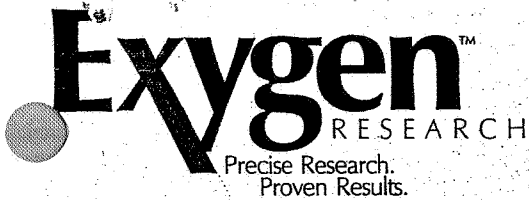


1/15



Analytical Report

Air Sampling Fluorochemical Report

DuPont Washington Works – Air Sampling Program Round 11

1/15

Exygen Research Report No. L0001668

Testing Laboratory

Exygen Research
3058 Research Drive
State College, PA 16801

Requester

Michael D Aucoin
URS Corporation
Barley Mill Plaza
Building 27 Room 1260
Lancaster Pike and Rt 141
Wilmington, DE 19805

ALL DATA CONTAINED IN THIS REPORT WAS GENERATED BY EXYGEN RESEARCH

Summary

Seven solid media samples were received by Centre Analytical Laboratories, Inc. (dba Exygen Research) (Exygen) from DuPont Corporation. The media represent samples of air collected on OVS tubes. Please see Table 1 for a completed listing of samples received and field air volumes collected.

The samples were analyzed for Perfluorooctanoic Acid (C8 Acid) using liquid chromatography / mass spectrometry (LCMS). The method employed is entitled "Method of Analysis for the Determination of Perfluorooctanoic Acid (PFOA) in OVS Airtubes by LCMS" (James Miller, Exygen Research, February 17, 2003).

The OVS tubes were separated into three fractions for specific fluorochemical analysis. Fraction A consisted of the filter, backing material and plastic ring. Fraction B contained the first bed of XAD resin and the PUF backing. Fraction C contained the second bed of XAD resin and PUF backing. Fractions A and B were extracted with 1 mL of methanol. Fraction C was not analyzed but saved for possible future analysis. Perfluorodecanoic Acid (C10 Acid) was added as a surrogate spike to each fraction prior to extraction.

Instrument operating conditions can be found at the beginning of each analytical run. Raw instrument data is given in Appendix A. Chain-of-custody information can be found in Appendix B.

ALL DATA CONTAINED IN THIS REPORT WAS GENERATED BY EXYGEN RESEARCH

Results Summary

Request #	Air Volume Sampled (L)	C8 Acid (mg/m ³)	
WWK-A-AMS1-E11 A	1398	< 0.00007	1.3
WWK-A-AMS1-E11 B	1398	< 0.00007	
WWK-A-AMS1-E11 C	1398	NA	
WWK-A-AMS1-E11 (Total)		< 0.00014	
WWK-A-AMS2-E11 A	1448	< 0.00007	1.4
WWK-A-AMS2-E11 B	1448	< 0.00007	
WWK-A-AMS2-E11 C	1448	NA	
WWK-A-AMS2-E11 (Total)		< 0.00014	
WWK-A-AMS3-E11 A	931	< 0.0001	1.2
WWK-A-AMS3-E11 B	931	< 0.0001	
WWK-A-AMS3-E11 C	931	NA	
WWK-A-AMS3-E11 (Total)		< 0.0002	
WWK-A-AMS4-E11 A	1424	< 0.00007	1.4
WWK-A-AMS4-E11 B	1424	< 0.00007	
WWK-A-AMS4-E11 C	1424	NA	
WWK-A-AMS4-E11 (Total)		< 0.00014	
WWK-A-AMS5-E11 A	1402	0.0003	0.3
WWK-A-AMS5-E11 B	1402	< 0.00007	
WWK-A-AMS5-E11 C	1402	NA	
WWK-A-AMS5-E11 (Total)		0.0003	
WWK-A-AMS6-E11 A	1434	< 0.00007	1.4
WWK-A-AMS6-E11 B	1434	< 0.00007	
WWK-A-AMS6-E11 C	1434	NA	
WWK-A-AMS6-E11 (Total)		< 0.00014	

NA – Not Analyzed. B fraction was below the quantitation limit, therefore the backup fraction does not require analysis.

