Appendix G. Field Sampling Protocol and Sampling Schedule

Sampling Protocol
Ambient Air Monitoring of Fumigant in Lompoc
Dec 1999 - Feb 2000

I. Introduction

The objective of this sampling is to conduct ambient air monitoring of fumigants for 3 months starting in November, 1999. The four fumigants used in Lompoc are methyl bromide, metam sodium, chloropicrin, and 1,3-Dichloropropene.
Samples will be collected on the day of fumigation and for 2 days following, i.e. 3 days total for a single fumigation. Sampling will occur upon notification by the Santa Barbara County Office of Agricultural Commissioner that an application is expected to occur within 24 hours. This sampling protocol supplements the Department of Pesticide Regulation (DPR) fumigation sampling and analysis plan.

II. Sampling

A. Fumigants

For each sample, record log number, sample ID number, time on and off, flowmeter serial number, pump serial number on log book sheets (attachment #1).
For the beginning and end of each sample interval note the weather conditions in the comments on the lob book sheets. Use the following five descriptive categories; clear, high clouds, partly cloudy, cloudy, coastal high fog, or ground fog.

Description of terms used for the various samples, spike samples and blank samples.

Duplicate sample: Same as a primary sample, but is run on a collocated sampler as a duplicate.

Fortified sample: Spiked sample to be placed next to primary sample and treated to same flow and run time. Spikes will be sent to field technician as soon as possible following the onset of sampling for each fumigation event.

Confirmation sample: Same as a duplicate sample, but will be sent to a different lab for confirmation.

Trip Spike sample: A spiked sample which stays in ice chest on dry ice with rest of samples. Spikes will be sent to field technician as soon as possible following the onset of sampling for each fumigation event.

Trip Blank sample: A sample tube broken, capped and placed on dry ice with the rest of samples.

Trip Blank sample to be left out: A sample tube broken, capped, sealed with sample security tape, covered with foil and left out beside sampler for a single sampling interval (preferably during a 16 hour interval), and placed on dry ice with the rest of samples.

1. Metam sodium

a. six samples/fumigation at each of 4 sites. Sampling periods will begin and end at 7 am and 3 pm.
b. four sites each on 1-story roof with sampling intake at least 1.5-2 meters above roof.
c. Place pumps at each site capable of pulling 2 liters/minute.
d. Connect glass tube containing 200/400 mg of coconut charcoal sorbent to tubing connected to primary pump at each site
e. Turn on pump. If pump does not start up immediately, flip on switch off and on again.
f. Perform leak check by blocking intake and verifying flow drops to zero.
g. Verify flow with rotameter calibrated against a reference flow measuring device.
h. Wrap sample tube with foil or push tube back into the arm of the sample site support system.
i. Record starting flow and time-on in the log book sheet (attachment #1) for each sample.
j. At end of sampling period, record ending flow and time sample removed on log book sheet, turn pump off; also record any information that may affect sampling results (e.g. if pump stopped, any indication of tampering with sampler, rain etc.)
k. Place caps over ends of sample tubes, apply sample security tape over caps at both ends and place in ziplock bag
l. Fill out chain of custody record for sample (attachment #2)
m. Place sample in ice chest with dry ice
n. DPR temperature recording device will be kept in ice chest from time of placement by DPR staff to delivery to specific lab. The ice chest and temperature recording device will be picked up by DPR staff within 1-3 days and returned to the DPR. DPR staff will download temperature data to ensure samples were kept cold following sampling.
o. a chain of custody form and sample analysis request will accompany each ice chest of samples (attachment #2 and #3)
p. Two trip blanks will accompany each ice chest of samples going to the DHS lab. One trip blank and one trip blank left out.
q. Four trip spikes will accompany each ice chest of samples going to the DHS lab. Two trip spikes will be kept in the ice chest for the entire trip and two trip spikes will be removed from the ice chests and left out by the samplers during 1 sampling interval.
r. 6 duplicate samples will be collected per fumigation event using the duplicate pumps available. 3 will go to DHS and 3 will go to CDFA (as described in attachment #4). An additional trip blank will go to CDFA.

s. 2 fortified spikes will be collected per fumigation event using the duplicate pumps available. Both fortified spikes will go to DHS lab.
t. Group tubes in large ziplock bags; 1 for spike samples, 1 for each sampling interval (all sites), and 1 for blanks.
u. Refer to attachment #4 for scheduling of duplicate samples and fortified spike samples.

