US EPA RECORDS CENTER REGION 5
473172

FINAL REPORT
TIER 3 DIOXIN SCREENING

June 13, 1985

December 4, ~~1986~~ 1985

THE RAMS-HEAD COMPANY
DES PLAINES, ILLINOIS
TDD R05-8404-09
October 6, 1986

Prepared by:
Mary Jane Ripp
Ecology and Environment, Inc.
111 West Jackson Boulevard
Chicago, Illinois

Facility:

The Rams-Head Company
1224 Harding Avenue
Des Plaines, Illinois 60016

Responsible Parties:

Paul R. Schwan, Vice President, General Manager
The Rams-Head Company
1224 Harding Avenue
Des Plaines, Illinois 60016
Phone 312-824-6625

Owner:

Wilkie Family Trust
254 N. Laurel Avenue
Des Plaines, Illinois 60016

Sampling Dates:

June 13, 1985
December 4, 1985

Introduction:

The Rams-Head Company (Rams-Head) is located in Des Plaines, Illinois (Section 17, T.14N., R.12E., Cook County). Rams-Head blends and packages fluids for metal working operations. The facility includes one 5000 square foot building. Figure 1 is a vicinity map and Figures 2 and 3 are maps of the facility.

Site History:

Plant operations began in 1957. For a number of years prior to 1980, Rams-Head purchased Dowicide B (2,4,5-TCP) from McKesson Chemcial Company, Schaumburg, Illinois, for use as an ingredient in a registered pesticide (EPA Reg. No. 7240-1). Rams-Head blended 10,000 pounds of 2, 4, 5-TCP between the years of 1961 and 1980. The usage of 2,4,5-TCP for the period 1973 through 1979 averaged 1000 pounds annually. The usage of 2,4,5-TCP ceased in February, 1980.

Processing of 2,4,5-TCP at Rams-Head was limited to dissolving the material in water and gravity filling into small containers. No refining, distillation, or decontamination procedures were used.

Dissolution was performed in a 100-gallon polyethylene drum which was used only for this purpose. The only waste produced was the emptied Dowicide containers and the mixing drum, which were transported from this site by Arc Disposal Company, Rosemont, Illinois.

Information used in the preparation of this report was provided by the U.S. EPA and Rams-Head. There is no indication of any past enforcement activities at Rams-Head.

Objective:

Rams-Head was investigated as a statistically selected Tier 3 site as part of the U.S. EPA National Dioxin Study. The primary objective of the Tier 3 investigation was to determine the presence or absence of dioxin at Rams-Head.

Inspection and sampling to determine the presence or absence of dioxins at the Rams-Head Company took place on June 13, 1985. Because 2, 3, 7, 8-TCDD was detected in samples obtained from the site, additional sampling was completed on December 4, 1985 to further define the boundaries of TCDD contamination at the Rams-Head facility.

The media sampled was limited to soil. Since the Rams-Head site is primarily overlain with concrete and/or asphalt, all sampling locations utilized the targeted approach. Sampling consisted of surface soil samples collected along the production building perimeter and/or property lines. These samples were designed to assess possible airborne disposal, and/or runoff from the site pavement. Samples were collected near a doorway which may have handled shipment of products to identify possible spillage during handling. Sampling locations were chosen based on roof drainage patterns exhibited by plant buildings. Downspouts were not present; therefore, a sample was collected along the dripline or in a pattern that was representative of runoff from the roof. The number of cores per sample depended on the size of the area sampled; however, a minimum of two four-inch cores constituted a sample.

Table I represents a summary of the number and type of samples collected and the analyses conducted.

Sample Collection Procedures and Equipment:

The sample collection procedures can be found in Appendix A and a list of the smapling equipment can be found in Appendix B.

Quality Assurance

To assure the highest level of data quality, one field duplicate, one performance evaluation standard, and two blanks accompanied the samples from each sampling event that were submitted for analyses. One blank was designated to be lab matrix spiked by the laboratory. The performance evaluation standards were provided by the U.S. EPA Environmental Monitoring Systems Laboratory (EMSL) and blanks were provided by EPA Region V Central Laboratory. Field duplicates were sent in the same set as the original field samples.

June 13, 1985 - Site Activites:

On June 13, 1985, Region V FIT personnel conducted an inspection at the above-reference facility (Figures 1, 2, and 3). In addition to Region V FIT personnel, the following individuals participated in the on-site inspection and interview:

1. Paul Schwan, Vice-Presdnet, General Manager, The Rams-Head Company.
2. J. O. Phillip Lindall, Code Enforcement Officer, City of Des Plaines.
3. Dennis R. Castaing, Senior Chemist, The Rams-Head Company.
4. Rodney Gaither, Remedial Project Manager, U.S. Environmental Protection Agency-Region V.
5. Howad Zar, U.S. Environmental Protection Agency-Region V.

