

APEX SOURCE TEST
EPA METHOD 5
PARTICULATE LOADING

PLANT : NELLO TEER-WAKE ASPHALT
PLANT SITE : RALEIGH , NC
SAMPLING LOCATION : STACK
TEST # : 118-1
DATE : 08/ 23/90
TEST PERIOD : 0907.5-1125

PARAMETER	FRONT-HALF	TRAIN TOTAL
Total Grams	0.0078000	0.0078000
Grams/dscf	0.0002266	0.0002266
Grams/acf	0.0001662	0.0001662
Grains/dscf	0.0034959	0.0034959
Grains/acf	0.0025647	0.0025647
Grams/dscm	0.0079999	0.0079999
Grams/acm	0.0058691	0.0058691
Pounds/dscf	0.0000005	0.0000005
Pounds/acf	0.0000004	0.0000004
Pounds/Hr	1.2841270	1.2841270
Kilograms/Hr	0.5824761	0.5824761

* BACK-HALF IMPINGER ANALYSIS WAS NOT REQUIRED

Program Revision:9/10/89

APEX SOURCE TEST
EPA METHOD 2-5
(RAW DATA)

PLANT : NELLO TEER-WAKE ASPHALT
PLANT SITE : RALEIGH , NC
SAMPLING LOCATION : STACK
TEST # : 118-2
DATE : 08/23/90
TEST PERIOD : 1332.5-1434.5

PARAMETER	VALUE
Sampling time (min.)	60
Barometric Pressure (in.Hg)	29.76
Sampling nozzle diameter (in.)	.179
Meter Volume (cu.ft.)	39.704
Meter Pressure (in.H2O)	1.46
Meter Temperature (F)	111.9
Stack dimension (sq.in.)	1997.5
Stack Static Pressure (in.H2O)	-.45
Stack Moisture Collected (gm)	114.7092
Absolute stack pressure(in Hg)	29.72691
Average stack temperature (F)	163.875
Percent CO2	1.9
Percent O2	18.4
Percent N2	79.7
Delps Subroutine result	29.96776
DGM Factor	.999
Pitot Constant	.84

APEX SOURCE TEST
EPA METHODS 2-5
FINAL RESULTS

PLANT : NELLO TEER-WAKE ASPHALT
PLANT SITE : RALEIGH , NC
SAMPLING LOCATION : STACK
TEST # : 118-2
DATE : 08/23/90
TEST PERIOD : 1332.5-1434.5

PARAMETER	RESULT
Vm(dscf)	36.55516
Vm(dscm)	1.035242
Vw gas(scf)	5.408539
Vw gas (scm)	.1531698
% moisture	12.88861
Md	.8711139
MWd	29.04
MW	27.6171
Vs(fpm)	4506.469
Vs (mpm)	1373.923
Flow(acfm)	62511.6
Flow(acmm)	1770.328
Flow(dscfm)	45788.89
Flow(dscmm)	1296.741
% I	105.6778
% EA	696.759

Program Revision:9/10/89

APEX SOURCE TEST
EPA METHOD 5
PARTICULATE LOADING

PLANT : NELLO TEER-WAKE ASPHALT
PLANT SITE : RALEIGH , NC
SAMPLING LOCATION : STACK
TEST # : 118-2
DATE : 08/23/90
TEST PERIOD : 1332.5-1434.5

PARAMETER	FRONT-HALF	TRAIN TOTAL
Total Grams	0.0075000	0.0075000
Grams/dscf	0.0002052	0.0002052
Grams/acf	0.0001503	0.0001503
Grains/dscf	0.0031658	0.0031658
Grains/acf	0.0023189	0.0023189
Grams/dscm	0.0072445	0.0072445
Grams/acm	0.0053065	0.0053065
Pounds/dscf	0.0000005	0.0000005
Pounds/acf	0.0000003	0.0000003
Pounds/Hr	1.2428890	1.2428890
Kilograms/Hr	0.5637709	0.5637709

* BACK-HALF IMPINGER ANALYSIS WAS NOT REQUIRED

Program Revision:9/10/89

APEX SOURCE TEST
EPA METHOD 2-5
(RAW DATA)

PLANT : NELLO TEER-WAKE ASPHALT
PLANT SITE : RALEIGH , NC
SAMPLING LOCATION : STACK
TEST # : 118-3
DATE : 08/23/90
TEST PERIOD : 1535-1637.5

PARAMETER	VALUE
Sampling time (min.)	60
Barometric Pressure (in.Hg)	29.76
Sampling nozzle diameter (in.)	.179
Meter Volume (cu.ft.)	40.20599
Meter Pressure (in.H2O)	1.52
Meter Temperature (F)	111.2
Stack dimension (sq.in.)	1997.5
Stack Static Pressure (in.H2O)	-.45
Stack Moisture Collected (gm)	115.8092
Absolute stack pressure(in Hg)	29.72691
Average stack temperature (F)	156.7083
Percent CO2	1.8
Percent O2	18.6
Percent N2	79.6
Delps Subroutine result	30.39305
DGM Factor	.999
Pitot Constant	.84

APEX SOURCE TEST
EPA METHODS 2-5
FINAL RESULTS

PLANT : NELLO TEER-WAKE ASPHALT
PLANT SITE : RALEIGH , NC
SAMPLING LOCATION : STACK
TEST # : 118-3
DATE : 08/23/90
TEST PERIOD : 1535-1637.5

PARAMETER	RESULT
Vm(dscf)	37.06818
Vm(dscm)	1.049771
Vw gas(scf)	5.460404
Vw gas (scm)	.1546386
% moisture	12.83938
Md	.8716063
MWd	29.032
MW	27.61556
Vs(fpm)	4570.549
Vs (mpm)	1393.46
Flow(acfm)	63400.49
Flow(acmm)	1795.502
Flow(dscfm)	47006.22
Flow(dscmm)	1331.216
% I	104.3857
% EA	770.3783

Program Revision:9/10/89

APEX SOURCE TEST
EPA METHOD 5
PARTICULATE LOADING

PLANT : NELLO TEER-WAKE ASPHALT
PLANT SITE : RALEIGH , NC
SAMPLING LOCATION : STACK
TEST # : 118-3
DATE : 08/23/90
TEST PERIOD : 1535-1637.5

PARAMETER	FRONT-HALF	TRAIN TOTAL
Total Grams	0.0059000	0.0059000
Grams/dscf	0.0001592	0.0001592
Grams/acf	0.0001180	0.0001180
Grains/dscf	0.0024559	0.0024559
Grains/acf	0.0018209	0.0018209
Grams/dscm	0.0056202	0.0056202
Grams/acm	0.0041669	0.0041669
Pounds/dscf	0.0000004	0.0000004
Pounds/acf	0.0000003	0.0000003
Pounds/Hr	0.9898422	0.9898422
Kilograms/Hr	0.4489895	0.4489895

* BACK-HALF IMPINGER ANALYSIS WAS NOT REQUIRED

Program Revision:9/10/89

APEX SOURCE TEST
EPA METHOD 2-5
SAMPLE CALCULATION

PLANT	: NELLO TEER-WAKE ASPHALT
PLANT SITE	: RALEIGH , NC
SAMPLING LOCATION	: STACK
TEST #	: 118-1
DATE	: 08/223/90
TEST PERIOD	: 0907.5-1125

) Volume of dry gas sampled at standard conditions (68 deg-F ,29.92 in. Hg).

$$Vm(std) = \frac{Y \times Vm \times [T(std) + 460] \times [Pb + (Pm/13.6)]}{P(std) \times (Tm + 460)}$$

$$Vm(std) = \frac{.999 \times 37.12 \times 528 \times [29.76 + (1.23/13.6)]}{29.92 \times (107.4 + 460)}$$

Vm(std) = 34.428dscf

2) Volume of water vapor at standard conditions:

Vw(gas) = 0.04715 cf/gm x W(l) gm

Vw(gas) = 0.04715 x 111.0164 = 5.234 scf

3) Percent Moisture in stack gas :

$$\%M = \frac{100 \times Vw(gas)}{Vm(std) + Vw(gas)}$$

$$\%M = \frac{100 \times 5.234}{34.428 + 5.234} = 13.20\ \%$$

4) Mole fraction of dry stack gas :

$$Md = \frac{100 - \%M}{100} = \frac{100 - 13.20}{100} = .8680244$$

SAMPLE CALCULATION
PAGE TWO

5)Average Molecular Weight of DRY stack gas :

MWd = (.44 x %CO2) + (.32 x %O2) + (.28 x %N2)

MWd = (.44 x 1.9) + (.32 x 17.8) + (.28 x 80.3) = 29.016

6)Average Molecular Weight of wet stack gas :

MW = MWd x Md + 18(1 - Md)

MW = 29.016 x .8680244 + 18(1 - .8680244) = 27.56216

7) Stack gas velocity in feet-per-minute (fpm) at stack conditions :

Vs = KpxCp x [SQRT (dP)]{ave} x SQRT [Ts {avg}] x SQRT [1/(PsxMW)] x 60sec/min

Vs = 85.49 x .84 x 60 x 27.96979 x SQRT[1/(29.73427 X 27.56216)]

Vs = 4209.688 FPM

8) Average stack gas dry volumetric flow rate (DSCFM) :

$$Qsd = \frac{Vs \times As \times Md \times T(std) \times Ps}{144 \text{ cu.in./cu.ft.} \times (Ts + 460) \times P(std)}$$

$$Qsd = \frac{4209.688 \times 1997.5 \times .8680244 \times 528 \times 29.73427}{144 \times 620.8333 \times 29.92}$$

Qsd = 42841.11 dscfm

SAMPLE CALCULATION
PAGE THREE

)Isokinetic sampling rate (%) :

Dimensional Constant C = K4 x 60 x 144 x [1 / (Pi /4)]
K4 = .0945 FOR ENGLISH UNITS

$$I\% = \frac{C \times Vm(std) \times (Ts + 460)}{Vs \times Tt \times Ps \times Md \times (Dn)^2}$$

$$I\% = \frac{1039.574 \times 34.42764 \times 620.8333}{4209.688 \times 60 \times 29.73427 \times .8680244 \times (.179)^2}$$

I% = 106.3755

10) Excess air (%) :

$$EA = \frac{100 \times \%O2}{(.264 \times \%N2) - \%O2} = \frac{100 \times 17.8}{(.264 \times 80.3) - 17.8}$$

EA = 523.65

11) Particulate Concentration :

Cs = (grams part.) / Vm(std) = 7.800001E-03 / 34.42764

Cs = 0.0002266 Grams/DSCF

$$Ca = \frac{T(std) \times Md \times Ps \times Cs}{P(std) \times Ts}$$

$$Ca = \frac{528 \times .8680244 \times 29.73427 \times 0.0002266}{29.92 \times 620.8333}$$