2. Methyl bromide

a. When sampling for methyl bromide, samples will also be collected for chloropicrin as the application mixture contains both chemicals.
b. six samples/fumigation at each of 4 (5) sites. Sampling periods will begin and end at 7 am and 3 pm.
c. four (or five) sites each on 1-story roof with sampling intake at least 1.5-2 meters above roof.
d. Place pumps at each site capable of pulling 15 milliliters/minute (0.015 liter/minute).
e. Connect separate glass tubes containing 200 and 400 mg of petroleum charcoal sorbent with 1" tubing supplied with each set of tubes. Arrows on tube indicate air flow direction. Make sure the 400 mg tube (A tube) is in the primary position with the 200 mg tube (B tube) closest to the sampling pump. Connect tube "chain" to low flow adapter on end of tubing connected to primary pump at each site.
f. Turn on pump. If pump does not start up immediately, flip on switch off and on again.
g. Verify flow with rotameter calibrated against a reference flow measuring device.
h. Wrap sample tube with foil or push tube back into the arm of the sample site support system.
i. Record starting flow and time-on in log book sheet (attachment #1) for each sampler.
j. At end of sampling period, record ending flow and time sample removed on log book sheet, turn pump off; also record any information that may affect sampling results (e.g. if pump stopped, any indication of tampering with sampler, rain etc.)
k. Take sample tubes apart and place caps on ends of sample tubes, apply sample security tape over caps at both ends and place in ziplock bag
l. Fill out chain of custody record for samples (attachment #2)
m. Place sample in ice chest with dry ice
n. DPR temperature recording device will be kept in ice chest from time of placement by DPR staff to delivery to specific lab. The ice chest and temperature recording device will be picked up by DPR staff within 1-3 days and returned to the DPR. DPR staff will

download temperature data to ensure samples were kept cold following sampling.

o. A chain of custody form and sample analysis request will accompany each ice chest of samples (attachment #2 and #3)
p. Two blanks will accompany each ice chest of samples going to the DHS lab. One trip blank and one trip blank left out.
q. Four trip spikes will accompany each ice chest of samples going to the DHS lab. Two trip spikes will be kept in the ice chest for the entire trip and two trip spikes will be removed from the ice chests and left out by the samplers during 1 sampling interval.
r. 6 duplicate samples will be collected per fumigation event using the duplicate pumps available. 3 will go to DHS and 3 will go to CDFA (as described in attachment #5). An additional trip blank will go to CDFA.
s. 2 fortified spikes will be collected per fumigation event using the duplicate pumps available. Both fortified spikes will go to DHS lab.
t. Group tubes in large ziplock bags; 1 for spike samples, 1 for each sampling interval (all sites), and 1 for blanks.
u. Refer to attachment #5 for scheduling of duplicate samples and fortified spike samples.

3. Chloropicrin

a. six samples/fumigation at each of 4 (5) sites. Sample periods will begin and end at 7 am and 3 pm.
b. four (or five) sites each on 1-story roof with sampling intake at least 1.5-2 meters above roof .
c. Place pumps at each site capable of pulling 300 milliter/minute (0.3 liters/minute).
d. Connect separate glass tubes containing 10 ml of XAD-4 to adapter on end of tubing connected to primary pump at each site. Tighten securely
e. Turn on pump. If pump does not start up immediately, flip on switch off and on again.
f. Verify flow with rotameter calibrated against a reference flow measuring device.
g. Wrap sample tube with foil or push tube back into the arm of the sample site support system.
h. Record starting flow and time-on in log book sheet (attachment #1) for each sampler.
i. At end of sampling period, record ending flow and time sample removed on log book sheet, turn pump off; also record any information that may affect sampling results (e.g. if pump stopped, any indication of tampering with sampler, rain etc.)
j. Place caps on ends of sample tubes, apply sample security tape over caps at both ends and place in ziplock bag

k. Fill out chain of custody record for samples (attachment #2)
l. Place sample in ice chest with dry ice
m. DPR temperature recording device will be kept in ice chest from time of placement by DPR staff to delivery to specific lab. The ice chest and temperature recording device will be picked up by DPR staff within 1-3 days and returned to the DPR. DPR staff will download temperature data to ensure samples were kept cold following sampling.
n. A chain of custody form and sample analysis request will accompany each ice chest of samples (attachment #2 and #3)
o. Two blanks will accompany each ice chest of samples going to the DHS lab. One trip blank and one trip blank left out.
p. Four trip spikes will accompany each ice chest of samples going to the DHS lab. Two trip spikes will be kept in the ice chest for the entire trip and two trip spikes will be removed from the ice chests and left out by the samplers during 1 sampling interval.
q. 6 duplicate samples will be collected per fumigation event using the duplicate pumps available. 3 will go to DHS and 3 will go to CDFA (as described in attachment #5). An additional trip blank will go to CDFA.
r. 2 fortified spikes will be collected per fumigation event using the duplicate pumps available. Both fortified spikes will go to DHS lab.
s. Group tubes in large ziplock bags; 1 for spike samples, 1 for each sampling interval (all sites), and 1 for blanks.
t. Refer to attachment #5 for scheduling of duplicate samples and fortified spike samples.