Region V FIT personnel involved in sampling included the following:

1. Mary Jane Ripp, Team Leader
2. Randall Ekstrom, Site Safety Officer
3. Francine Allans, Sampler
4. Steven Vevang, Team Member
5. Pat Petrella, Team Member

The sample collection procedures can be found in Appendix A and a list of the sampling equipment can be found in Appendix B.

The total number of samples obtained are as follows:

9 2,3,7,8-TCDD soil (including one duplicate)
1 SAS-soil (other isomers of Dioxin and Furan, and 2,4,5-TCP)
1 Priority Pollutant-soil.

Table 1 represents a summary of the number and type of samples collected and the analyses conducted.

The final sample locations are identified in Figure 2. Nine 2,3,7,8-TCDD surface soil samples were collected from eight separate locations.

During the site inspection, changes were made in several of the sampling locations identified on the approved sampling plan. The presence of gravel, concrete, asphalt or buildings precluded sampling at a number of locations.

The following table provides a correlation between the 2,3,7,8-TCDD samples, duplicate 2,3,7,8-TCDD sample, SAS sample and the priority pollutant sample.

2,3,7,8-TCDD Sample	Duplicate 2,3,7,8-TCDD	SAS Sample	Priority Pollutant Sample
DE017504	-	1737E01	ED063
DE017508	DE017510	-	-

The following table lists the additional samples analyzed and the sample numbers.

Sample	Sample Numbers
Blank	DE017501
Spike	DE017502
Performance Evaluation	DE017503

There was no contact with the press or other media during the sampling.

Sample Results

Results of the analyses of the samples obtained from the June 13, 1985 sampling event indicate that there is identifiable 2,3,7,8-TCDD present at one location. This sample was colleted near a doorway which may have handled the shipment of products. The priority pollutant scan detected 1,1-dichloroethane, 1,1,1-trichloroethane, trichloroethene, fluoranthene, pyrene and benzo(a)anthracene. The Special Analytical Service sample detected hexa, hepta, and octa-dioxins, hepta and octa-furans and 2,4,5-trichlorophenol.

units should be consistent

The results are summarized below:

Sample Number	Compound Detected	Amount Found (dry weight)
DE017508	2,3,7,8-TCDD	0.40 ppb
DE017510 (Duplicate)	2,3,7,8-TCDD	0.36 ppb
1737E01	Hexa-dioxin	1.2 ng/g × 1000 ng/kg ppb
1737E01	Hepta-dioxin	29.8 ng/g
1737E01	Octa-dioxin	708 ng/g
1737E01	Hepta-furan	5.1 ng/g
1737E01	Octa-furan	31 ng/g
1737E01	2,4,5-Trichlorophenol	11700 ug/kg ppb
ED063	1,1-Dichoroethane	19 ug/kg
ED063	1,1,1-Trichloroethane	110 ug/kg
ED063	Trichloroethene	26 ug/kg
ED063	Fluoranthene	8900 ug/kg
ED063	Pyrene	11000 ug/kg
ED063	Benzo(a)Anthracene	9000 ug/kg

December 4, 1985 - Site Activities:

On December 4, 1985, Region V FIT personnel conducted additional sampling at Rams-Head (Figures 1, 2 and 3). In addition to Region V FIT personnel, the followinng individuals were present during the on-site sampling:

1. Paul Schwan, Vice-President, General Manager, The Rams-Head Company.
2. Rodney Gaither, Regional Project Manager, U.S. Environmental Protection Agency-Region V.

Region V FIT personnel involved in sampling included the following:

1. Mary Jane Ripp, Team Leader
2. Paul Moss, Site Safety Officer
3. Francine Allans, Sampler
4. Bridget Haugh, Team Member
5. Scott Green, Team Member

The sample collection procedures can be found in Appendix A and a list of the sampling equipment can be found in Appendix B.

The total number of samples obtained are as follows:

9 2,3,7,8-TCDD soil (including one duplicate)
1 SAS - soil (2,3,7,8-TCDD and other isomers of Dioxon and Furan, and 2, 4, 5-TCP)

Table 1 represents a summary of the number and type of samples collected and the analyses conducted.

The final sample locations are identified in Figure 3. Ten 2,3,7,8-TCDD surface soil samples were collected from nine separate locations. These ten soil samples were collected in the vicinity of June 13 sample numbers DE017508 and DE017510 (duplicate to DE017508) where analyses indicated 2,3,7,8-TCDD contamination.

The following table provides a correlation between 2,3,7,8-TCDD samples, the duplicate 2,3,7,8-TCDD, and the SAS sample.