Ca = 0.0001662 Grams/ACF

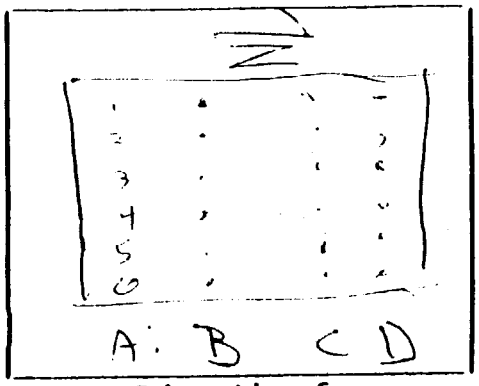
LBS/HR = Cs x 0.002205 x Qsd x 60

LBS/HR = 0.0002266x 0.002205 x 42841.1 x 60

LBS/HR = 1.284127

FIELD DATA

Plant: Nelio Ieers - Wake
Date: 8-23-90
Sampling Location: Stack
Sample Type: M5
Run Number: 118-1
Operator: WHH
Ambient Temperature: 80's
Barometric Pressure: 29.76
Static Pressure (P_s): -.35
Filter Number(s): 420
Pretest Leak Rate = .006 cfm @ 15 in. Hg
Pretest Pitot Leak Check: ✓
Pretest Orsat Leak Check: ✓
Read and Record all Data Every 2.5 Minutes



Schematic of Traverse Point Layout

Probe Length and Type: 5' glass
Pitot Tube I.D. No.: 5-1
Nozzle I.D.: #6, .179"
Assumed Moisture, %: 8
Temp. Readout S/N: 055-1
Meter Box Number: 085-1
Meter $\Delta H_@$: 2.00
C Factor: .8?/1.0
Meter Gamma: .999
Heater Box Setting:
Reference Δp:
Post Test Leak Rate = .006 cfm @ 17 in. Hg
Post Test Pitot Leak Check: ✓
Post Test Orsat Leak Check: ✓

Traverse Point Number	Sampling Time, (min)	/Clock Time /(24-hour clock)	Gas Meter Reading (V_m) ft^3	Velocity Head (ΔP_s) in. H_2O	Orifice Pres. Differential (ΔH) in. H_2O Desired	Orifice Pres. Differential (ΔH) in. H_2O Actual	Stack Temp. (T_s) °F	Dry Gas Meter Temp. Inlet ($T_{m_{in}}$) °F	Dry Gas Meter Temp. Outlet ($T_{m_{out}}$) °F	Pump Vacuum in. Hg	Sample Box Temp. Filter Temp. °F	Impinger Temp. °F
A-1	0	/ 0907.5	918.47	1.1	.95	.95	159	103	80	1	239	57
2	2.5	/ 0910	93.3	1.2	1.0	1.0	160	108	82	1	240	56
3	5	/ 0912.5	94.7	1.2	1.0	1.0	164	110	82	1	241	55
4	7.5	/ 0915	96.1	1.2	1.0	1.0	158	112	84	1	244	56
5	10	/ 0917.5	97.6	1.1	.95	.95	164	113	85	1	243	58
6	12.5	/ 0920	99.0	.90	.78	.78	158	114	86	1	240	55
	15	/ 0922.5	100.458									
B 1	15	/ 1037.5	100.4	1.2	1.2	1.2	151	102	102	1	252	67
2	17.5	/ 1040	102.0	1.2	1.2	1.2	155	108	100	1	257	61
3	20	/ 1042.5	103.6	1.0	1.0	1.0	160	111	98	2	255	57
4	22.5	/ 1045	105.0	.90	.90	.90	161	114	98	2	254	60
5	25	/ 1047.5	106.3	1.2	1.2	1.2	162	117	98	2	254	61
6	27.5	/ 1050	107.7	.75	.75	.75	158	118	98	2	250	62
	30	/ 1052.5	109.1									
C 1	30	/ 1054	109.1	1.4	1.6	1.6	162	118	98	2	248	65
2	32.5	/ 1056.5	110.7	1.4	1.6	1.6	167	122	99	2	251	62
3	35	/ 1059	112.3	1.4	1.6	1.6	165	124	100	2	251	63
4	37.5	/ 1101.5	114.0	1.5	1.5	1.5	164	125	101	2	252	62
5	40	/ 1104	115.8	1.2	1.2	1.2	164	125	102	2	252	61
6	42.5	/ 1106.5	117.3	1.2	1.2	1.2	158	124	103	2	252	61
	45	/ 1109	118.8	1.								
D 1	45	/ 1110	118.8	1.5	1.5	1.5	161	122	103	2	248	65
2	47.5	/ 1112.5	120.5	1.7	1.7	1.7	160	127	104	2	252	60
3	50	/ 1115	122.3	1.4	1.4	1.4	165	128	104	2	252	60

26.9410

FI DA

lant	NI - Wabe
ite	8-23-90
ampling Location	Stack
ample Type	M5
m Number	119-1
perator	WHH
mbient Temperature	80's
arometric Pressure	29.74
tatic Pressure (P_s)	-.35
ilter Number(s)	420
retest Leak Rate = — cfm @ — in. Hg	
retest Pitot Leak Check	—
retest Orsat Leak Check	—
ead and Record all Data Every 2.5 Minutes	

Schematic of Traverse Point Layout

Probe Length and Type	8'
Pitot Tube I.D. No.	5.1
Nozzle I.D.	.177
Assumed Moisture, %	8
Temp. Readout S/N	055-1
Meter Box Number	055-1
Meter $\Delta H_@$	2.00
C Factor	1.0
Meter Gamma	.999
Heater Box Setting	2
Reference Δp	
Post Test Leak Rate = .006 cfm @ 12 in. Hg	
Post Test Pitot Leak Check	✓
Post Test Orsat Leak Check	✓

Traverse Point Number	Sampling Time, (min)	Clock Time (24-hour clock)	Gas Meter Reading (V_m) ft^3	Velocity Head (ΔP_s) in. H_2O	Orifice Pres. Differential (ΔH) in. H_2O Desired	Actual	Stack Temp. (T_s) °F	Dry Gas Meter Temp. Inlet ($T_{m_{in}}$) °F	Outlet ($T_{m_{out}}$) °F	Pump Vacuum in. Hg	Sample Box Temp. Filter Temp. °F	Impinger Temp. °F
D 4	52.5	1117.5	124.0	1.4	1.4	1.4	159	128	105	2	254	61
5	55	1120	125.8	1.5	1.5	1.5	165	129	105	2	253	61
6	52.5	1122.5	127.4	1.2	1.2	1.2	160	128	106	2	251	62
—	60	1125	128.967									

$\bar{\Delta H}$ = 1.23

Avg. 107.4 ✓

(1)

SAMPLE RECOVERY DATA

Plant: Nello Teer

Date: 8-23-90

Sampling Location: Stack

Sample Type: M5

Run Number: 118-1

Sample Box Number: 1

Clean-up Man: WHH

Job Number: 118

Comments:

FRONT HALF

Filter Number: 420

Description of Filter:

MOISTURE

Impingers

Final Volume:	186 ml	116 ml	0 ml
Initial Volume:	100 ml	100 ml	0 ml
Net Volume:	86 ml	16 ml	ml
Total H_2O:			102

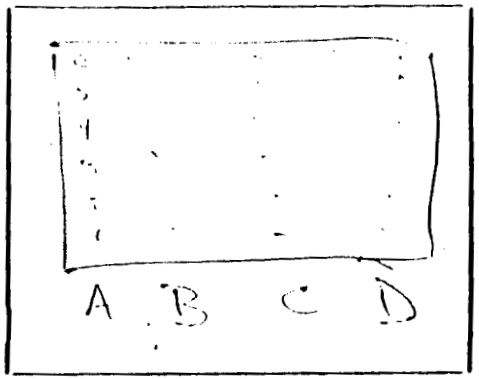
Silica Gel

Final Volume:	345.2 g	g	g
Initial Volume	336.0 g	g	g
Net Volume	g	g	g
Total Moisture:			9.2

Description of Impinger Catch:

FIELD DATA

ant N.T. Wax
te 8-23-90
mpling Location Stack
mple Type M5
n Number 118-2
erator WHH
bient Temperature Ex. s
rometric Pressure 29.76
atic Pressure (P_s) -.45
lter Number(s) 421
etest Leak Rate = .008 cfm @ 15 in. Hg
etest Pitot Leak Check ✓
etest Orsat Leak Check ✓
nd and Record all Data Every 2.5 Minutes



Schematic of Traverse Point Layout

Probe Length and Type 5' glass
Pitot Tube I.D. No. 5-1
Nozzle I.D. #4 .179
Assumed Moisture, % 8
Temp. Readout S/N 055-1
Meter Box Number 055-1
Meter $\Delta H_@$ 2.0
C Factor 1.0
Meter Gamma .994
Heater Box Setting 2
Reference Δp
Post Test Leak Rate = .006 cfm @ 10 in. Hg
Post Test Pitot Leak Check ✓
Post Test Orsat Leak Check ✓