4. Telone (1,3-Dichloropropene)

a. six samples/fumigation at each of 4 sites. Sample periods will begin and end at 7 am and 3 pm.
b. four sites each on 1-story roof with sampling intake at least 1.5-2 meters above roof.
c. Place pumps at each site capable of pulling 2 liters/minute.
d. Connect glass tube containing 200/400 mg of coconut charcoal sorbent to tubing connected to primary pump at each site
e. Turn on pump. If pump does not start up immediately, flip on switch off and on again.
f. Perform leak check by blocking intake and verifying flow drops to zero.
g. Verify flow with rotameter calibrated against a reference flow measuring device.
h. Wrap sample tube with foil or push tube back into the arm of the sample site support system.
i. Record starting flow and time-on in log book sheet (attachment #1) for each sampler.

j. At end of sampling period, record ending flow and time sample removed on log book sheet, turn pump off; also record any information that may affect sampling results (e.g. if pump stopped, any indication of tampering with sampler, rain etc.)
k. Place caps on ends of sample tubes, apply sample security tape over caps at both ends and place in ziplock bag
l. Fill out chain of custody record for samples (attachment #2)
m. Place sample in ice chest with dry ice
n. DPR temperature recording device will be kept in ice chest from time of placement by DPR staff to delivery to specific lab. The ice chest and temperature recording device will be picked up by DPR staff within 1-3 days and returned to the DPR. DPR staff will download temperature data to ensure samples were kept cold following sampling.
o. A chain of custody form and sample analysis request will accompany each ice chest of samples (attachment #2 and #3)
p. Two blanks will accompany each ice chest of samples going to the DHS lab. One trip blank and one trip blank left out.
q. Four trip spikes will accompany each ice chest of samples going to the DHS lab. Two trip spikes will be kept in the ice chest for the entire trip and two trip spikes will be removed from the ice chests and left out by the samplers during 1 sampling interval.
r. 6 duplicate samples will be collected per fumigation event using the duplicate pumps available. 3 will go to DHS and 3 will go to CDFA (as described in attachment #6). An additional trip blank will go to CDFA.
s. 2 fortified spikes will be collected per fumigation event using the duplicate pumps available. Both fortified spikes will go to DHS lab.
t. Group tubes in large ziplock bags; 1 for spike samples, 1 for each sampling interval (all sites), and 1 for blanks.
u. Refer to attachment #6 for scheduling of duplicate samples and fortified spike samples.

5. Canisters

a. Canister placement schedule is located in attachments #4, 5, and 6.
b. Place canisters at sample site. Attach flow controller. Note time on and vacuum reading on the Summa Canister Sampling Data Sheet (attachment #7).
c. Open flow controller.
d. At end of sampling period, close off flow controller and note vacuum reading and time off on the Summa Canister Sampling Data Sheet.
e. Remove flow controller.

f. Until additional canisters are added to the study, 8 canisters will go to DHS lab and 2 canisters will go to the US EPA lab as listed in attachments #4, 5, and 6.
g. Each shipment of canisters will be accompanied by a Check-in Log for Summa Canisters and Flow Controllers (Attachment #8) and the Summa Canister Sampling Data Sheet for each canister.

III. Analysis
Refer to Fumigant Sample and Analysis Plan

IV. Results
Refer to Fumigant Sample and Analysis Plan

V. Study Personel

Study director – Lisa Ross, DPR
Field Sampling Coordinater – Pam Wofford
Sampling Technician – Dave Vener, XonTech
Quality Assurance Officer – TAG audit team

California Department of Health Services
Air and Industrial Hygiene Laboratory

CHAIN OF CUSTODY

Project _____ No. | | | | — | | | | Collection Dates _____

Coordinating Agency/Div _____ Received From: _____

Field ID	Description	Transfer Date	Received By	Seals Intact	Transfer Date	Received By	Transfer Date	Received By	Transfer Date	Received By	Final Disposition

omments/Notes:

LOG BOOK

Project: Lompoc Fumigant Monitoring

Study #: 186

Log #	Sample ID	Date On/Off	Time On/Off	Meas. Flow Rate	Flow Meter Serial #	Digital Counter Time	Pump Serial #	Sample Taken By	Comments

State of California-Health and Welfare Agency

Department of Health Se

LABORATORY SAMPLE ANALYSIS REQUEST

Page ____ of __

DIVISION SUBMITTING SAMPLE(S): ☐ CD ☐ MLD ☐ Other _____

Date Submitted /__/__/__/__/__/__/
Mo. Day Yr.

Name of Submitter _____

Phone No. 8- _____

Project Engineer Approval _____

CARB STUDY OR CONTROL NUMBER /__/__/__/__/ - /__/__/__/__/

No. of Samples Submitted /__/__/__/__/

Date Lab Results Desired: /__/__/__/__/__/__/__/
Mo. Day Yr.

Date Returned /__/__/__/__/__/__/__/
Mo. Day Yr.