2,3,7,8-TCDD Sample	Duplicate 2,3,7,8-TCDD	SAS Sample
DE024811	DE024812	-
2068E01	-	2068E01

The following table lists the additional samples analyzed and the sample numbers.

Sample	Sample Numbers
Blank	DE024801
Spike	DE024802
Performance Evaluation	DE024803

There was no contact with the press or other media during the sampling.

Sample Results:

Results of the analyses from the December 4, 1985 sampling event confirmed the presence of identifiable 2,3,7,8-TCDD present at the previously identified contamination area. The Special Analytical Service sample detected tetra, penta, hexa, hepta and octa-furans, tetra, penta hexa, hepta and octa-dioxin, and 2,4,5-trichlorophenol. The results are summarized below:

Sample Number	Compound Detected	Amount Found (dry weight)
DE024804	2,3,7,8-TCDD	0.47 ppb
DE024805	2,3,7,8-TCDD	1.10 ppb
DE024806	2,3,7,8-TCDD	0.25 ppb
DE024808	2,3,7,8-TCDD	0.74 ppb
DE024811	2,3,7,8-TCDD	1.10 ppb
DE024812	2,3,7,8-TCDD	0.77 ppb
2068E01	2,3,7,8-TCDD	0.91 ppb
2068E01	2,4,5-Trichlorophenol	18,000 ppb
2068E01 (Duplicate)	2,4,5-Trichlorophenol	12,000 ppb
2068E01	Pentachlorophenol	<2000 ppb
2068E01 (Duplicate)	Pentachlorophenol	<2000 ppb
	Tetra-Furans (total)	0.35 ng/g
	Penta-Furans	0.55 ng/g
	Hexa-Furans	2.8 ng/g
	Hepta-Furans	7.7 ng/g
	Octa-Furans	9.0 ng/g
	Tetra-Dioxins (total)	1.2 ng/g
	Penta-Dioxins	8.0 ng/g
	Hexa-Dioxins	21.3 ng/g
	Hepta-Dioxins	13.6 ng/g
	Octa-Dioxins	97.7 ng/g

350:2M

TABLE 1: SAMPLING - THE RAMS-HEAD COMPANY
DES PLAINES, ILLINOIS

June 13, 1985 Sampling Event

	# of Samples	Sample Type	Pollutants # of Samples of (Detection Level) 2,3,7,8-TCDD	Other PCDD's and PCDF's	2,4,5-TCP, Priority Pollutants
Soil	11	Grab	9 (ppb)	1(ppt)	1

December 4, 1985 Sampling Event

	# of Samples	Sample Type	Pollutants # of Samples of (Detection Level) 2,3,7,8-TCDD	Other PCDD's and PCDF's	2,4,5-TCP, Pentachlorophenol
Soil	10	Grab	10 (ppb)	1 (ppt)	1