1:00 waiting on Trucks [illegible] Plant down

Traverse Point Number	Sampling Time, (min)	/Clock / Time /(24-hour clock)	Gas Meter Reading (V_m) ft^3	Velocity Head (ΔP_s) in. H_2O	Orifice Pres. Differential (ΔH) in. H_2O Desired	Actual	Stack Temp. (T_s) °F	Dry Gas Meter Temp. Inlet ($T_{m_{in}}$) °F	Outlet ($T_{m_{out}}$) °F	Pump Vacuum in. Hg	Sample Box Temp. Filter Temp. °F	Impinger Temp. °F
A 1	0	/ 1332.5	129.218	.85	.85	.85	154	94	94	1	235	66
2	2.5	/ 1335	130.5	1.4	1.4	1.4	174	101	93	1	240	67
3	5	/ 1337.5	132.0	1.2	1.2	1.2	131	104	93	1	244	64
4	7.5	/ 1340	133.6	1.3	1.3	1.3	168	110	92	1	245	63
5	10	/ 1342.5	135.2	1.3	1.3	1.3	165	112	92	1	246	65
6	12.5	/ 1345	136.7	.95	.95	.95	169	113	93	1	246	65
B 1	15	/ 1347.5 - 1348.5	138.1	1.4	1.4	1.4	165	117	94	1	245	66
2	17.5	/ 1351	139.7	1.2	1.2	1.2	169	121	95	1	248	63
3	20	/ 1353.5	141.2	1.6	1.6	1.6	167	125	96	1	248	63
4	22.5	/ 1356	142.9	1.4	1.4	1.4	172	126	97	1	248	62
5	25	/ 1358.5	144.7	1.1	1.1	1.1	165	124	99	1	248	64
6	30	/ 1401	146.2	.98	.98	.98	167	124	101	1	248	66
C 1	32.5	/ 1403.5 - 1404	147.5	1.8	1.8	1.8	161	128	102	1	246	66
2	35	/ 1406.5	149.4	2.0	2.0	2.0	164	130	104	2	247	64
3	37.5	/ 1409	151.3	2.0	2.0	2.0	162	133	105	2	246	65
4	40	/ 1411.5	153.2	1.9	1.9	1.9	162	133	106	2	249	66
5	42.5	/ 1414	155.1	1.8	1.8	1.8	164	132	107	2	247	67
6	45	/ 1416.5	156.9	1.2	1.2	1.2	159	129	108	2	246	65
D 1	47.5	/ 1419 - 1419.5	158.5	1.5	1.5	1.5	163	128	108	2	243	64
2	50	/ 1422	160.2	1.6	1.6	1.6	156	131	109	2	243	63
3	52.5	/ 1424.5	161.9	1.6	1.6	1.6	161	131	110	2	243	64
4	55	/ 1427	163.7	1.7	1.7	1.7	155	131	110	2	243	64
5	57.5	/ 1429.5	165.5	1.6	1.6	1.6	155	131	110	2	241	65
6	60	/ 1432	167.3	1.4	1.4	1.4	155	130	110	2	240	67
	—	1434.5	168.922	28.795	$\bar{\Delta H}$ = 1.46							

avg. 111.9 ✓

SAMPLE RECOVERY DATA

Plant: Nello Teer - Wake

Date: 8-23-90

Sampling Location: Stack

Sample Type: M5

Run Number: 118-2

Sample Box Number: 1

Clean-up Man: WHH

Job Number: 118

Comments:

FRONT HALF

Filter Number: 421

Description of Filter:

MOISTURE

Impingers

Final Volume:	194 ml	112 ml	0 ml
Initial Volume:	100 ml	100 ml	0 ml
Net Volume:	94 ml	12 ml	0 ml
Total H_2O:			106

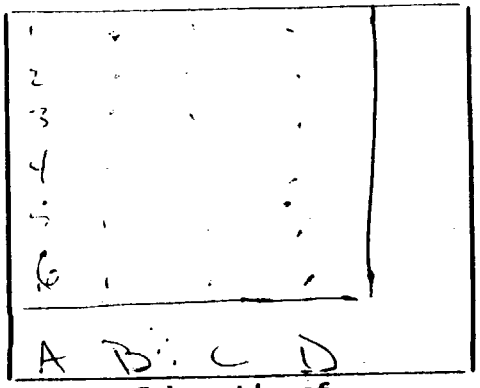
Silica Gel

Final Volume:	362.8 g	g	g
Initial Volume	353.9 g	g	g
Net Volume	8.9 g	g	g
Total Moisture:			

Description of Impinger Catch:

FIELD DATA

ame: N.T. Kine
te: 8-23-90
mpling Location: Stack
mple Type: M5
n Number: 119-3
erator: WHH
bient Temperature: 80s
rometric Pressure: 29.76
atic Pressure (P_s): -.45
lter Number(s): 422
etest Leak Rate = .012 cfm @ 15 in. Hg
etest Pitot Leak Check: ✓
etest Orsat Leak Check: ✓
ad and Record all Data Every 2.5 Minutes



Schematic of Traverse Point Layout

Probe Length and Type: [illegible]
Pitot Tube I.D. No.: 2-1
Nozzle I.D. #6: .179
Assumed Moisture, %: 8
Temp. Readout S/N: 055-1
Meter Box Number: 055-1
Meter $\Delta H_@$: 2.00
C Factor: 1.0
Meter Gamma: .999
Heater Box Setting: 2
Reference Δp:
Post Test Leak Rate = .011 cfm @ 10 in. Hg
Post Test Pitot Leak Check: ✓
Post Test Orsat Leak Check: ✓

Traverse Point Number	Sampling Time, (min)	/Clock / Time /(24-hour clock)	Gas Meter Reading (V_m) ft^3	Velocity Head (ΔP_s) in. H_2O	Orifice Pres. Differential (ΔH) in. H_2O Desired	Orifice Pres. Differential (ΔH) in. H_2O Actual	Stack Temp. (T_s) °F	Dry Gas Meter Temp. Inlet ($T_{m_{in}}$) °F	Dry Gas Meter Temp. Outlet ($T_{m_{out}}$) °F	Pump Vacuum in. Hg	Sample Box Temp. Filter Temp. °F	Impinger Temp. °F
A 1	0	/ 1535	169.242	.85	.85	.85	156	94	95	1	230	67
2	2.5	/ 1537.5	170.6	1.0	1.0	1.0	158	103	95	1	234	66
3	5	/ 1540	171.9	1.2	1.2	1.2	156	108	94	1	238	65
4	7.5	/ 1542.5	173.4	1.2	1.2	1.2	160	113	94	1	241	66
5	10	/ 1545	174.9	1.2	1.2	1.2	158	115	94	1	248	66
6	12.5	/ 1547.5	176.3	.98	.98	.98	149	115	95	1	249	67
B 1	15	/ 1550 1551	177.7	1.5	1.5	1.5	155	115	95	1	244	67
2	17.5	/ 1553.5	179.4	1.8	1.8	1.8	149	122	96	1	243	64
3	20	/ 1556	181.1	1.8	1.8	1.8	157	124	98	1	241	65
4	22.5	/ 1558.5	182.9	1.5	1.5	1.5	153	123	98	1	240	64
5	25	/ 1601	184.7	1.2	1.2	1.2	157	123	99	1	240	64
6	27.5	/ 1603.5	186.2	1.2	1.2	1.2	156	123	100	1	241	64
C 1	30	/ 1606 1607	187.7	1.7	1.7	1.7	156	123	102	2	242	64
2	32.5	/ 1608.5	189.4	1.7	1.7	1.7	156	125	103	2	245	62
3	35	/ 1612	191.2	1.7	1.7	1.7	152	127	104	2	246	63
4	37.5	/ 1614.5	193.0	1.6	1.6	1.6	161	129	105	2	246	62
5	40	/ 1617	194.7	1.4	1.4	1.4	158	129	106	2	245	62
6	42.5	/ 1619.5	196.4	1.5	1.5	1.5	161	128	106	2	245	62
D 1	45	/ 1622 1622.5	198.1	2.0	2.0	2.0	158	128	107	2	244	62
2	47.5	/ 1625	200.0	2.0	2.0	2.0	160	130	107	2	245	62
3	50	/ 1627.5	201.9	2.0	2.0	2.0	160	130	108	2	245	63
4	52.5	/ 1630	203.9	1.8	1.8	1.8	160	130	107	2	244	65
5	55	/ 1632.5	205.7	1.9	1.9	1.9	162	129	108	2	244	66
6	57.5	/ 1635	207.6	1.7	1.7	1.7	156	128	108	2	244	66
	60	1635	209.448	29.3725	$\bar{\Delta H}$ = 1.52						Ave. = ~~109.4~~ 111.2 ✓	

SAMPLE RECOVERY DATA

Plant: N.T. - Wake

Date: 8-23-90

Sampling Location: Stack

Sample Type: MS

Run Number: 118-3

Sample Box Number: 1

Clean-up Man: NHH

Job Number: 118

Comments:

FRONT HALF

Filter Number: 422

Description of Filter:

MOISTURE

Impingers

Final Volume:	193 ml	113 ml	0 ml
Initial Volume:	100 ml	100 ml	- ml
Net Volume:	93 ml	13 ml	ml
Total H_2O:			106

Silica Gel

Final Volume:	329.8 g	g	g
Initial Volume	319.8 g	g	g
Net Volume	10.0 g	g	g
Total Moisture:			

Description of Impinger Catch:

ORSAT FIELD DATA

Plant Name NELLO TEER

Sampling Location STACK Fuel Type —

Run and/or Sample No. 1. Leak Test? ✓ Date 8/23/90 Operator JBW

Time of Sample Collection	Time of Analysis	CO_2 Reading A	O_2 Reading B	CO Reading C	$\%O_2$ B-A	%CO C-B	$\%N_2$ 100-C
1907.5 –	1645	1.9	~~20.4~~ 19.6		17.7		
1125	1650	1.9	19.9		18.0		
	1700	1.9	19.7		17.8		
	Avg.	1.9		Avg.	17.8		

Run and/or Sample No. 2 Leak Test? ✓ Date 8/23/90 Operator JBW WHH

Time of Sample Collection	Time of Analysis	CO_2 Reading A	O_2 Reading B	CO Reading C	$\%O_2$ B-A	%CO C-B	$\%N_2$ 100-C
1325 –	1710	1.9	20.5		18.6		
	1715	1.9	20.1		18.2		
1434.5	1730	1.9	20.4		18.5		
	Avg.	1.9		Avg.	18.4		

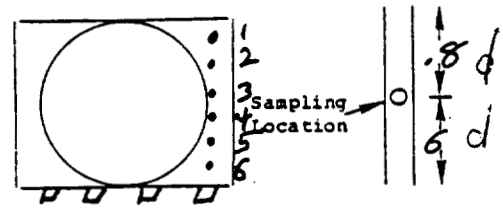
Run and/or Sample No. 3 Leak Test? ✓ Date 8/23/90 Operator WHH

Time of Sample Collection	Time of Analysis	CO_2 Reading A	O_2 Reading B	CO Reading C	$\%O_2$ B-A	%CO C-B	$\%N_2$ 100-C
1535 –	1945	1.8	20.4		18.6		
1637.5	1950	WHH ~~1.8~~ 1.9	20.4		18.5		
	1955	1.8	20.4		18.6		
	Avg.	1.83		Avg.	18.6		

ADDITIONAL INFORMATION:

PRELIMINARY VELOCITY TRAVERSE

Plant: NT ASPHALT (WAKE)
Date: 8/23/80
Location: STACK
Stack I.D.: 01
Barometric Pressure, in. Hg: _____
Stack Gauge Pressure, in. H_2O: _____
Operators: BH + JB
Pitot Tube I.D. Number: S-1
Temperature Readout I.D.: _____
Pitot Tube Leak Check: _____



Schematic of Traverse Point Layout

A B C D

Traverse Point Number	Velocity Head (Δp_s) in. H_2O	Stack Temp. (T_s), °F	Cyclonic Flow Check ° from Null
A-1	.5		
2	.6		
3	1.0		
4	1.0		
5	1.2		
6	1.1		
B-1	.6		
2	.6		
3	.5		
4	.7		
5	.9		
6	1.0		
C-1	1.4		
2	1.4		
3	1.6		
4	1.6		
5	1.7		
6	1.6		
Average			