SAMPLE INFORMATION:

PURPOSE: ☐ Emission/Compliance Test
☐ Special Study ☐ Method Developm
☐ Other: _____

Name of Establishment: _____

Address: _____

LAB NO. *For Lab Use Only*	SAMPLE NO.	Type of Sample		VOLUME	FIELD SAMPLE DESCRIPTION	ANALYSIS REQUIRED
		Air	Mat			

COMMENTS

Lab-N-607 (Rev 11/90)

First Methyl Bromide Fumigation

			Charcoal (pet.) tubes, air flow volume 15 ml/min				Canisters		XAD resin, air flow volume 300 mL/min				
		MeBr	Air Sample	Duplicate	Fortified	Confirmation	Air Sample	Confirmation	Chloropicrin	Air Sample	Duplicate	Fortified	Confirmation
			DHS	DHS	DHS	CDFA	DHS	US EPA		DHS	DHS	DHS	CDFA
1	Site 1	Day 1	Yes				Yes		Day 1	Yes			
2	w- NW	Day 1	Yes				Yes		Day 1	Yes			
3		Day 2	Yes						Day 2	Yes			
4		Day 2	Yes		Yes				Day 2	Yes			
5		Day 3	Yes						Day 3	Yes		Yes	
6		Day 3	Yes			Yes			Day 3	Yes			
7	Site 2	Day 1	Yes			Yes	Yes		Day 1	Yes			
8	w-Cent	Day 1	Yes				Yes		Day 1	Yes	Yes		
9		Day 2	Yes						Day 2	Yes			
10		Day 2	Yes		Yes				Day 2	Yes			
11		Day 3	Yes						Day 3	Yes		Yes	
12		Day 3	Yes						Day 3	Yes			
13	Site 3	Day 1	Yes	Yes			Yes		Day 1	Yes			
14	w-SW	Day 1	Yes				Yes		Day 1	Yes			
15		Day 2	Yes						Day 2	Yes			
16		Day 2	Yes						Day 2	Yes			Yes
17		Day 3	Yes						Day 3	Yes			Yes
18		Day 3	Yes						Day 3	Yes			
19	Site 4	Day 1	Yes				Yes		Day 1	Yes			
20	H St.	Day 1	Yes				Yes		Day 1	Yes			
21		Day 2	Yes						Day 2	Yes			Yes
22		Day 2	Yes						Day 2	Yes			
23		Day 3	Yes						Day 3	Yes		Yes	
24		Day 3	Yes		Yes				Day 3	Yes			
25	Site 5	Day 1	Yes				Yes		Day 1	Yes			
26	e-NE	Day 1	Yes				Yes		Day 1	Yes			
27		Day 2	Yes			Yes			Day 2	Yes			
28		Day 2	Yes	Yes					Day 2	Yes	Yes		
29		Day 3	Yes						Day 3	Yes			
30		Day 3	Yes						Day 3	Yes			

Total MeBr samples, sorbent tubes - DHS lab = 35 plus 2 trip spikes plus two trip blanks = 39 samples/fumigation event.

Total MeBr samples, sorbent tubes - CDFA lab = 3 plus 2 trip spikes plus 1 trip blank

Total MeBr samples, canisters - DHS lab = 10

Note: total number of canisters to DHS will increase to 36 (30 samples, 3 duplicates, two trip spikes, one trip blank) and the number of canisters to US EPA will be 4, (3 confirmation samples, one trip spike) once additional canisters that have been ordered arrive.

Sampling scheme for canisters will mimic sorbent tube assignment except fortified samples will not be collected.

Total Chloropicrin samples - DHS lab = 35 plus 2 trip spikes plus two trip blanks = 39 samples/fumigation event.

Total Chloropicrin samples - CDFA lab = 3 plus 2 trip spikes plus 1 trip blank

Note: there are no canister methods for chloropicrin.