THE RAMS-HEAD COMPANY

DES PLAINES, ILLINOIS

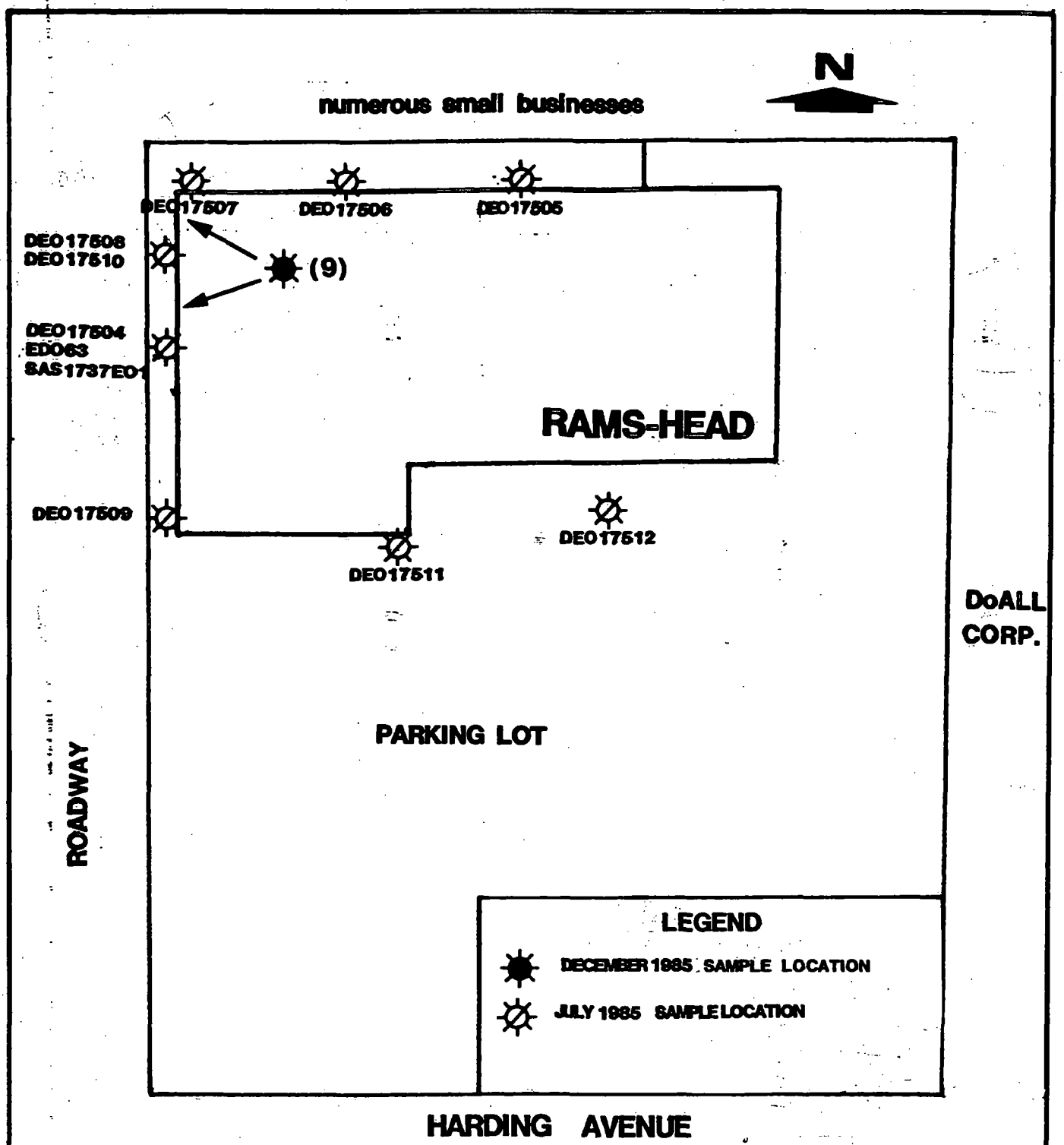
ARLINGTON HEIGHTS, ILLINOIS QUAD

1963, PHOTOREVISED 1972

SCALE: 1:24,000

N

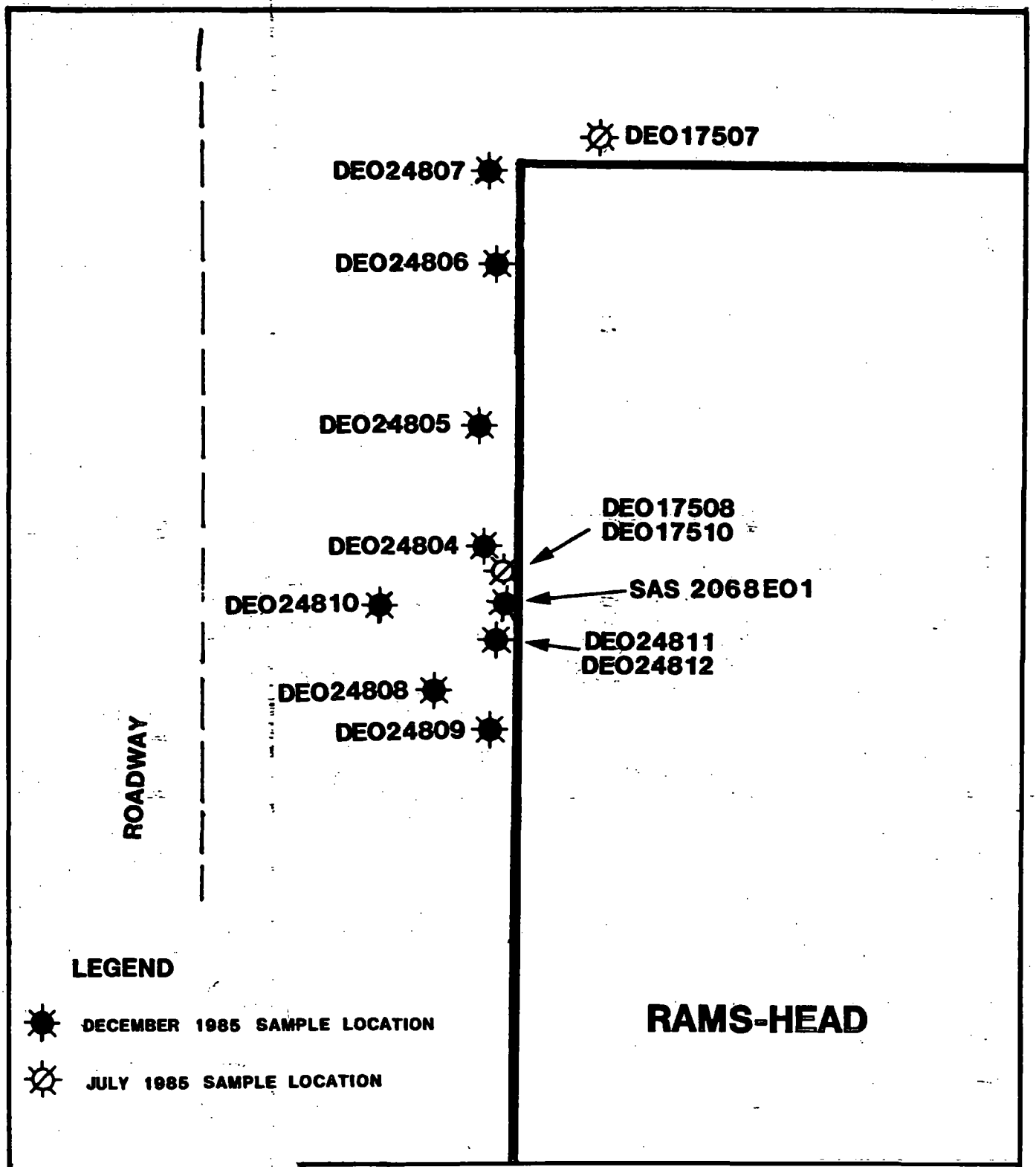
FIGURE 1



RESIDENTIAL

Scale?

ecology and environment, inc. 111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415	
TITLE SITE MAP	FIGURE # 2
SITE THE RAMS-HEAD CO.	SCALE NONE
CITY DES PLAINES STATE ILLINOIS	TDD-# R5-840409
SOURCE MJR	DATE 11/1/85 REVISED 10/7/86



ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415

TITLE SITE MAP	FIGURE # 3
SITE THE RAMS-HEAD CO.	SCALE 1"=10'
CITY DES PLAINES STATE ILLINOIS	TDD # R5-840409
SOURCE MJR	DATE 10/7/86
	REVISED —

FIELD PHOTOGRAPHY LOG SHEET