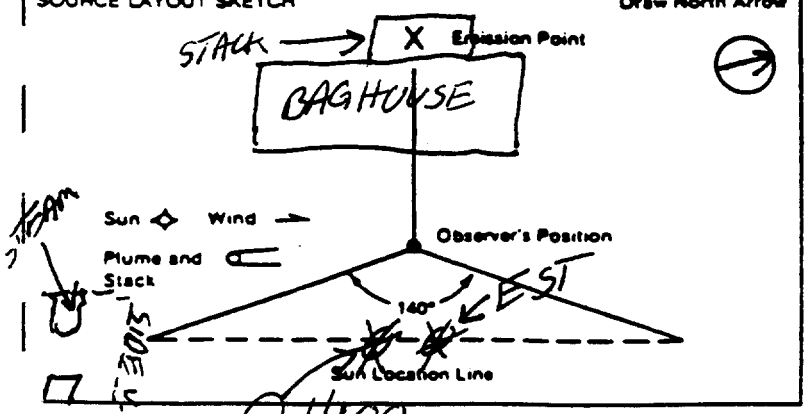
Traverse Point Number	Velocity Head (Δp_s) in. H_2O	Stack Temp. (T_s), °F	Cyclonic Flow Check ° from Null
D-1	1.6		
2	1.7		
3	1.6		
4	1.5		
5	1.6		
6	1.5		
Average			

VISIBLE EMISSION OBSERVATION FORM 2

M8-01

SOURCE NAME	NELLO TEER
ADDRESS	US 1 NORTH
	" WAKE ASPHALT
CITY	RALEIGH
STATE	NC
ZIP	—
PHONE	—
SOURCE ID NUMBER	P# 58,540
PROCESS EQUIPMENT	DRYER
OPERATING MODE	≈ 270 TM/HR
CONTROL EQUIPMENT	BAGHOUSE
OPERATING MODE	CONT
DESCRIBE EMISSION POINT	START ≈ 4½' x 3 RECT STOP STACK
HEIGHT ABOVE GROUND LEVEL	START ≈ 40' STOP ≈ 40'
HEIGHT RELATIVE TO OBSERVER	START ≈ 40' STOP ≈ 40'
DISTANCE FROM OBSERVER	START ≈ 200' STOP ≈ 200'
DIRECTION FROM OBSERVER	START W-NW STOP WNW
DESCRIBE EMISSIONS	START PUFFS STOP SAME
EMISSION COLOR	START BROWN STOP SAME
PLUME TYPE	CONTINUOUS ☑ FUGITIVE ☐ INTERMITTENT ☐
WATER DROPLETS PRESENT	* NO ☐ YES ☑
IS WATER DROPLET PLUME	ATTACHED ☐ DETACHED ☑
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED	START ≈ 4' ABOVE STOP SAME
DESCRIBE BACKGROUND	START SKY STOP SKY
BACKGROUND COLOR	START LT GRY/BL. WH STOP + GRY
SKY CONDITIONS	START 100% cl STOP 80% cl
WIND SPEED	START CALM STOP CALM
WIND DIRECTION	START NA STOP NA
AMBIENT TEMP	START 75°F STOP
WET BULB TEMP	74°F
RH, percent	95%

SOURCE LAYOUT SKETCH — Draw North Arrow



OBSERVATION DATE	START TIME	STOP TIME
8/23/90	0907	1127

MIN \ SEC	0	15	30	45	MIN \ SEC	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	5
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	G	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	5	5	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	5	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	5	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

RANGE OF OPACITY READINGS	MIN 0 MAX 5
HIGHEST AVERAGE OPACITY AND AVERAGING PERIOD	—
NUMBER OF READINGS ≥ 20%	0
MINUTES OPACITY ≥ 20 %	0 × 0.25 = 0

COMMENTS

G = 1 HR 20 MIN (NO TRUCKS)

* NO STEAM PLUME AFTER RE-START

OBSERVER'S NAME (PRINT)	JAMES B. WINEGAR
OBSERVER'S SIGNATURE	J. B. Wineg
DATE	8/23/90
ORGANIZATION	APEX
CERTIFIED BY	ETA
DATE	3/28/90
VERIFIED BY	
DATE	

HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS

SIGNATURE

TITLE

DATE

M9-02

VISIBLE EMISSION OBSERVATION FORM 2

SOURCE NAME	NELLO TEER
ADDRESS	US 1 NORTH
"	LAKE ASPHALT
CITY	RALEIGH
STATE	NC
ZIP	—
PHONE	—
SOURCE ID NUMBER	PA# 5854R
PROCESS EQUIPMENT	DRYER
OPERATING MODE	≈ 200 TN/HR
CONTROL EQUIPMENT	BAGHOUSE
OPERATING MODE	CONT

DESCRIBE EMISSION POINT

START ≈ 4½' x 3' STACK STOP SAME

HEIGHT ABOVE GROUND LEVEL START ≈ 40' STOP ≈ 40'	HEIGHT RELATIVE TO OBSERVER START ≈ 30' STOP ≈ 30'
DISTANCE FROM OBSERVER START ≈ 250' STOP ≈ 250'	DIRECTION FROM OBSERVER START NW STOP NW

DESCRIBE EMISSIONS

START NO VE DETECT STOP SAME

EMISSION COLOR START NA STOP NA	PLUME TYPE CONTINUOUS ☑ FUGITIVE ☐ INTERMITTENT ☐
WATER DROPLETS PRESENT NO ☑ YES ☐	IS WATER DROPLET PLUME ATTACHED ☐ NA DETACHED ☐

POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED

START ≈ 4' ABOVE STOP SAME

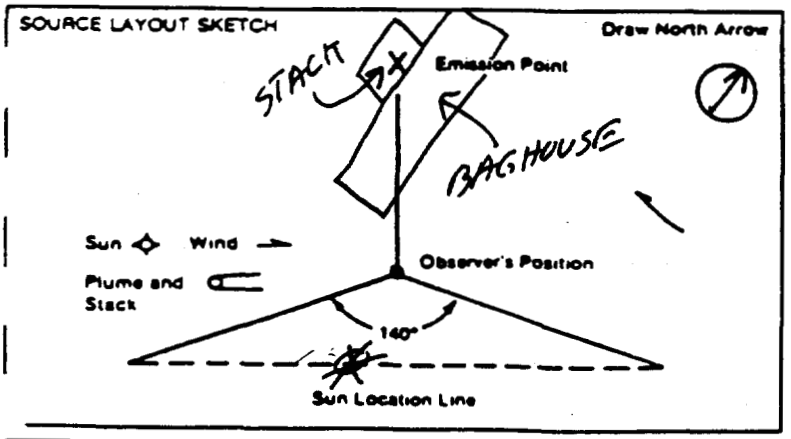
DESCRIBE BACKGROUND

START TREES STOP TREES

BACKGROUND COLOR START GRN STOP GRN	SKY CONDITIONS START 80%cl STOP 80%cl
WIND SPEED START 4-6 STOP 4-6	WIND DIRECTION START E STOP E

AMBIENT TEMP START 88°F STOP 86°F	WET BULB TEMP 82°F	RH, percent 77%

SOURCE LAYOUT SKETCH



COMMENTS

G = 18 MIN

HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS

SIGNATURE

TITLE

DATE

OBSERVATION DATE	START TIME	STOP TIME
8/23/90	1315	1433

MIN \ SEC	0	15	30	45	MIN \ SEC	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	G	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	0	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	0	0	0	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	0	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

RANGE OF OPACITY READINGS MIN 0 MAX 0	HIGHEST AVERAGE OPACITY AND AVERAGING PERIOD —
NUMBER OF READINGS ≥ 20 % 0	MINUTES OPACITY ≥ 20 % 0 x 0.25 = 0

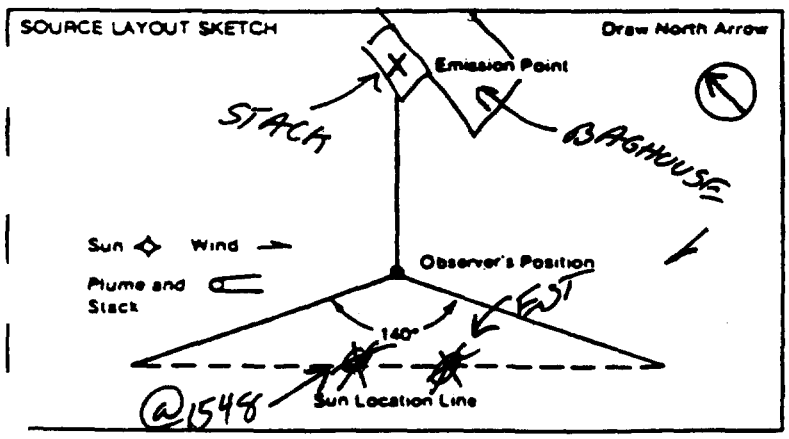
OBSERVER'S NAME (PRINT) JAMES B. WINEGAR	
OBSERVER'S SIGNATURE J. B. Wineg	DATE 8/23/90
ORGANIZATION APEX	
CERTIFIED BY EPA	DATE 3/28/90
VERIFIED BY	DATE

M8-3

VISIBLE EMISSION OBSERVATION FORM 2

SOURCE NAME	NELLO TEER
ADDRESS	US 1 NORTH
	"WAKE ASPHALT"
CITY	RALEIGH
STATE	NC
ZIP	—
PHONE	—
SOURCE ID NUMBER	PA# 5854R
PROCESS EQUIPMENT	DRYER
OPERATING MODE	≈ 200 TM/HR
CONTROL EQUIPMENT	BAGHOUSE
OPERATING MODE	CONT
DESCRIBE EMISSION POINT	START ≈ 4½' x 3' STACK STOP SAME
HEIGHT ABOVE GROUND LEVEL	START ≈ 40' STOP ≈ 40'
HEIGHT RELATIVE TO OBSERVER	START ≈ 40' STOP ≈ 40'
DISTANCE FROM OBSERVER	START ≈ 200' STOP ≈ 200'
DIRECTION FROM OBSERVER	START NE STOP NE
DESCRIBE EMISSIONS	START PUFFS STOP SAME
EMISSION COLOR	START DRKN STOP SAME
PLUME TYPE	CONTINUOUS ☑ FUGITIVE ☐ INTERMITTENT ☐
WATER DROPLETS PRESENT	NO ☑ YES ☐
IS WATER DROPLET PLUME	ATTACHED ☐ NA DETACHED ☐
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED	START ≈ 4' ABOVE STOP SAME
DESCRIBE BACKGROUND	START SKY STOP SKY
BACKGROUND COLOR	START LT GRY STOP SAME
SKY CONDITIONS	START 100% cl STOP 100% cl
WIND SPEED	START 4-6 STOP 4-6
WIND DIRECTION	START E STOP E
AMBIENT TEMP	START 88°F STOP 79°F
WET BULB TEMP	82°F
RH, percent	84%