Second Methyl Bromide Fumigation

			Charcoal (pet.) tubes, air flow volume 15 ml/min				Canisters		XAD resin, air flow volume 300 mL/min				
		MeBr	Air Sample	Duplicate	Fortified	Confirmation	Air Sample	Confirmation	Chloropicrin	Air Sample	Duplicate	Fortified	Confirmation
			DHS	DHS	DHS	CDFA	DHS	US EPA		DHS	DHS	DHS	CDFA
1	Site 1	Day 1	Yes				Yes		Day 1	Yes			
2	w- NW	Day 1	Yes				Yes		Day 1	Yes			
3		Day 2	Yes			Yes			Day 2	Yes			
4		Day 2	Yes	Yes					Day 2	Yes			
5		Day 3	Yes						Day 3	Yes			
6		Day 3	Yes						Day 3	Yes		Yes	
7	Site 2	Day 1	Yes				Yes		Day 1	Yes			
8	w-Cent	Day 1	Yes				Yes		Day 1	Yes			
9		Day 2	Yes						Day 2	Yes			Yes
10		Day 2	Yes						Day 2	Yes		Yes	
11		Day 3	Yes		Yes				Day 3	Yes			
12		Day 3	Yes						Day 3	Yes			
13	Site 3	Day 1	Yes				Yes		Day 1	Yes			Yes
14	w-SW	Day 1	Yes	Yes			Yes		Day 1	Yes			
15		Day 2	Yes						Day 2	Yes	Yes		
16		Day 2	Yes						Day 2	Yes			
17		Day 3	Yes						Day 3	Yes		Yes	
18		Day 3	Yes						Day 3	Yes			
19	Site 4	Day 1	Yes				Yes		Day 1	Yes			
20	H St.	Day 1	Yes			Yes	Yes		Day 1	Yes			
21		Day 2	Yes						Day 2	Yes	Yes		
22		Day 2	Yes						Day 2	Yes			
23		Day 3	Yes						Day 3	Yes			
24		Day 3	Yes		Yes				Day 3	Yes			
25	Site 5	Day 1	Yes			Yes	Yes		Day 1	Yes			
26	east	Day 1	Yes				Yes		Day 1	Yes			
27		Day 2	Yes						Day 2	Yes			Yes
28		Day 2	Yes						Day 2	Yes			
29		Day 3	Yes		Yes				Day 3	Yes			
30		Day 3	Yes						Day 3	Yes			

Total MeBr samples, sorbent tubes - DHS lab = 35 plus 2 trip spikes plus two trip blanks = 39 samples/fumigation event.

Total MeBr samples, sorbent tubes - CDFA lab = 3 plus 2 trip spikes plus 1 trip blank

Total MeBr samples, canisters - DHS lab = 10

Note: total number of canisters to DHS will increase to 36 (30 samples, 3 duplicates, two trip spikes, one trip blank) and the number of canisters to US EPA will be 4, (3 confirmation samples, one trip spike) once additional canisters that have been ordered arrive.

Sampling scheme for canisters will mimic sorbent tube assignment except fortified samples will not be collected.

Total Chloropicrin samples - DHS lab = 35 plus 2 trip spikes plus two trip blanks = 39 samples/fumigation event.

Total Chloropicrin samples - CDFA lab = 3 plus 2 trip spikes plus 1 trip blank

Note: there are no canister methods for chloropicrin.

First Metam sodium Fumigation

		MITC	Charcoal (coco.) tubes, air flow volume 2 L/min				Canisters
			Air Sample	Duplicate	Fortified	Confirmation	Air Sample
			DHS	DHS	DHS	CDFA	DHS
1	Site 1	Day 1	Yes	Yes			Yes
2	w- NW	Day 1	Yes				Yes
3		Day 2	Yes				
4		Day 2	Yes			Yes	
5		Day 3	Yes		Yes		
6		Day 3	Yes				
7	Site 2	Day 1	Yes				Yes
8	w-Cent	Day 1	Yes				Yes
9		Day 2	Yes				
10		Day 2	Yes				
11		Day 3	Yes				
12		Day 3	Yes				
13	Site 3	Day 1	Yes				Yes
14	w-SW	Day 1	Yes				Yes
15		Day 2	Yes	Yes			
16		Day 2	Yes				
17		Day 3	Yes			Yes	
18		Day 3	Yes				
19	Site 4	Day 1	Yes				Yes
20	H St.	Day 1	Yes				Yes
21		Day 2	Yes				
22		Day 2	Yes				
23		Day 3	Yes		Yes		
24		Day 3	Yes				
25	Site5	Day 1	Yes				Yes
26	e-NE	Day 1	Yes			Yes	Yes
27		Day 2	Yes		Yes		
28		Day 2	Yes				
29		Day 3	Yes				
30		Day 3	Yes				

Total MITC samples, sorbent tubes - DHS lab = 35 plus 2 trip spikes
plus two blanks = 39 samples/fumigation event.
Total MITC samples, sorbent tubes - CDFA lab = 3 field samples plus 2 trip spikes plus 1 trip blank = 6
Note: if DHS can develop a canister method for MITC then
Total MITC samples, canisters - DHS lab = 10
total number of canisters to DHS will increase to 36
(30 samples, 3 duplicates, two trip spikes, one trip blank)
once additional canisters that have been ordered arrive.
If US EPA can develop a method for MITC, then US EPA will
receive 4 canisters, (3 confirmation samples, one trip spike)
once additional canisters that have been ordered arrive.
Sampling scheme for canisters will mimic sorbent tube assignment
except fortified samples will not be collected.