PAGE 1

DATE 6-13-85

TIME 11:08 (A.M.) P.M.

DIRECTION: N NNE NE ENE
E (ESE) SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 70's

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
Mary Jane Ripp

SAMPLE ID# (if applicable)
DE017504
ED063
SAS 1737E01

DESCRIPTION: pea gravel spread along area. sampled near doorway.

DATE 6-13-85

TIME 11:08 (A.M.) P.M.

DIRECTION: N NNE NE ENE
E ESE SE SSE
(S) SSW SW WSW
W WNW NW NNW

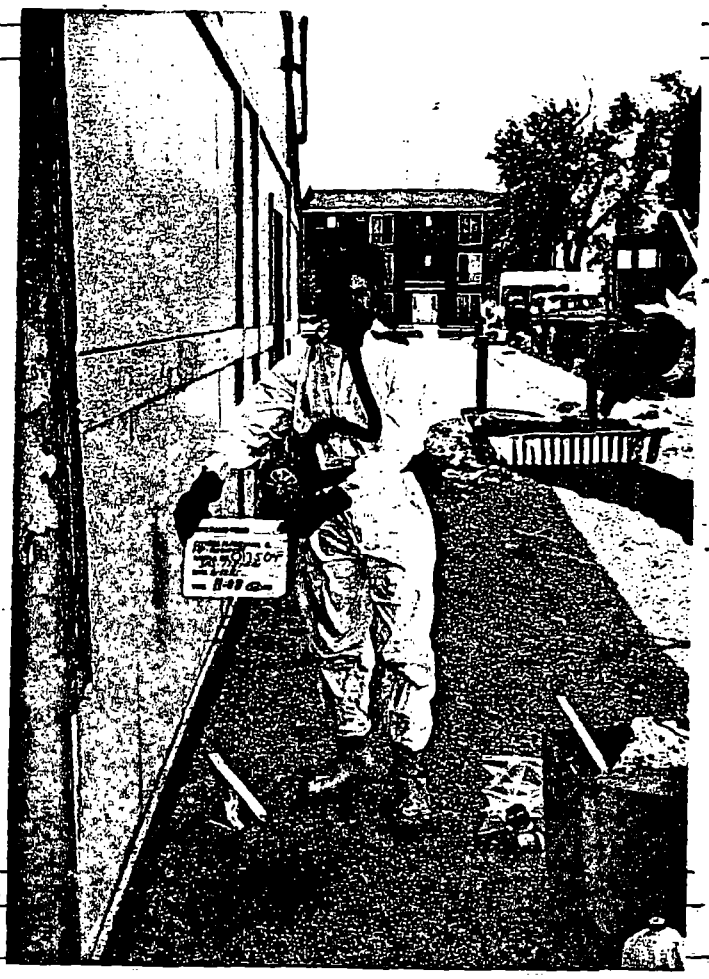
WEATHER sunny, 70's

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
Mary Jane Ripp

SAMPLE ID# (if applicable)
DE017504
ED063
SAS1737E01



DESCRIPTION: pea gravel spread along area sampled near doorway.