SOURCE LAYOUT SKETCH



OBSERVATION DATE	START TIME	STOP TIME
8/23/90	1535	1635

MIN \ SEC	0	15	30	45	MIN \ SEC	0	15	30	45
1	0	0	0	0	31	0	0	0	0
2	0	0	0	0	32	0	0	0	0
3	0	0	0	0	33	0	0	0	0
4	0	0	0	0	34	0	0	0	0
5	0	0	0	0	35	0	0	0	0
6	0	0	0	0	36	5	0	0	0
7	0	0	0	0	37	0	0	0	0
8	0	0	0	0	38	0	0	0	0
9	0	0	0	0	39	0	0	0	0
10	0	0	0	0	40	0	0	0	0
11	0	0	0	0	41	0	0	0	0
12	0	0	0	0	42	0	0	0	0
13	0	0	0	0	43	0	0	0	0
14	0	0	0	0	44	0	0	0	0
15	0	5	5	5	45	0	0	0	0
16	0	0	0	0	46	0	0	0	0
17	0	0	0	0	47	0	0	0	0
18	0	0	0	0	48	0	0	0	0
19	0	0	0	0	49	0	0	0	0
20	0	0	0	0	50	0	0	0	0
21	0	0	0	0	51	0	0	0	0
22	0	0	0	0	52	0	0	0	0
23	0	0	0	0	53	0	0	0	0
24	0	0	0	0	54	0	0	0	0
25	0	0	0	0	55	0	0	0	0
26	0	0	0	0	56	0	0	0	0
27	0	0	5	0	57	0	0	0	0
28	0	0	0	0	58	0	0	0	0
29	0	0	0	0	59	0	0	0	0
30	0	0	0	0	60	0	0	0	0

RANGE OF OPACITY READINGS	MIN 0 MAX 5
HIGHEST AVERAGE OPACITY AND AVERAGING PERIOD	—
NUMBER OF READINGS ≥ 20 %	0
MINUTES OPACITY ≥ 20 %	0 × 0.25 = 0

COMMENTS

HAVE RECEIVED A COPY OF THESE OPACITY OBSERVATIONS

SIGNATURE

TITLE

DATE

OBSERVER'S NAME (PRINT)	JAMES B. WINEGAR
OBSERVER'S SIGNATURE	J. B. Wineg
DATE	8/23/90
ORGANIZATION	APEX
CERTIFIED BY	ETA
DATE	3/28/90
VERIFIED BY	
DATE	

CLIENT/MODEL Nello Teer PROJECT # 118 RUN # 118-1

Prepared by: WHH date/time On site Filters: size-~~11.0~~ 8.26 cm

Recovered by: WHH date/time 8/24 1040 brand-Whatman 934AH

Placed in Desiccator: date/time filters 8/24 1040 beaker 8/26 0925

Acetone lot # 891694 Acetone rinse: beaker wt. w/rinse 146.4 g

Acetone blank concentration .004 mg/g beaker tare wt. 80.3 g

net rinse 66.1 g

Blank Adjustment = blank conc. .004 mg/g x net rinse 66.1 g = 0.3 mg

	Date/time	Filter # 400	Beaker # 154	Room conditions R.H.%	Room conditions temp.	Cal. audit
wt.1	8/25 0925	.3516		44	73	.5000
wt.2	8/26 0915	.3517		44	65	.5000
wt.3	8/27 1100	—	80.3353	48	67	.5000 100.0000
wt.4	8/27 1820		80.3349	45	76	100.0000
wt.5			—			
wt.6						
wt.7						
wt.8						
wt.9						

Final wt.	.3517	80.3351
Tare wt(s).	front .3516	80.3271
	~~rear~~	

Filter gain 0.1 mg

Beaker gain + 8.0 mg

Blank adjust. - 0.3 mg

Net gain 0.1 mg 8.0 mg TOTAL = 7.8 mg

CLIENT/MODEL Nallo Tpzr PROJECT # 118 RUN # 118-2

Prepared by: WHH date/time On site Filters: size-~~11.0~~ 8.26 cm

Recovered by: WHH date/time 8/24 1040 brand-Whatman 934AH

Placed in Desiccator: date/time filters 8/24 1040 beaker 8/26 0925

Acetone lot # 891694 Acetone rinse: beaker wt. w/rinse 163.7 g

Acetone blank concentration .004 mg/g beaker tare wt. 80.1 g

net rinse 83.6 g

Blank Adjustment = blank conc. .004 mg/g x net rinse 83.6 g = 0.3 mg

	Date/time	Filter # 421	Beaker # 155	Room conditions R.H.%	Room conditions temp.	Cal. audit
wt.1	8/25 0925	.3528		44	73	.5000
wt.2	8/26 0915	.3528		44	65	.5000
wt.3	8/27 1100		80.1096	48	67	.5000 100.0000
wt.4	8/27 1020		80.1096	45	76	100.0000
wt.5			—			
wt.6						
wt.7						
wt.8						
wt.9						

Final wt.	.3528	80.1096
Tare wt(s).	front .3528	80.1018
	~~rear~~	

Filter gain 0 mg

Beaker gain + 7.8 mg

Blank adjust. - 0.3 mg

Net gain 0.0 mg 7.8 mg TOTAL = 7.5 mg

CLIENT/MODEL Nello Test PROJECT # 118 RUN # 118-3

Prepared by: WHH date/time On-site Filters: size-~~11.0~~ 8.26 cm

Recovered by: WHH date/time 8/24 10:40 brand-Whatman 934AH

Placed in Desiccator: date/time filters 8/24 10:40 beaker 8/26 0925

Acetone lot # 891694 Acetone rinse: beaker wt. w/rinse 149.8 g

Acetone blank concentration .004 mg/g beaker tare wt. 80.6 g

net rinse 69.2 g

Blank Adjustment = blank conc. .004 mg/g x net rinse 69.2 g = 0.3 mg

	Date/time	Filter # 422	Beaker # 156	Room conditions R.H.%	temp.	Cal. audit
wt.1	8/25 0925	.3552		44	73	.5000
wt.2	8/26 0915	.3550		44	65	.5000
wt.3	8/27 1100		80.6165	48	67	.5000 100.0000
wt.4	8/27 1320		80.6160	45	76	100.0000
wt.5						
wt.6						
wt.7						
wt.8						
wt.9						

Final wt.	.3551	80.6162
Tare wt(s).	front .3537	80.6114
	~~rear~~	

Filter gain 1.4 mg

Beaker gain + 4.8 mg

Blank adjust. - 0.3 mg

Net gain 1.4 mg 4.8 mg TOTAL = 5.9 mg

CLIENT/MODEL Nello Teer PROJECT # 118 RUN # 118-blank

Prepared by: WHH date/time On site Filters: size-11.0 cm

Recovered by: WHH date/time 8/24 1040 brand-Whatman 934AH

Placed in Desiccator: date/time filters _____ beaker 8/26 0925

Acetone lot # 891694 Acetone rinse: beaker wt. w/rinse 148.2 g

Acetone blank concentration 0.3/68.2 mg/g beaker tare wt. 80.0 g

= 0.004 mg/g net rinse 68.2 g

Blank Adjustment = blank conc._____ mg/g x net rinse _____ g = _____ mg

	Date/time	Filter # —	Beaker # 157	Room conditions R.H.%	Room conditions temp.	Cal. audit
wt.1	8/27 1100		80.0100	48	67	100.0000
wt.2	8/27 1820		80.0098	45	76	100.0000
wt.3						
wt.4						
wt.5						
wt.6						
wt.7						
wt.8						
wt.9						

Final wt.	—	80.0099
Tare wt.	—	80.0096

Filter gain _____ mg

Beaker gain +_____ mg

Blank adjust. -_____ mg

Net gain _____ mg 0.3 mg TOTAL = _____ mg

Appendix B

Calibration Data

WO 852

Proof Record

Apex

4-90
DATE

Company Meter Number	#1 Repair C	#2 Repair D	#3 Repair E	#4 Repair F	#5 Repair G	H	IN PROOF OPEN I	IN PROOF CHECK J	K	OUT PROOF OPEN L	OUT PROOF CHECK M	PURCHASE OR.
Rockwell												
S-110												
Standard"												
Dry Gas Test Meter												
#997881												
Ave. all Flow												
Rates		.999625										
Highest Rate	.99975											
Lowest Rate	.9995											

RECEIVED APR 0 4 1990

Measurement Controls, Inc.

12 S. Main Street • P.O. Box 997 • Huntersville, NC 28078 • (704) 875-2034

DRY GAS METER CALIBRATION DATA

(English Units) (Initial) Post Test

Calibration Meter # 997881 Y = 9996

Barometric Pressure, Pb = 29.84

Date 8-21-90

Meter Box # USS-1

Dry Gas Meter # USS-1

Run #	Manometer Pressure Cal. Meter ΔHw	Gas Volume Calibration Meter Vc ft³	Gas Volume Dry Gas Meter Vd ft³	Temperature Calibration Meter In	Out	Temperature Dry Gas Meter In	Out	Time θ Min. .00	Y	ΔHa
5	0	final 934.478	final 1005.033	initial	182	initial	116	98	15.07	.9933
		initial 923.562	initial 998.802	mid.	182	mid.	117	100		
		total 5.916	total 6.231	final	182	final	112	109		
		5.914		ave.	542	ave.	563			
0	0	final 940.217	final 11.068	initial	181	initial	118	99	11.0	.9987	2.00
		initial 934.480	initial 5.033	mid.	181	mid.	120	99			
		total 5.729	total 6.035	final	181	final	124	98			
		5.737		ave.	541	ave.	569.7				
0	0	final 947.954	final 19.212	initial	181	initial	125	99	10.5	1.0033	1.9
		initial 940.217	initial 11.068	mid.	181	mid.	128	100			
		total 7.737	total 8.144	final	181	final	132	101			
		7.734		ave.	541	ave.	574.2				
3.5	0	final 971.168	final 43.754	initial	181	initial	130	102	24.0	1.0020	2.0
		initial 947.954	initial 19.212	mid.	181	mid.	133	104			
		total 23.214	total 24.542	final	181	final	135	106			
					541		118.3	ΔHa	578.3		

$$\frac{V_m}{V_d}\frac{\left(P_b - \frac{\Delta H}{13.6}\right)}{\left(P_b + \frac{\Delta H}{13.6}\right)}\frac{(t_d + 460)}{(T_m + 460)} \qquad \frac{0.0317\ \Delta H}{P_b\,(t_d + 460)}\left[\frac{T_m + 460\ @}{V_m}\right]^2$$