Second Metam sodium Fumigation

			Charcoal (coco.) tubes, air flow volume 2 L/min				Canisters
		MITC	Air Sample	Duplicate	Fortified	Confirmation	Air Sample
			DHS	DHS	DHS	CDFA	DHS
1	Site 1	Day 1	Yes				Yes
2	w- NW	Day 1	Yes	Yes			Yes
3		Day 2	Yes				
4		Day 2	Yes				
5		Day 3	Yes				
6		Day 3	Yes			Yes	
							Yes
7	Site 2	Day 1	Yes				Yes
8	w-Cent	Day 1	Yes		Yes		
9		Day 2	Yes				
10		Day 2	Yes				
11		Day 3	Yes				
12		Day 3	Yes				
13	Site 3	Day 1	Yes	Yes			Yes
14	w-SW	Day 1	Yes				Yes
15		Day 2	Yes				
16		Day 2	Yes				
17		Day 3	Yes				
18		Day 3	Yes				
19	Site 4	Day 1	Yes				Yes
20	H St.	Day 1	Yes				Yes
21		Day 2	Yes			Yes	
22		Day 2	Yes				
23		Day 3	Yes		Yes		
24		Day 3	Yes				
25	Site5	Day 1	Yes				Yes
26	e-NE	Day 1	Yes				Yes
27		Day 2	Yes			Yes	
28		Day 2	Yes				
29		Day 3	Yes		Yes		
30		Day 3	Yes				

Total MITC samples, sorbent tubes - DHS lab = 35 plus 2 trip spikes
plus two blanks = 39 samples/fumigation event.
Total MITC samples, sorbent tubes - CDFA lab = 3 field samples plus 2 trip spikes plus 1 trip blank = 6
Note: if DHS can develop a canister method for MITC then
Total MITC samples, canisters - DHS lab = 10
total number of canisters to DHS will increase to 36
(30 samples, 3 duplicates, two trip spikes, one trip blank)
once additional canisters that have been ordered arrive.
If US EPA can develop a method for MITC, then US EPA will
receive 4 canisters, (3 confirmation samples, one trip spike)
once additional canisters that have been ordered arrive.
Sampling scheme for canisters will mimic sorbent tube assignment
except fortified samples will not be collected.

Third Metam sodium Fumigation

			Charcoal (coco.) tubes, air flow volume 2 L/min				Canisters
		MITC	Air Sample	Duplicate	Fortified	Confirmation	Air Sample
			DHS	DHS	DHS	CDFA	DHS
1	Site 1	Day 1	Yes				Yes
2	w- NW	Day 1	Yes			Yes	Yes
3		Day 2	Yes				
4		Day 2	Yes		Yes		
5		Day 3	Yes				
6		Day 3	Yes				
7	Site 2	Day 1	Yes				Yes
8	w-Cent	Day 1	Yes				Yes
9		Day 2	Yes				
10		Day 2	Yes		Yes		
11		Day 3	Yes				
12		Day 3	Yes				
13	Site 3	Day 1	Yes				Yes
14	w-SW	Day 1	Yes				Yes
15		Day 2	Yes				
16		Day 2	Yes				
17		Day 3	Yes	Yes			
18		Day 3	Yes				
19	Site 4	Day 1	Yes			Yes	Yes
20	H St.	Day 1	Yes				Yes
21		Day 2	Yes				
22		Day 2	Yes			Yes	
23		Day 3	Yes				
24		Day 3	Yes		Yes		
25	Site5	Day 1	Yes				Yes
26	e-NE	Day 1	Yes				Yes
27		Day 2	Yes				
28		Day 2	Yes				
29		Day 3	Yes	Yes			
30		Day 3	Yes				

Total MITC samples, sorbent tubes - DHS lab = 35 plus 2 trip spikes
plus two blanks = 39 samples/fumigation event.
Total MITC samples, sorbent tubes - CDFA lab = 3 field samples plus 2 trip spikes plus 1 trip blank = 6
Note: if DHS can develop a canister method for MITC then
Total MITC samples, canisters - DHS lab = 10
total number of canisters to DHS will increase to 36
(30 samples, 3 duplicates, two trip spikes, one trip blank)
once additional canisters that have been ordered arrive.
If US EPA can develop a method for MITC, then US EPA will
receive 4 canisters, (3 confirmation samples, one trip spike)
once additional canisters that have been ordered arrive.
Sampling scheme for canisters will mimic sorbent tube assignment
except fortified samples will not be collected.