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE017504 and ED063 and SA51737E01

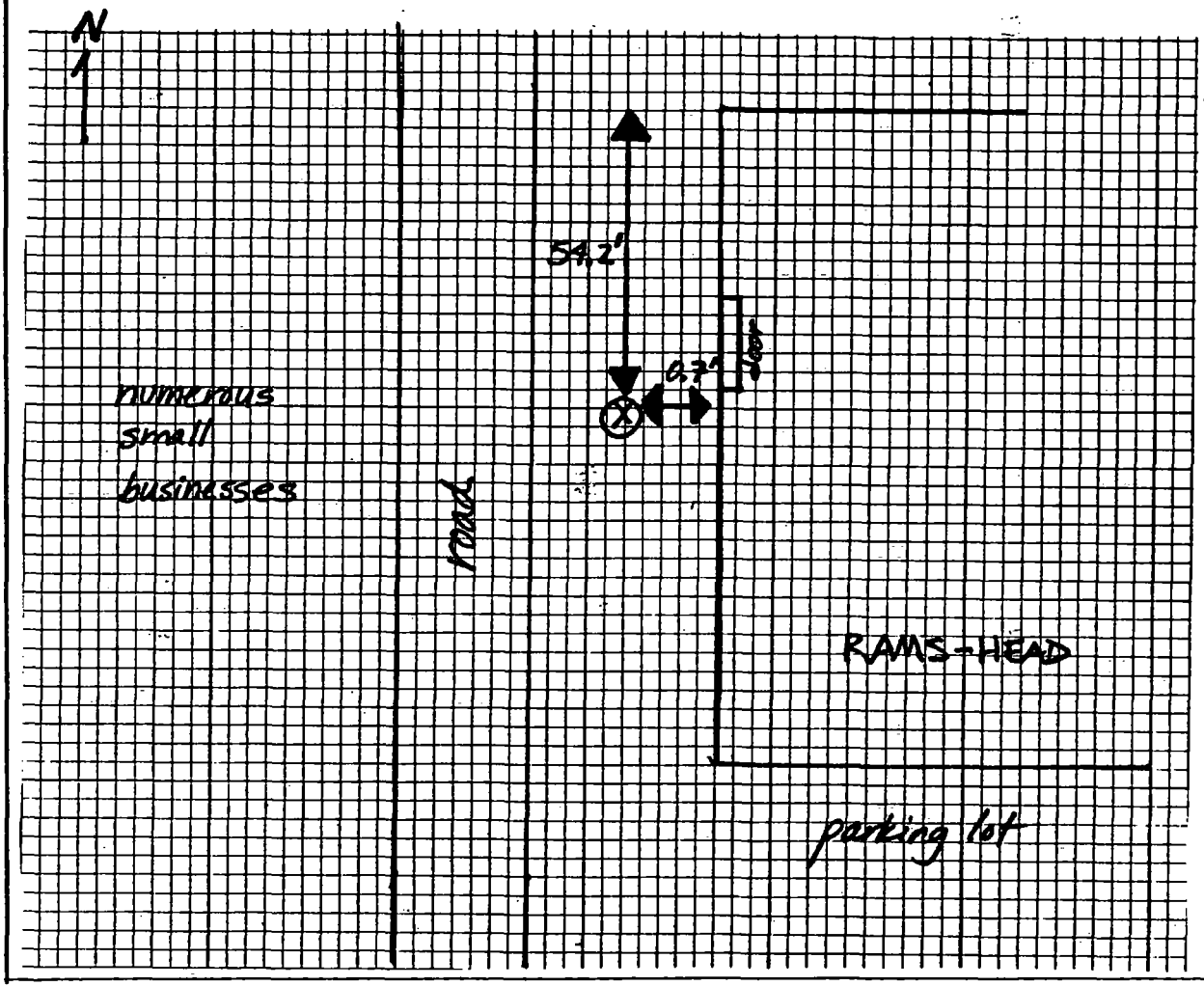
SAMPLER: PAT PETRELLA

DATE: 06/13/85 TIME: 11/08 AM PM

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions):

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

PAGE 2

DATE 6-13-85

TIME 10:37 (A.M) P.M.

DIRECTION: N NNE NE ENE
E ESE SE SSE
(S) SSW SW WSW
W WNW NW NNW

WEATHER sunny, 70°'s

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017505

DESCRIPTION: photographed rear of building. Unused, littered area

DATE 6-13-85

TIME 10:37 (A.M) P.M.