ΔH@		
0.5	$\frac{(5.914)(29.84)(563)}{(6.231)(29.88)(542)} = 0.9933$	$\Delta H@ = \frac{(0.0317)(.5)}{\cancel{(29.84)(563)}}\left[\frac{542 \times 15.07}{5.914}\right]^2 = 1.77$
1.0	$\frac{(5.737)(29.84)(569.7)}{(6.035)(29.91)(541)} = 0.9987$	$\frac{(.0317)(1)}{(29.84)(569.7)}\left[\frac{(541)(11.0)}{5.737}\right]^2 = 2.006$
2.0	$\frac{(7.737)(29.84)(574.2)}{(8.144)(29.99)(541)} = 1.0033$	$\frac{(.0317)(2)}{(29.84)(574.2)}\left[\frac{(541)(10.5)}{7.737}\right]^2 = 1.995$
3.5	$\frac{(23.205)(29.84)(578.3)}{(24.542)(30.10)(541)} = 1.0020$	$\frac{(.0317)(3.5)}{(29.84)(578.3)}\left[\frac{(541)(24)}{23.205}\right]^2 = 2.013$

Meter leak check front ✓ back ✓

Pitot leak check ✓

Temperature check ✓

$\bar{Y} = .999$

$\Delta Ha = 2.005$

DRY GAS METER CALIBRATION DATA

(English Units) Pretest Post Test

Calibration Meter # 997881 Y = .9996

Date 8-24-90 Barometric Pressure, Pb = 29.58

Meter Box # 4155 1 Dry Gas Meter # Andersen

Vacuum mm Hg (in. Hg)	Manometer Pressure Cal. Meter ΔH@	Gas Volume Calibration Meter Vw ft³	Gas Volume Dry Gas Meter Vd ft³	Temperature						Time # Min. .00	Y	ΔH@
				Calibration Meter In	Out	Dry Gas Meter In	Out					
5	1.5	final 1001.419	final 241.616	initial	177	initial	106	193		10.00		
		initial 994.961	initial 234.719	mid.	178	mid.	113	193				
		total 6.458	total 10.797	final	178	final	115	194				
				ave.	537.6	77.6	ave.	113.3	193.3	102.3	562.3	
5	1.5	final 28.499	final 249.115	initial	178	initial	108	195		21.00		
		initial [illegible]	initial 241.616	mid.	178	mid.	114	195				
		total 7.080	total 7.499	final	178	final	115	195				
				ave.	539.0	ave.	103.6	563.31				
5		final 14.439	final 255.959	initial	178	initial	114	195				
		initial 8.499	initial 249.115	mid.	178	mid.	115	197				
		total 6.440	total 6.844	final	178	final	117	198				
				ave.	538	ave.	115.3			566.		
		final	final	initial		initial						
		initial	initial	mid.		mid.						
		total	total	final		final						

$$\frac{V_w}{V_d}\frac{\left(P_b - \frac{\Delta H}{13.6}\right)}{\left(P_b + \frac{\Delta H}{13.6}\right)}\frac{(t_d + 460)}{(T_w + 460)} \qquad \text{Vacuum @ 5 in Hg} \qquad \frac{0.0317\ \Delta H}{P_b}\frac{t_d + 460}{}\left[\frac{T_w + 460}{V_w}\right]^2$$

ΔH		
1.5	$\frac{(6.458)(29.58)(.9996)(562.3)}{(6.797)(29.69)(537.6)}$	$\frac{(.0317)(1.5)}{29.58}$ .98970
1.5	$\frac{(7.080)(29.58)(.9996)(563.3)}{(7.499)(29.69)(538)}$	.98447
1.5	$\frac{(6.440)(29.58)(.9996)(566)}{(6.844)(29.69)(538)}$	.98598
		AVE = .9867

Meter box leak check front ✓ back ✓

Pitot leak check ✓

Mechanical check ✓

TAR

NOZZLE NUMBER: #6

Nominal inner diameter: 3/16 in. Construction Material: SS

Date	Initials		dia. 1	dia. 2	dia. 3		Average		
8-23-90	WHH		.179	.179	.179		.179		

PITOT TUBE

INSPECTION

PITOT ID#: 5-1

Date: 2-8-90

By: WHH

Pitot tube assembly level? ✓ yes _____ no

Pitot tube openings damaged? _____ yes (explain below) ✓ no

α_1 = 0 ° (<10°), α_2 = 1 ° (<10°), β_1 = 0 (<5°),

β_2 = 0 ° (<5°)

γ = 1 °, θ = 0 °, A = 1.25 cm (in.)

z = A sin γ = .020 cm (in.); <0.32 cm (<1/8 in.),

w = A sin θ = 0 cm (in.); <0.08 cm (<1/32 in.)

P_A .545 cm (in.) P_b .539 cm (in.)

D_t = 3/8 cm (in.)

Comments: modular tip mounted on S/N 5.

none

Calibration required? _____ yes ✓ no

Apex Environmental Services, Inc.

ANALYTICAL BALANCE CALIBRATION FORM

Balance name Mettler AE100 Number SNR K04827

Classification of standard weights "S"

Date	0.5000g	10.0000 g	30.0000 g	60.0000 g	100.0000 g	Analyst
1/7/90	.5000	10.0000	30.0000	60.0000	100.0000	WAH

BALANCE CALIBRATION FORM

Balance name Ohaus Triple Beam **Number** #1

Classification of standard weights S

Date	5 g	30 g	100 g	200 g	235 g	Analyst
1-11-90	5.05	30.05	100.05/99.95	199.95	234.90	WHH
5-9-90	5.05	30.05	10 [illegible] / 100 [illegible] 100.05/99.95	199.95	234.95	WHH

Barometer - Swift Scientific

reference: Hg barometer

Date	Actual Hg	Room Temp (°F)	Collected Hg	Initial Aneroid	Adjusted to	Initial
4-5-89	29.84	70°	29.70	29.75	29.70	WH
12-27-89	30.04	64°	29.92	29.87	29.92	WHH
6-4-90	29.60	NA		29.57	29.60	WH

THERMOCOUPLE CALIBRATION DATA SHEET

Date 5-10-90

Ambient Temperature (F°) 65

Barometric Pressure (in. Hg) 29.25

Calibrator WHH

Reference Thermometer Hg/glass

Thermocouple Readout Omega M115 K w/ 20 channel switch + Nanmac USS#1

Thermocouple Id.	Freezing Point		Ambient		Boiling Point			
	Reference Thermometer	Thermocouple Readout	Reference Thermometer	Thermocouple Readout	Reference Thermometer	Thermocouple Readout	Reference Thermometer	Thermocouple Readout
500 ft spool	TT-K-24 SLE		Lot# CCH1307PTC (Teflon insulation)		AL 1464 P	- Special	limits of error	
	32	32	65	65	211	211		
		32		65				
		31		65				
		32		65				
		31		65				
1000 ft spool	EX PP-K-24S		Lot#	+CCH1297 PTC	AL 1298P			
	32	32	65	65	211	211		
	32	32	65	65	211	211		

Apex Environmental Services, Inc.

Appendix C

Sampling and Analytical Procedures

Appendix D

Weigh Tickets

Note: Weigh tickets were miscoded as to time and date at the start of the test series. This was noted and correct at 11:39 am.

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1
Job# 1
Truck# MF139
Mix# HDS
Name HEAVY DUTY SURFACE

Ticket # 667105

Operator

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2456	7568			432		8000
12:38:59	0	2730	7515	7515	0	429	429	7944
12:39:39	0	2420	7635	7635	0	431	431	16010
12:40:43	0	2410	7495	7495	0	433	433	23938
12:41:46	0	2440	7595	7595	0	427	427	31960

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
56	31960	970.43	12:42:38 pm Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1
Job# 1
Truck# MF141
Mix# HDS
Name HEAVY DUTY SURFACE

Ticket # 667106

Operator

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
1:10:54	0	3030	6575	6575	0	375	375	6950
1:11:32	0	2955	6675	6675	0	371	371	13996
1:13:04	0	2900	6525	6525	0	372	372	20893
1:13:55	0	2830	6515	6515	0	370	370	27778
1:14:44	0	2865	6605	6605	0	374	374	34757

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
1	34757	17.38	1:15:18 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667107
Job# 1
Truck# MF138 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
1:17:19	0	2765	6490	6490	0	374	374	6864
1:18:06	0	2835	6550	6550	0	374	374	13788
1:19:02	0	2850	6485	6485	0	371	371	20644
1:19:51	0	2760	6575	6575	0	369	369	27588
1:20:42	0	2755	6510	6510	0	378	378	34476

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
2	34476	34.62	1:22:05 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667108
Job# 1
Truck# MF143 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
1:23:46	0	3040	6555	6555	0	371	371	6926
1:24:25	0	2740	6485	6485	0	369	369	13780
1:26:10	0	2825	6475	6475	0	373	373	20628
1:26:57	0	2770	6615	6615	0	374	374	27617
1:28:20	0	2740	6555	6555	0	378	378	34550

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
3	34550	51.89	1:29:04 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer: NELLO L.TEER CO.
Job: NELLO L. TEER CO.
Cust# 1 Ticket # 667109
Job# 1
Truck# MF156 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2890	6717			383		7100
1:31:05	0	3165	6710	6710	0	383	383	7093
1:31:52	0	2835	6770	6770	0	379	379	14242
1:33:31	0	2865	6780	6780	0	387	387	21409
1:34:35	0	2840	6765	6765	0	387	387	28561
1:36:02	0	2880	6710	6710	0	384	384	35655

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
4	35655	69.72	1:37:52 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer: NELLO L.TEER CO.
Job: NELLO L. TEER CO.
Cust# 1 Ticket # 667110
Job# 1
Truck# MF145 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2808	6527			373		6900
1:39:07	0	3035	6505	6505	0	369	369	6874
1:39:47	0	2760	6485	6485	0	370	370	13729
1:40:54	0	2740	6480	6480	0	375	375	20584
1:42:22	0	2775	6610	6610	0	375	375	27569
1:44:04	0	2795	6560	6560	0	372	372	34501

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
5	34501	86.97	1:44:59 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer	Job		
N.C.DOTE	N.C. DOTE	Cust# 26	Ticket # 667111
FRANKLIN,CO		Job# 26	
		Truck# 3114	Operator
		Mix# HDS	
		Name HEAVY DUTY SURFACE	