Fourth Metam sodium Fumigation

			Charcoal (coco.) tubes, air flow volume 2 L/min				Canisters
		MITC	Air Sample	Duplicate	Fortified	Confirmation	Air Sample
			DHS	DHS	DHS	CDFA	DHS
1	Site 1	Day 1	Yes				Yes
2	w- NW	Day 1	Yes				Yes
3		Day 2	Yes				
4		Day 2	Yes				
5		Day 3	Yes		Yes		
6		Day 3	Yes		Yes		
7	Site 2	Day 1	Yes			Yes	Yes
8	w-Cent	Day 1	Yes				Yes
9		Day 2	Yes				
10		Day 2	Yes				
11		Day 3	Yes				
12		Day 3	Yes				
13	Site 3	Day 1	Yes	Yes			Yes
14	w-SW	Day 1	Yes				Yes
15		Day 2	Yes				
16		Day 2	Yes			Yes	
17		Day 3	Yes				
18		Day 3	Yes				
19	Site 4	Day 1	Yes				Yes
20	H St.	Day 1	Yes				Yes
21		Day 2	Yes				
22		Day 2	Yes	Yes			
23		Day 3	Yes				
24		Day 3	Yes			Yes	
25	Site5	Day 1	Yes				Yes
26	e-NE	Day 1	Yes				Yes
27		Day 2	Yes				
28		Day 2	Yes				
29		Day 3	Yes		Yes		
30		Day 3	Yes				

Total MITC samples, sorbent tubes - DHS lab = 35 plus 2 trip spikes
plus two blanks = 39 samples/fumigation event.
Total MITC samples, sorbent tubes - CDFA lab = 3 field samples plus 2 trip spikes plus 1 trip blank = 6
Note: if DHS can develop a canister method for MITC then
Total MITC samples, canisters - DHS lab = 10
total number of canisters to DHS will increase to 36
(30 samples, 3 duplicates, two trip spikes, one trip blank)
once additional canisters that have been ordered arrive.
If US EPA can develop a method for MITC, then US EPA will
receive 4 canisters, (3 confirmation samples, one trip spike)
once additional canisters that have been ordered arrive.
Sampling scheme for canisters will mimic sorbent tube assignment
except fortified samples will not be collected.

Fifth Metam sodium Fumigation

			Charcoal (coco.) tubes, air flow volume 2 L/min				Canisters
		MITC	Air Sample	Duplicate	Fortified	Confirmation	Air Sample
			DHS	DHS	DHS	CDFA	DHS
1	Site 1	Day 1	Yes				Yes
2	w- NW	Day 1	Yes				Yes
3		Day 2	Yes				
4		Day 2	Yes	Yes			
5		Day 3	Yes				
6		Day 3	Yes				
7	Site 2	Day 1	Yes				Yes
8	w-Cent	Day 1	Yes			Yes	Yes
9		Day 2	Yes				
10		Day 2	Yes				
11		Day 3	Yes		Yes		
12		Day 3	Yes		Yes		
13	Site 3	Day 1	Yes				Yes
14	w-SW	Day 1	Yes			Yes	Yes
15		Day 2	Yes				
16		Day 2	Yes				
17		Day 3	Yes		Yes		
18		Day 3	Yes				
19	Site 4	Day 1	Yes				Yes
20	H St.	Day 1	Yes				Yes
21		Day 2	Yes				
22		Day 2	Yes				
23		Day 3	Yes			Yes	
24		Day 3	Yes				
25	Site5	Day 1	Yes				Yes
26	e-NE	Day 1	Yes	Yes			Yes
27		Day 2	Yes				
28		Day 2	Yes				
29		Day 3	Yes				
30		Day 3	Yes				

Total MITC samples, sorbent tubes - DHS lab = 35 plus 2 trip spikes
plus two blanks = 39 samples/fumigation event.

Total MITC samples, sorbent tubes - CDFA lab = 3 field samples plus 2 trip spikes plus 1 trip blank = 6

Note: if DHS can develop a canister method for MITC then
Total MITC samples, canisters - DHS lab = 10
total number of canisters to DHS will increase to 36
(30 samples, 3 duplicates, two trip spikes, one trip blank)
once additional canisters that have been ordered arrive.
If US EPA can develop a method for MITC, then US EPA will
receive 4 canisters, (3 confirmation samples, one trip spike)
once additional canisters that have been ordered arrive.
Sampling scheme for canisters will mimic sorbent tube assignment
except fortified samples will not be collected.

First 1,3-dichloropropene Fumigation

				Charcoal (coco.) tubes, air flow volume 3 L/min			Canisters	
		1,3-D	Air Sample	Duplicate	Fortified	Confirmation	Air Sample	Confirmation
			DHS	DHS	DHS	CDFA	DHS	US EPA
1	Site 1	Day 1	Yes	Yes			Yes	
2	w- NW	Day 1	Yes			Yes	Yes	
3		Day 2	Yes					
4		Day 2	Yes					
5		Day 3	Yes					
6		Day 3	Yes					
7	Site 2	Day 1	Yes				Yes	
8	w-Cent	Day 1	Yes				Yes	
9		Day 2	Yes					
10		Day 2	Yes					
11		Day 3	Yes					
12		Day 3	Yes			Yes		
13	Site 3	Day 1	Yes	Yes			Yes	
14	w-SW	Day 1	Yes				Yes	
15		Day 2	Yes					
16		Day 2	Yes					
17		Day 3	Yes					
18		Day 3	Yes					
19	Site 4	Day 1	Yes				Yes	
20	H St.	Day 1	Yes				Yes	
21		Day 2	Yes					
22		Day 2	Yes			Yes		
23		Day 3	Yes		Yes			
24		Day 3	Yes					
25	Site5	Day 1	Yes				Yes	
26	e-NE	Day 1	Yes				Yes	
27		Day 2	Yes		Yes			
28		Day 2	Yes					
29		Day 3	Yes					
30		Day 3	Yes		Yes			