DIRECTION: N NNE NE ENE
E ESE (SE) SSE
S SSW SW WSW
W WNW NW NNW

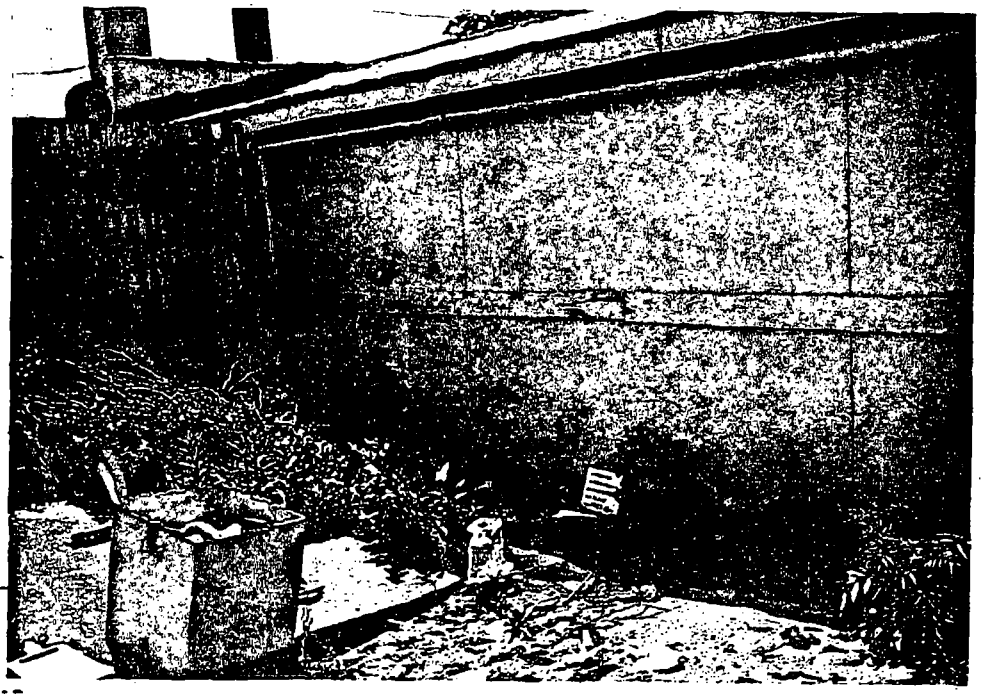
WEATHER sunny, 70°'s

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017505



DESCRIPTION: photographed rear of building. Unused, littered area.