1. "<" is defined as not detected at or above the reported level.
2. Sample results have not been corrected for blank results or control spike recoveries.
3. Please note the following descriptions of the OVS sample tube fractions:

Fraction	Fraction Description
A	Frit Extract
B	1st set beads extract
C	2nd set beads extract (not analyzed)

ALL DATA CONTAINED IN THIS REPORT WAS GENERATED BY OXYGEN RESEARCH

QC Data

LCS

Please note: One control sample was spiked with each perfluorooctanoic acid to give a final concentration of 500 ppb. Air was pulled through the tube at a rate of 1-liter per minute for one hour (60 liters of air). The fractions were separated and analyzed. The acceptable range for control recovery is 75-125%.

Request #	C8 Acid (amount spiked - ppb)	C8 Acid (amount recovered - ppb)	C8 Acid (percent recovery)
Control 1	500	509	102

Accuracy

Blanks

Request #	Vol. Of Air (L)	C8 Acid (ug/fraction)
WWK-A-AMSFBLK-E9 A	0	< 0.10
WWK-A-AMSFBLK-E9 B	0	< 0.10

ALL DATA CONTAINED IN THIS REPORT WAS GENERATED BY EXYGEN RESEARCH

Surrogates

A surrogate spike (C10 Acid) was added to all OVS tubes to give a final concentration of 500 ppb in the extract. Surrogate spike recoveries are given in the following table. There are no set criteria for surrogate spike recoveries. Advisory ranges are 75-125%.

Sample #	Amount Spiked (ppb)	Amount Recovered (ppb)	Percent Recovery (%)
WWK-A-AMSFBLK-E11 A	500	479	96
WWK-A-AMSFBLK-E11 B	500	360	72*
WWK-A-AMS1-E11 A	500	498	100
WWK-A-AMS1-E11 B	500	564	113
WWK-A-AMS2-E11 A	500	497	99
WWK-A-AMS2-E11 B	500	583	117
WWK-A-AMS3-E11 A	500	517	103
WWK-A-AMS3-E11 B	500	580	116
WWK-A-AMS4-E11 A	500	519	104
WWK-A-AMS4-E11 B	500	569	114
WWK-A-AMS5-E11 A	500	520	104
WWK-A-AMS5-E11 B	500	592	118
WWK-A-AMS6-E11 A	500	524	105
WWK-A-AMS6-E11 B	500	584	117
Control Spike A	500	532	106
Control Spike B	500	347	69*

* Surrogate recovery outside of advisory range.

ALL DATA CONTAINED IN THIS REPORT WAS GENERATED BY EXYGEN RESEARCH

Calculations

Request #	Vol. Of Air (L)	C8 Acid (raw-ppb)	C8 Acid (ug/fraction)	C8 Acid (mg/m3)
WWK-A-AMSFBLK-E11 A	0	< 10	< 0.10	< 0.00007
WWK-A-AMSFBLK-E11 B	0	< 10	< 0.10	< 0.00007
WWK-A-AMS1-E11 A	1398	< 10	< 0.10	< 0.00007
WWK-A-AMS1-E11 B	1398	< 10	< 0.10	< 0.00007
WWK-A-AMS2-E11 A	1448	< 10	< 0.10	< 0.00007
WWK-A-AMS2-E11 B	1448	< 10	< 0.10	< 0.00007
WWK-A-AMS3-E11 A	931	10	< 0.10	< 0.00007
WWK-A-AMS3-E11 B	931	< 10	< 0.10	< 0.00007
WWK-A-AMS4-E11 A	1424	< 10	< 0.10	< 0.00007
WWK-A-AMS4-E11 B	1424	< 10	< 0.10	< 0.00007
WWK-A-AMS5-E11 A	1402	434	0.43	0.00003
WWK-A-AMS5-E11 B	1402	< 10	< 0.10	< 0.00007
WWK-A-AMS6-E11 A	1434	< 10	< 0.10	< 0.00007
WWK-A-AMS6-E11 B	1434	< 10	< 0.10	< 0.00007
Control Spike A	0	509	0.51	< 0.00007
Control Spike B	0	< 10	< 0.10	< 0.00007

ALL DATA CONTAINED IN THIS REPORT WAS GENERATED BY EYGEN RESEARCH

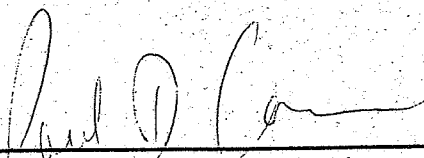
Example Calculation

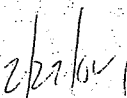
For sample WWK-A-AMS5-E11 A C8 Acid,

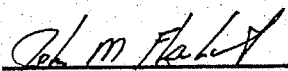
$$= \frac{[434 \text{ ng/ml of C8 Acid} \times (1\text{ml}) \times (1 \text{ ug} / 1000 \text{ ng}) \times (1 \text{ mg} / 1000 \text{ ug})]}{[(1402 \text{ L}) \times (1 \text{ m}^3 / 1000 \text{ L})]}$$