Total Telone samples, sorbent tubes - DHS lab = 35 plus 2 trip spikes
plus two blanks = 39 samples/fumigation event.
Total Telone samples, sorbent tubes - CDFA lab = 3 field samples plus 2 trip spikes plus 1trip blank = 6
Total Telone samples, canisters - DHS lab = 10
Note: total number of canisters to DHS will increase to 36
(30 samples, 3 duplicates, two trip spikes, one trip blank)
and the number of canisters to US EPA will be 4, (3 confirmation samples, one trip spike)
once additional canisters that have been ordered arrive.
Sampling scheme for canisters will mimic sorbent tube assignment
except fortified samples will not be collected.

Second 1,3-dichloropropene Fumigation

			Charcoal (coco.) tubes, air flow volume 3 L/min			Canisters	
	1,3-D	Air Sample	Duplicate	Fortified	Confirmation	Air Sample	Confirmation
		DHS	DHS	DHS	CDFA	DHS	US EPA
1 Site 1	Day 1	Yes				Yes	
2 w- NW	Day 1	Yes				Yes	
3	Day 2	Yes		Yes			
4	Day 2	Yes					
5	Day 3	Yes					
6	Day 3	Yes					
7 Site 2	Day 1	Yes				Yes	
8 w-Cent	Day 1	Yes				Yes	
9	Day 2	Yes			Yes		
10	Day 2	Yes					
11	Day 3	Yes					
12	Day 3	Yes					
13 Site 3	Day 1	Yes				Yes	
14 w-SW	Day 1	Yes	Yes			Yes	
15	Day 2	Yes			Yes		
16	Day 2	Yes					
17	Day 3	Yes					
18	Day 3	Yes		Yes			
19 Site 4	Day 1	Yes				Yes	
20 H St.	Day 1	Yes				Yes	
21	Day 2	Yes					
22	Day 2	Yes					
23	Day 3	Yes					
24	Day 3	Yes			Yes		
25 Site5	Day 1	Yes	Yes			Yes	
26 e-NE	Day 1	Yes				Yes	
27	Day 2	Yes					
28	Day 2	Yes					
29	Day 3	Yes		Yes			
30	Day 3	Yes					

Total Telone samples, sorbent tubes - DHS lab = 35 plus 2 trip spikes
plus two blanks = 39 samples/fumigation event.
Total Telone samples, sorbent tubes - CDFA lab = 3 field samples plus 2 trip spikes plus 1trip blank = 6
Total Telone samples, canisters - DHS lab = 10
Note: total number of canisters to DHS will increase to 36
(30 samples, 3 duplicates, two trip spikes, one trip blank)
and the number of canisters to US EPA will be 4, (3 confirmation samples, one trip spike)
once additional canisters that have been ordered arrive.
Sampling scheme for canisters will mimic sorbent tube assignment
except fortified samples will not be collected.

FIGURE 1 SUMMA CANISTER SAMPLING DATA SHEET

ADDRESS OF SAMPLE LOCATION
SAMPLE TYPE (e.g., indoor, duplicate/triplicate, control, background blank)
LOCATION OF CANISTER

Sample Number	Project No.
Sample Numbers of Co-located Samples	
Canister Serial Number	Flow Controller Number

CANISTER SET		**CANISTER PICK-UP**	
DATE		DATE	
START TIME		END TIME	
SAMPLERS' INITIALS		SAMPLERS' INITIALS	
INITIAL VACUUM (in. Hg.)		FINAL VACUUM (in. Hg.)	
INITIAL FLOW (cc/min)		FINAL FLOW (cc/min)	
CUSTODY SEAL APPLIED?		STATUS OF CUSTODY SEAL	
OVM READING (ppm)		**PID READING** (ppm)	
INSTRUMENT NUMBER		INSTRUMENT NUMBER	
AMBIENT	TIME	AMBIENT	TIME
AT SAMPLE LOCATION	TIME	AT SAMPLE LOCATION	TIME

COMMENTS:

FIGURE 2: CHECK-IN LOG FOR SUMMA CANISTERS AND FLOW CONTROLLERS

PROJECT NAME: WASTE DISPOSAL, INC.						SAMPLING DATES	PAGE: OF		
SUMMA Canister Serial Number	Vacuum Reported by Laboratory	Vacuum When Received (in.Hg.)	Date Checked	Checked by (initials)		Flow Controller Serial Number	Adjusted Flow Rate (mL/min)	Date Checked	Checked by (initials)