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2849	6622			378		7000
1:47:04	0	3090	6650	6650	0	377	377	7027
1:47:44	0	3000	6620	6620	0	375	375	14022

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
1	14022	7.01	1:48:16 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer	Job		
N.C.DOTE	N.C. DOTE	Cust# 26	Ticket # 667112
FRANKLIN,CO		Job# 26	
		Truck# 2683	Operator
		Mix# HDS	
		Name HEAVY DUTY SURFACE	

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2849	6622			378		7000
1:49:23	0	2905	6640	6640	0	376	376	7016
1:50:04	0	2795	6750	6750	0	375	375	14141

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
2	14141	14.00	1:51:11 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667113
Job# 1
Truck# MF135 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3188	7410			423		7833
1:52:26	0	3355	7370	7370	0	425	425	7795
1:53:07	0	3125	7410	7410	0	421	421	15626
1:54:34	0	3120	7450	7450	0	427	427	23503
1:56:09	0	3135	7430	7430	0	427	427	31360
1:57:16	0	3175	7545	7545	0	425	425	39330
1:58:33	0	3170	7495	7495	0	423	423	47248

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
6	47248	118.59	1:59:43 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
N.C.DOTE
FRANKLIN,CO

Job
N.C. DOTE

Cust# 26 Ticket # 667114
Job# 26
Truck# 2675 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2849	6622			378		7000
2:01:10	0	3115	6600	6600	0	375	375	6975
2:01:51	0	2785	6610	6610	0	378	378	13963

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
3	13963	21.06	2:02:39 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer	Job		
N.C.DOTE	N.C. DOTE	Cust# 26	Ticket # 667115
FRANKLIN,CO		Job# 26	
		Truck# 3324	Operator
		Mix# HDS	
		Name HEAVY DUTY SURFACE	

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3256	7568			432		8000
2:03:59	0	3445	7630	7630	0	429	429	8059
2:04:40	0	3220	7575	7575	0	431	431	16065

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
4	16065	29.09	2:05:49 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer	Job		
NELLO L.TEER CO.	NELLO L. TEER CO.	Cust# 1	Ticket # 667116
		Job# 1	
		Truck# MF160	Operator
		Mix# HDS	
		Name HEAVY DUTY SURFACE	

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2890	6717			383		7100
2:07:09	0	3095	6680	6680	0	386	386	7066
2:07:49	0	2905	6750	6750	0	380	380	141%
2:08:38	0	2865	6720	6720	0	389	389	21385
2:11:25	0	2850	6740	6740	0	385	385	35576

2:09:58	0	2835	6765	6765	0	381	381	35576

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
7	35576	128.38	2:13:29 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667117
Job# 1
Truck# MF152 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3256	7568			432		8000
2:14:18	0	3500	7575	7575	0	433	433	8000
2:15:00	0	3180	7700	7700	0	430	430	16138
2:16:04	0	3185	7560	7560	0	436	436	24134
2:17:42	0	3225	7570	7570	0	432	432	32136

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
8	32136	144.45	2:18:47 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667118
Job# 1
Truck# MF154 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2890	6717			383		7100
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	383	7228

2:21:57	0	2855	6720	6720	0	366	366	21456
2:23:27	0	2855	6765	6765	0	379	379	28600
2:24:31	0	2870	6725	6725	0	381	381	35706

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
9	35706	162.30	2:25:27 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
N.C.DOTE
FRANKLIN,CO

Job
N.C. DOTE

Cust# 26 Ticket # 667119
Job# 26
Truck# 4184 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3256	7568			432		8000
2:27:10	0	3525	7675	7675	0	439	439	8114
2:27:52	0	3285	7520	7520	0	427	427	16061

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
5	16061	37.12	2:29:11 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667120
Job# 1
Truck# MF165 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3256	7568			432		8000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	434	434	7989

3:53:09	0	3430	7615	7615	0	434	434	24045
3:53:58	0	3360	7635	7635	0	430	430	32110
3:54:47	0	3355	7545	7545	0	434	434	40089
3:55:35	0	3220	7690	7690	0	431	431	48210

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
10	48210	186.40	3:56:39 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667121
Job# 1
Truck# MF144 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
3:58:13	0	2940	6500	6500	0	370	370	6870
3:58:59	0	2865	6555	6555	0	376	376	13801
3:59:47	0	2785	6540	6540	0	375	375	20716
4:00:57	0	2780	6570	6570	0	369	369	27655
4:02:09	0	2750	6555	6555	0	372	372	34582

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
11	34582	203.69	4:03:04 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667122
Job# 1
Truck# MF133 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3188	7410			423		7833
[illegible]	0	[illegible]	7470	7470	0	426	426	7896

4:06:34	0	3250	7368	7368	0	424	424	23082
4:09:23	0	3190	7390	7390	0	422	422	31414
4:10:11	0	3230	7415	7415	0	424	424	39253
4:11:01	0	3125	7485	7485	0	427	427	47085

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
12	47085	227.23	4:11:48 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667123
Job# 1
Truck# MF132 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3188	7410			423		7833
4:13:29	0	3375	7495	7495	0	422	422	7917
4:14:09	0	3160	7430	7430	0	422	422	15769
4:16:43	0	3385	7365	7365	0	421	421	23555
4:17:32	0	3250	7490	7490	0	425	425	31470
4:18:21	0	3160	7395	7395	0	424	424	39289
4:19:49	0	3115	7515	7515	0	427	427	47231

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
13	47231	250.85	4:20:41 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667124
Job# 1
Truck# MF141 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2808	6527			373		6900
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	373	373	6909

4:23:39	0	2785	6525	6525	0	373	373	20659
4:24:49	0	2750	6525	6525	0	372	372	27556
4:25:58	0	2755	6590	6590	0	377	377	34523

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
14	34523	268.11	4:26:39 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer: NELLO L.TEER CO.
Job: NELLO L. TEER CO.
Cust# 1 Ticket # 667125
Job# 1
Truck# MF138 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
4:28:00	0	2785	6560	6560	0	371	371	6931
4:28:40	0	2790	6525	6525	0	369	369	13825
4:29:28	0	2770	6545	6545	0	372	372	20742
4:30:54	0	2770	6625	6625	0	374	374	27741
4:31:56	0	2785	6580	6580	0	374	374	34695

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
15	34695	285.46	4:32:41 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer: NELLO L.TEER CO.
Job: NELLO L. TEER CO.
Cust# 1 Ticket # 667126
Job# 1
Truck# MF143 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
						373	373	6948

4:35:44	0	2745	6565	6565	0	372	372	28730
4:37:01	0	2785	6475	6475	0	376	376	27581
4:38:04	0	2795	6565	6565	0	372	372	34518

oad #	Load Total	Job Total	Time & Date	Fob/Del	Location
16	34518	382.72	4:38:57 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
N.C.DOTE
FRANKLIN,CO

Job
N.C. DOTE

Cust# 26 Ticket # 667127
Job# 26
Truck# 3324 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3256	7568			432		8000
4:40:10	0	3245	7625	7625	0	431	431	8056
4:40:59	0	3255	7690	7690	0	432	432	16178

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
6	16178	45.21	4:42:20 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667128
Job# 1
Truck# MF156 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2890	6717			383		7100

4:45:14	0	2830	6715	6715	0	382	382	21298
4:46:22	0	2830	6790	6790	0	386	386	28474
4:47:28	0	2850	6860	6860	0	387	387	35721

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
17	35721	328.58	4:48:06 am Jan 1, 1986	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667129
Job# 1
Truck# MF156 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2890	6717			383		7100
4:48:22	0	2860	6705	6705	0	381	381	7086
4:49:26	0	2875	6870	6870	0	385	385	14341
4:50:33	0	2880	6710	6710	0	387	387	21438
4:51:57	0	2895	6770	6770	0	379	379	28587
11:39:51	0	2890	6720	6720	0	383	383	35690

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
18	35690	338.42	11:40:39 am Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667130
Job# 1
Truck# MF135 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
[illegible]		2100	7410			423		7833
[illegible]		[illegible]	[illegible]			[illegible]		7815

11:43:50	0	3125	7490	7490	0	427	427	23681
11:45:14	0	3150	7415	7415	0	418	418	31514
11:46:19	0	3165	7355	7355	0	424	424	39293
11:47:30	0	3190	7355	7355	0	426	426	47074

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
19	47074	361.96	11:48:43 am Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667131
Job# 1
Truck# MF145 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
11:49:48	0	3000	6630	6630	0	371	371	7001
11:50:27	0	2755	6495	6495	0	368	368	13864
11:51:26	0	2760	6590	6590	0	374	374	20828
11:52:15	0	2780	6525	6525	0	374	374	27727
11:53:32	0	2785	6515	6515	0	371	371	34613

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
20	34613	379.27	11:54:40 am Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
N.C.DOTE
FRANKLIN,CO

Job
N.C. DOTE

Cust# 26 Ticket # 667132
Job# 26
Truck# 4184 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
		[illegible]	7568			432		8000
								8126

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
7	16229	53.32	11:57:21 am Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
N.C.DOTE
FRANKLIN,CO

Job
N.C. DOTE

Cust# 26 Ticket # 667133
Job# 26
Truck# 2675 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2849	6622			378		7000
1:30:29	0	3000	6550	6550	0	377	377	6927
1:31:14	0	2955	6670	6670	0	379	379	13976

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
8	13976	60.31	1:31:47 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
N.C.DOTE
FRANKLIN,CO

Job
N.C. DOTE

Cust# 26 Ticket # 667134
Job# 26
Truck# 3114 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2849	6622			378		7000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	388	388	7090

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
9	14130	67.38	1:34:30 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
N.C.DOTE
FRANKLIN,CO

Job
N.C. DOTE

Cust# 26 Ticket # 667135
Job# 26
Truck# 2683 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2849	6622			378		7000
1:35:32	0	3075	6610	6610	0	374	374	6984
1:36:17	0	2870	6620	6620	0	377	377	13981

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
10	13981	74.37	1:37:00 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667136
Job# 1
Truck# MF165 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3256	7568			432		8000
				[illegible]	[illegible]	433	433	8003

1:39:49	0	3180	7530	7530	0	437	437	24092
1:41:18	0	3200	7535	7535	0	429	429	32056
1:42:34	0	3195	7540	7540	0	434	434	40030
1:43:37	0	3230	7620	7620	0	431	431	48081