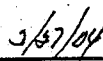
$$= 0.0003 \text{ mg} / \text{m}^3$$

Signatures


Paul Connolly, LCMS Team Leader


Date


John M. Flaherty, Vice President


Date

Other Lab Members Contributing to Data

James Miller

ALL DATA CONTAINED IN THIS REPORT WAS GENERATED BY EXYGEN RESEARCH



3058 Research Drive
State College, PA 16801

Phone: 814-272-1039
Fax: 814-231-1580

Login

Login Group: L0001668

Login #: 1778
Project: P0000419
Project Storage:
Company Name: DuPont de Nemours & Co, Inc.
Submitted By: Michael D. Aucoin
Login Type: Immediate Receipt of Samples
Started: T
Date Start: 01/19/2004
Due Date: 02/02/2004
Received Date: 01/17/2004
Received By: AMMERMAN, MARK
Spread Sample:
Label:

Conform COC Sample: True
Conform COC: True
Conform Sample: True
Conform Request: True

Project Title/Type: Analysis of PFOA in OVS Tubes / ROUTINE
Exygen SD/Pl: MILLER, JAMES
Login Notes:
Conform Notes:

Packages / Containers

Package	Carton	Mail Date / Condition	Shipper / ID	Temp. Control/Temp.	Direction / Handled By
PK0002257		1/17/2004 12:00:56PM Package & Contents Uncompromised	FEDEX 8363912984560200	None 23.3	RECEIVED AMMERMAN, MARK

Container #	Gross Weight	pH	Container Type	Preservative	Mfg. Lot	Mfg. ID
C0026159	6.3 g		Other	NONE		
C0026160	6.3 g		Other	NONE		
C0026161	6.3 g		Other	NONE		
C0026162	6.1 g		Other	NONE		
C0026163	6.1 g		Other	NONE		
C0026164	6.1 g		Other	NONE		
C0026165	6.3 g		Other	NONE		
C0026166	6.3 g		Other	NONE		
C0026167	6.3 g		Other	NONE		
C0026168	6.1 g		Other	NONE		
C0026169	6.1 g		Other	NONE		
C0026170	6.1 g		Other	NONE		
C0026171	6.2 g		Other	NONE		
C0026172	6.2 g		Other	NONE		
C0026173	6.2 g		Other	NONE		
C0026174	6.2 g		Other	NONE		
C0026175	6.2 g		Other	NONE		
C0026176	6.2 g		Other	NONE		
C0026177	6.1 g		Other	NONE		
C0026178	6.1 g		Other	NONE		
C0026179	6.1 g		Other	NONE		
C0026180	6.3 g		Other	NONE		
C0026181	6.3 g		Other	NONE		
C0026182	6.3 g		Other	NONE		

ICOC

Miscellaneous

Item Key

None

Description

1/19/2004
Login.rpt

Report Version: Dec 22 2003 10:44AM
Page 1 of 4

Instance:

R0080976



Samples

<u>Sample ID</u>	<u>Matrix</u>	<u>Fraction</u>	<u>Sample</u>	<u>Date Sampled</u>	<u>Date Received</u>	<u>Date Due</u>
001668-0001	GAS	OVS Tubes	WWK-A-AMSFBLK-E11 A	01/16/2004	01/17/2004	02/02/2004
01668-0002	GAS	OVS Tubes	WWK-A-AMSFBLK-E11 B	01/16/2004	01/17/2004	02/02/2004
L0001668-0003	GAS	OVS Tubes	WWK-A-AMSFBLK-E11 C	01/16/2004	01/17/2004	02/02/2004
L0001668-0004	GAS	OVS Tubes	WWK-A-AMS1-E11 A	01/16/2004	01/17/2004	02/02/2004
L0001668-0005	GAS	OVS Tubes	WWK-A-AMS1-E11 B	01/16/2004	01/17/2004	02/02/2004
L0001668-0006	GAS	OVS Tubes	WWK-A-AMS1-E11 C	01/16/2004	01/17/2004	02/02/2004
L0001668-0007	GAS	OVS Tubes	WWK-A-AMS2-E11 A	01/16/2004	01/17/2004	02/02/2004
L0001668-0008	GAS	OVS Tubes	WWK-A-AMS2-E11 B	01/16/2004	01/17/2004	02/02/2004
L0001668-0009	GAS	OVS Tubes	WWK-A-AMS2-E11 C	01/16/2004	01/17/2004	02/02/2004
L0001668-0010	GAS	OVS Tubes	WWK-A-AMS3-E11 A	01/16/2004	01/17/2004	02/02/2004
L0001668-0011	GAS	OVS Tubes	WWK-A-AMS3-E11 B	01/16/2004	01/17/2004	02/02/2004
L0001668-0012	GAS	OVS Tubes	WWK-A-AMS3-E11 C	01/16/2004	01/17/2004	02/02/2004
L0001668-0013	GAS	OVS Tubes	WWK-A-AMS4-E11 A	01/16/2004	01/17/2004	02/02/2004
L0001668-0014	GAS	OVS Tubes	WWK-A-AMS4-E11 B	01/16/2004	01/17/2004	02/02/2004
L0001668-0015	GAS	OVS Tubes	WWK-A-AMS4-E11 C	01/16/2004	01/17/2004	02/02/2004
L0001668-0016	GAS	OVS Tubes	WWK-A-AMS5-E11 A	01/16/2004	01/17/2004	02/02/2004
L0001668-0017	GAS	OVS Tubes	WWK-A-AMS5-E11 B	01/16/2004	01/17/2004	02/02/2004
L0001668-0018	GAS	OVS Tubes	WWK-A-AMS5-E11 C	01/16/2004	01/17/2004	02/02/2004
L0001668-0019	GAS	OVS Tubes	WWK-A-AMS6-E11 A	01/16/2004	01/17/2004	02/02/2004
L0001668-0020	GAS	OVS Tubes	WWK-A-AMS6-E11 B	01/16/2004	01/17/2004	02/02/2004
L0001668-0021	GAS	OVS Tubes	WWK-A-AMS6-E11 C	01/16/2004	01/17/2004	02/02/2004
L0001668-0022	GAS	OVS Tubes	Control 1 A		01/17/2004	02/02/2004
L0001668-0023	GAS	OVS Tubes	Control 1 B		01/17/2004	02/02/2004
L0001668-0024	GAS	OVS Tubes	Control 1 C		01/17/2004	02/02/2004

0055



Bottles

L0001668-0001

Container
J026159 / Other / NONE

Method

L0001668-0002

Container
C0026160 / Other / NONE

Method

L0001668-0003

Container
C0026161 / Other / NONE

Method

L0001668-0004

Container
C0026162 / Other / NONE

Method

L0001668-0005

Container
C0026163 / Other / NONE

Method

L0001668-0006

Container
C0026164 / Other / NONE

Method

01668-0007

Container
C0026165 / Other / NONE

Method

L0001668-0008

Container
C0026166 / Other / NONE

Method

L0001668-0009

Container
C0026167 / Other / NONE

Method

L0001668-0010

Container
C0026168 / Other / NONE

Method

L0001668-0011

Container
C0026169 / Other / NONE

Method

L0001668-0012

Container
J026170 / Other / NONE

Method

0056



L0001668-0013

Container
C0026171 / Other / NONE

Method

L0001668-0014

Container
C0026172 / Other / NONE

Method

L0001668-0015

Container
C0026173 / Other / NONE

Method

L0001668-0016

Container
C0026174 / Other / NONE

Method

L0001668-0017

Container
C0026175 / Other / NONE

Method

L0001668-0018

Container
C0026176 / Other / NONE

Method

L0001668-0019

Container
C0026177 / Other / NONE

Method

L0001668-0020

Container
C0026178 / Other / NONE

Method

L0001668-0021

Container
C0026179 / Other / NONE

Method

L0001668-0022

Container
C0026180 / Other / NONE

Method

L0001668-0023

Container
C0026181 / Other / NONE

Method

L0001668-0024

Container
C0026182 / Other / NONE

Method

0057



PROJECT INFORMATION

Client (name & address):

Adm

Du Pont Washington Works

Phone: (302) 892-1698

Fax:

Sampler: R. Kendall L. Kendall

Project Manager (Name & E-mail Address):

Mike Fucini

Project Name:

Project Name: Air Sampling Program

P.O. #

Quotation #:

Please fill out this form *completely* to ensure correct analysis and proper handling of your samples.

SECRET

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time
	WWK-A-AmsFB3LK-E11	01/16/03	0745
	WWK-A-Ams1-E11		0620
	WWK-A-Ams2-E11		0635
	WWK-A-Ams3-E11		0637
	WWK-A-Ams4-E11		0658
	WWK-A-Ams5-E11		0645
	WWK-A-Ams6-E11		0722

ADULTS ONLY

Grab	X	X	X	X	X	X	X	X
Composite								
Number of Containers	-	-	-	-	-	-	-	-

[illegible]

ANALYSES REQUESTED

[illegible]

BOOKS

Relinquished by	Date	Time
J. Kendall	01/16/04	1140

OTHER INFORMATION

Event 11

Cooler ID # 2A

Cooler Temp. (°C) AA

Relinquished by

Date _____

Time

Received by

Received by
J. Pardo

Date _____

Time

PROJECT REQUIREMENTS

Results Deadline:

Laboratory Report Options:

☐ Sample results only

☐ Add case narrative☐ Add quality control summary☐ Add calibration summary☐ Add raw data☐ Other _____

**DuPont Washington Works
Air Sampling Program**

Sampler(s): SO, RK,
LK

FedEx Airbill #: 836391298456

Event Number

Event 11

Pump #	Station #	Exogen ID	Calibration (pre)	Date	Start Time	Date	Stop Time	Calibration (post)	Total Minutes	Total Volume
669842	AMS-1	WWK-A-AMS1-E11	0.9970	15-Jan	0700	16-Jan	0620	0.9794	1398	
669908	AMS-2	WWK-A-AMS2-E11	1.0160	15-Jan	0625	16-Jan	0635	0.9739	1448	
669901	AMS-3	WWK-A-AMS3-E11	1.0200	15-Jan	0627	16-Jan	0637	1.0130	* 931	
669890	AMS-4	WWK-A-AMS4-E11	1.0180	15-Jan	0632	16-Jan	0658	1.0140	1424	
669796	AMS-5	WWK-A-AMS5-E11	1.0210	15-Jan	0638	16-Jan	0645	0.9687	1402	
669865	AMS-6	WWK-A-AMS6-E11	1.0150	15-Jan	0647	16-Jan	0722	1.0330	1434	
Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes	
0	0	5	300	10	600	15	900	20	1200	
1	60	6	360	11	660	16	960	21	1260	
2	120	7	420	12	720	17	1020	22	1320	
3	180	8	480	13	780	18	1080	23	1380	
4	240	9	540	14	840	19	1140	24	1440	

0059

Field Blank: yes yes or no WWK-K-AMSFBLK-E11

Weather: 1/15 Cold, about 27 F, snow flurries, windy

1/16 Cold, about 18 F, clear, breezy

SAFER operational: yes yes or no

Comments: Total minutes column is the reading from the monitor counter.

* AMS-3 was still running when we collected the sample after about 1410 minutes, but the counter only read 931 minutes.

**DuPont Washington Works
Air Sampling Program**

Sampler(s): SO, RK,
LK

FedEx Airbill #: 836391298456

Event Number

Event 11

Pump #	Station #	Oxygen ID	Calibration (pre)	Date	Start Time	Date	Stop Time	Calibration (post)	Total Minutes	Total Volume
669842	AMS-1	WWK-A-AMS1-E11	0.9970	15-Jan	0700	16-Jan	0620	0.9794	1398	1383 liters
669908	AMS-2	WWK-A-AMS2-E11	1.0160	15-Jan	0625	16-Jan	0635	0.9739	1448	1443 liters
669901	AMS-3	WWK-A-AMS3-E11	1.0200	15-Jan	0627	16-Jan	0637	1.0130	* 931	*946 liters
669890	AMS-4	WWK-A-AMS4-E11	1.0180	15-Jan	0632	16-Jan	0658	1.0140	1424	1489 liters
669796	AMS-5	WWK-A-AMS5-E11	1.0210	15-Jan	0638	16-Jan	0645	0.9687	1402	1440 liters
669865	AMS-6	WWK-A-AMS6-E11	1.0150	15-Jan	0647	16-Jan	0722	1.0330	1434	1510 liters

Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes	Hours	Minutes
0	0	5	300	10	600	15	900	20	1200
1	60	6	360	11	660	16	960	21	1260
2	120	7	420	12	720	17	1020	22	1320
3	180	8	480	13	780	18	1080	23	1380
4	240	9	540	14	840	19	1140	24	1440

0000

Field Blank: yes WWK-K-AMSFBLK-E11
yes or no

Weather:

1/15 Cold, about 27 F, snow flurries, windy

1/16 Cold, about 18 F, clear, breezy

SAFER operational: yes
yes or no

Comments: Total minutes column is the reading from the monitor counter.