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
21	48081	483.31	1:44:21 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667137
Job# 1
Truck# MF133 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3180	7410			423		7833
1:45:31	0	3435	7545	7545	0	419	419	7964
1:46:12	0	3160	7460	7460	0	424	424	15848
1:47:28	0	3135	7410	7410	0	425	425	23683
1:48:43	0	3150	7390	7390	0	425	425	31498
1:49:31	0	3160	7575	7575	0	421	421	39494
1:50:39	0	3170	7495	7495	0	420	420	47489

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
22	47489	427.81	1:52:07 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667138
Job# 1
Truck# MF132 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
[illegible]		3180	7410			423		7833
[illegible]		[illegible]	[illegible]			[illegible]		7796

1:55:05	0	3145	7365	7365	0	424	424	23383
1:56:04	0	3165	7440	7440	0	423	423	31246
1:57:13	0	3170	7445	7445	0	423	423	39114
1:58:34	0	3190	7475	7475	0	422	422	47011

Load #	Load Total	Job Total	*Time & Date	Fob/Del	Location
23	47011	458.52	1:59:39 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer: NELLO L.TEER CO.
Job: NELLO L. TEER CO.
Cust# 1 Ticket # 667139
Job# 1
Truck# MF144 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
2:01:03	0	3105	6590	6590	0	376	376	6966
2:01:42	0	2940	6515	6515	0	369	369	13850
2:02:30	0	2765	6520	6520	0	376	376	20746
2:03:40	0	2765	6525	6525	0	375	375	27646
2:04:43	0	2755	6535	6535	0	374	374	34555

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
24	34555	467.80	2:05:26 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer: NELLO L.TEER CO.
Job: NELLO L. TEER CO.
Cust# 1 Ticket # 667140
Job# 1
Truck# MF156 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2890	6717			383		7100
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	377	377	7067

2:08:08	0	2850	6815	6815	0	385	385	21328
2:09:14	0	2830	6805	6805	0	384	384	28517
2:10:28	0	2840	6715	6715	0	379	379	35611

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
25	35611	485.61	2:11:17 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer	Job		
NELLO L.TEER CO.	NELLO L. TEER CO.	Cust# 1	Ticket # 667141
		Job# 1	
		Truck# MF138	Operator
		Mix# HDS	
		Name HEAVY DUTY SURFACE	

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
2:12:28	0	3040	6515	6515	0	374	374	6889
2:13:07	0	2955	6550	6550	0	368	368	13807
2:13:56	0	2755	6525	6525	0	378	378	20710
2:14:59	0	2760	6600	6600	0	370	370	27600
2:16:22	0	2760	6580	6580	0	373	373	34633

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
26	34633	582.93	2:17:22 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer	Job		
NELLO L.TEER CO.	NELLO L. TEER CO.	Cust# 1	Ticket # 667142
		Job# 1	
		Truck# MF141	Operator
		Mix# HDS	
		Name HEAVY DUTY SURFACE	

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	376	6881

2:20:08	0	2785	6530	6530	0	371	371	20719
2:21:42	0	2770	6630	6630	0	369	369	27718
2:23:04	0	2795	6570	6570	0	374	374	34662

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
27	34662	520.26	2:23:49 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667143
Job# 1
Truck# MF143 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
2:25:16	0	3050	6550	6550	0	376	376	6926
2:25:55	0	2860	6570	6570	0	374	374	13870
2:26:44	0	2760	6605	6605	0	371	371	20846
2:28:19	0	2780	6500	6500	0	371	371	27717
2:29:33	0	2775	6515	6515	0	374	374	34686

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
28	34686	537.56	2:30:16 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667144
Job# 1
Truck# MF160 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2890	6717			383		7100
						[illegible]	[illegible]	7220

2:33:30	0	2830	6830	6830	0	385	385	21533
2:34:52	0	2855	6755	6755	0	383	383	28671
2:35:59	0	2880	6715	6715	0	381	381	35767

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
29	35767	555.44	2:37:04 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667145
Job# 1
Truck# MF135 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3180	7410			423		7833
2:38:15	0	3175	7460	7460	0	424	424	7884
2:39:16	0	3185	7375	7375	0	424	424	15683
2:41:08	0	3180	7480	7480	0	422	422	23585
2:42:36	0	3185	7355	7355	0	423	423	31363
2:44:48	0	3190	7500	7500	0	420	420	39283
2:46:35	0	3185	7500	7500	0	421	421	47204

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
30	47204	579.04	2:47:48 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667146
Job# 1
Truck# MF145 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900

[illegible]	[illegible]	2780	6580	6580	0	373	373	20756
2:52:49	0	2800	6510	6510	0	371	371	27637
2:54:13	0	2795	6560	6560	0	372	372	34569

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
31	34569	596.32	2:55:38 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667147
Job# 1
Truck# MF165 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3256	7560			432		8000
3:31:00	0	3520	7495	7495	0	435	435	7930
3:31:49	0	3210	7570	7570	0	427	427	15927
3:32:54	0	3190	7650	7650	0	429	429	24006
3:35:58	0	3495	7515	7515	0	432	432	31953
3:36:38	0	3240	7455	7455	0	433	433	39841
3:38:04	0	3180	7490	7490	0	433	433	47764

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
32	47764	620.20	3:39:02 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667148
Job# 1
Truck# MF133 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3180	7410			423		7833
3:43:35	0	3415	7280	7280	0	424	424	7704

3:45:04	0	3240	7420	7420	0	419	419	23382
3:45:53	0	3310	7390	7390	0	426	426	31198
3:46:41	0	3185	7295	7295	0	420	420	38913
3:47:29	0	3160	7440	7440	0	426	426	46779

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
33	46779	643.59	3:48:03 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667149
Job# 1
Truck# MF132 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3180	7410			423		7833
3:49:07	0	3230	7385	7385	0	423	423	7728
3:49:53	0	3110	7370	7370	0	421	421	15519
3:50:54	0	3120	7430	7430	0	423	423	23372
3:51:45	0	3150	7320	7320	0	419	419	31111
3:53:30	0	3130	7450	7450	0	426	426	38987
3:54:40	0	3150	7340	7340	0	425	425	46752

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
34	46752	666.97	3:55:28 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667150
Job# 1
Truck# MF144 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
						373		6883

3:58:19	0	2800	6400	6400	0	372	372	20470
3:59:44	0	2775	6460	6460	0	368	368	27298
4:00:55	0	2795	6535	6535	0	375	375	34208

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
35	34208	684.07	4:01:41 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667151
Job# 1
Truck# MF156 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2890	6717			383		7100
4:03:24	0	3135	6660	6660	0	382	382	7042
4:04:03	0	3025	6765	6765	0	380	380	14187
4:04:51	0	2840	6650	6650	0	385	385	21222
4:06:11	0	2870	6620	6620	0	385	385	28227
4:07:21	0	2840	6615	6615	0	380	380	35222

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
36	35222	701.68	4:07:55 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer
NELLO L.TEER CO.

Job
NELLO L. TEER CO.

Cust# 1 Ticket # 667152
Job# 1
Truck# MF138 Operator
Mix# HDS
Name HEAVY DUTY SURFACE

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
						[illegible]	[illegible]	6977

4:10:46	0	2815	6535	6535	0	370	370	20833
4:11:51	0	2815	6490	6490	0	372	372	27695
4:12:55	0	2825	6535	6535	0	379	379	34609

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
37	34609	718.98	4:13:31 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer: NELLO L.TEER CO.
Job: NELLO L. TEER CO.
Cust# 1
Job# 1
Truck# MF141
Mix# HDS
Name HEAVY DUTY SURFACE
Ticket # 667153
Operator

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
4:14:36	0	3005	6470	6470	0	370	370	6840
4:15:20	0	2945	6560	6560	0	374	374	13774
4:16:08	0	2740	6540	6540	0	370	370	20684
4:17:16	0	2770	6510	6510	0	375	375	27569
4:18:34	0	2770	6525	6525	0	374	374	34468

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
38	34468	736.21	4:19:08 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer: NELLO L.TEER CO.
Job: NELLO L. TEER CO.
Cust# 1
Job# 1
Truck# MF168
Mix# HDS
Name HEAVY DUTY SURFACE
Ticket # 667154
Operator

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2890	6717			383		7100
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	383	383	7123

4:21:46	[illegible]	[illegible]	6720	6720	[illegible]	[illegible]	[illegible]	21391
4:22:44	0	2865	6705	6705	0	381	381	28477
4:23:55	0	2880	6725	6725	0	383	383	35585

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
39	35585	754.00	4:24:42 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer	Job		
NELLO L.TEER CO.	NELLO L. TEER CO.	Cust# 1	Ticket # 667155
		Job# 1	
		Truck# MF143	Operator
		Mix# HDS	
		Name HEAVY DUTY SURFACE	

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		2800	6527			373		6900
4:25:44	0	3095	6585	6585	0	373	373	6878
4:26:28	0	2900	6645	6645	0	374	374	13897
4:27:17	0	2785	6535	6535	0	372	372	20804
4:28:18	0	2755	6510	6510	0	370	370	27684
4:29:24	0	2760	6635	6635	0	377	377	34696

Load #	Load Total	Job Total	Time & Date	Feb/Del	Location
40	34696	771.35	4:30:08 pm Aug 23, 1990	F	RALEIGH

NELLO L. TEER CO.

PLANT 4

Customer	Job		
NELLO L.TEER CO.	NELLO L. TEER CO.	Cust# 1	Ticket # 667156
		Job# 1	
		Truck# MF135	Operator
		Mix# HDS	
		Name HEAVY DUTY SURFACE	

Time	Agg T	AGG 2	AGG 1	Agg Total	Asp T	ASP A	Asp Total	Batch Total
Target		3188	7410			423		7833
4:31:28	0	3475	7495	7495	0	419	419	7914

4:32:57	0	3140	7335	7335	0	426	426	23513
4:34:10	0	3125	7340	7340	0	424	424	31277
4:35:19	0	3130	7460	7460	0	422	422	39159
4:36:28	0	3170	7410	7410	0	420	420	46989

Load #	Load Total	Job Total	Time & Date	Fob/Del	Location
41	46989	794.84	4:37:09 pm Aug 23, 1990	F	RALEIGH

APPENDIX E

CERTIFICATION

VISIBLE EMISSIONS EVALUATOR

This is to certify that

James Wenger

met the specifications of Federal Reference Method 9 and qualified as a visible emissions evaluator. Maximum deviation on white and black smoke did not exceed 7.5% opacity and no single error exceeding 15% opacity was incurred during the certification test conducted by Eastern Technical Associates of Raleigh, North Carolina. This certificate is valid for six months from date of issue.

Thomas Hose
President

225873
Certificate Number

Vice President

Raleigh
Location

David Savage
Program Manager

March 28, 1990
Date of Issue

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