* AMS-3 was still running when we collected the sample after about 1410 minutes, but the counter only read 931 minutes.

Sample "Condition Upon Receipt" Form

Protocol # 0000419

Exygen Study # 0001668

Date & Time Received 01/17/04 1200

Condition of Samples ambient

Temporary Storage Location D0002363

Initials & Date MA 01/17/04

Waybill # 8363 9129 8456

Comments: - waiting for study number MA 01/17/04

May 24, 2002:3

FedEx *USPS* *airmail*
Express
Tracking Number: 836391298456

1 From
Date: 11/2/98
Sender's Name: [illegible]
Company: [illegible]
Address: [illegible]
City: [illegible] State: [illegible] ZIP: [illegible]
Phone: 214/423-4476

2 Your Internal Billing Reference: [illegible]

3 To
Recipient's Name: [illegible]
Company: [illegible]
Address: [illegible]
City: [illegible] State: [illegible] ZIP: [illegible]
Phone: [illegible]

4 Signature
Signature: [illegible]
Title: [illegible]

5 Special Handling
SATURDAY Delivery
Special handling instructions: [illegible]

6 Special Handling
SATURDAY Delivery
Special handling instructions: [illegible]

7 Payment
Bill to: [illegible]
Account Number: [illegible]
Billing Cycle: [illegible]

8 Release Signature
Signature: [illegible]
Title: [illegible]

9 Total Packages
Total Packages: 1
Total Weight: 2.5
Total Declared Value: \$100

10 Total Charges
Total Charges: \$100

11 Release Signature
Signature: [illegible]
Title: [illegible]

12 Total Packages
Total Packages: 1
Total Weight: 2.5
Total Declared Value: \$100

13 Total Charges
Total Charges: \$100

14 Release Signature
Signature: [illegible]
Title: [illegible]

15 Total Packages
Total Packages: 1
Total Weight: 2.5
Total Declared Value: \$100

16 Total Charges
Total Charges: \$100

0200

4a Express Package Service
FedEx Priority Overnight
FedEx Standard Overnight
FedEx 2Day
FedEx 3Day Freight
FedEx 4Day Freight
FedEx 5Day Freight
FedEx 6Day Freight

4b Express Freight Service
FedEx 2Day
FedEx 3Day Freight
FedEx 4Day Freight
FedEx 5Day Freight
FedEx 6Day Freight

5 Packaging
FedEx Priority Overnight
FedEx Standard Overnight
FedEx 2Day
FedEx 3Day Freight
FedEx 4Day Freight
FedEx 5Day Freight
FedEx 6Day Freight

6 Special Handling
SATURDAY Delivery
Special handling instructions: [illegible]

7 Payment
Bill to: [illegible]
Account Number: [illegible]
Billing Cycle: [illegible]

8 Release Signature
Signature: [illegible]
Title: [illegible]

9 Total Packages
Total Packages: 1
Total Weight: 2.5
Total Declared Value: \$100

10 Total Charges
Total Charges: \$100

11 Release Signature
Signature: [illegible]
Title: [illegible]

12 Total Packages
Total Packages: 1
Total Weight: 2.5
Total Declared Value: \$100

13 Total Charges
Total Charges: \$100

14 Release Signature
Signature: [illegible]
Title: [illegible]

15 Total Packages
Total Packages: 1
Total Weight: 2.5
Total Declared Value: \$100

16 Total Charges
Total Charges: \$100

17 Release Signature
Signature: [illegible]
Title: [illegible]

18 Total Packages
Total Packages: 1
Total Weight: 2.5
Total Declared Value: \$100

THIS IS AN EXACT COPY OF
THE ORIGINAL DOCUMENT

DATE: 11/2/98

BY: [illegible]

Signature: [illegible]

Title: [illegible]

Signature: [illegible]

Title: [illegible]

Signature: [illegible]

Title: [illegible]

Signature: [illegible]

Title: [illegible]

Signature: [illegible]

Title: [illegible]

Signature: [illegible]

Title: [illegible]

Signature: [illegible]

Title: [illegible]