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE017505

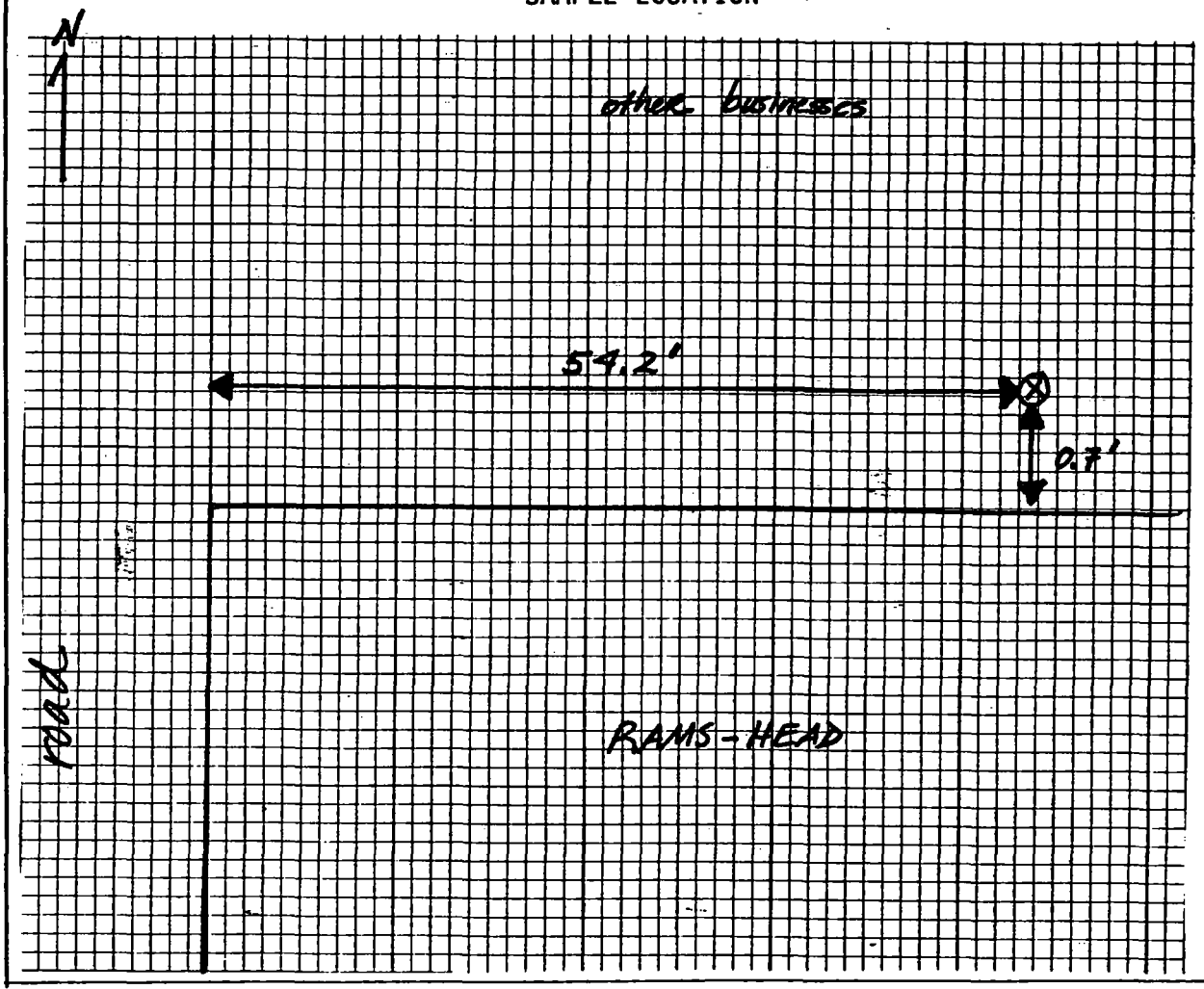
SAMPLER: STEVE VEVANG

DATE: 06/13/85 TIME: 10:37 AM PM

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions):

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

DATE 6-13-85

TIME 10:48 (A.M.) P.M.

DIRECTION: N NNE NE ENE
E ESE SE SSE
(S) SSW SW WSW
W WNW NW NNW

WEATHER sunny, 70°'s

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017506

DESCRIPTION: Rear of production building. Unused, littered area.

DATE 6-13-85

TIME 10:48 (A.M.) P.M.

DIRECTION: N NNE NE ENE
E ESE SE SSE
S SSW SW WSW
(W) WNW NW NNW

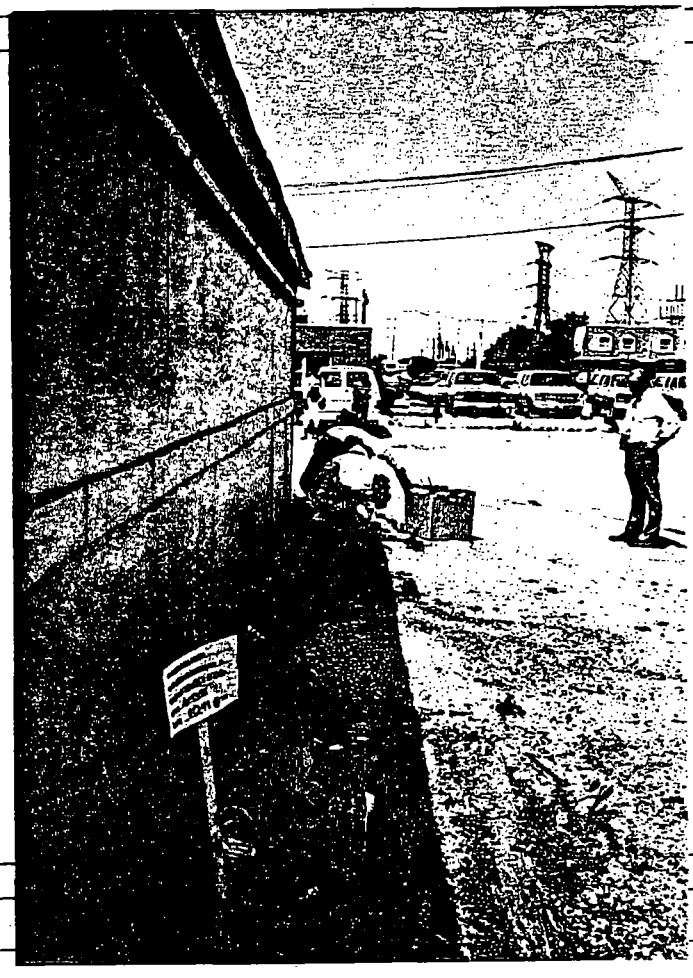
WEATHER sunny, 70°'s

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017506



DESCRIPTION: Rear of production building. Unused, littered area.

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE017506

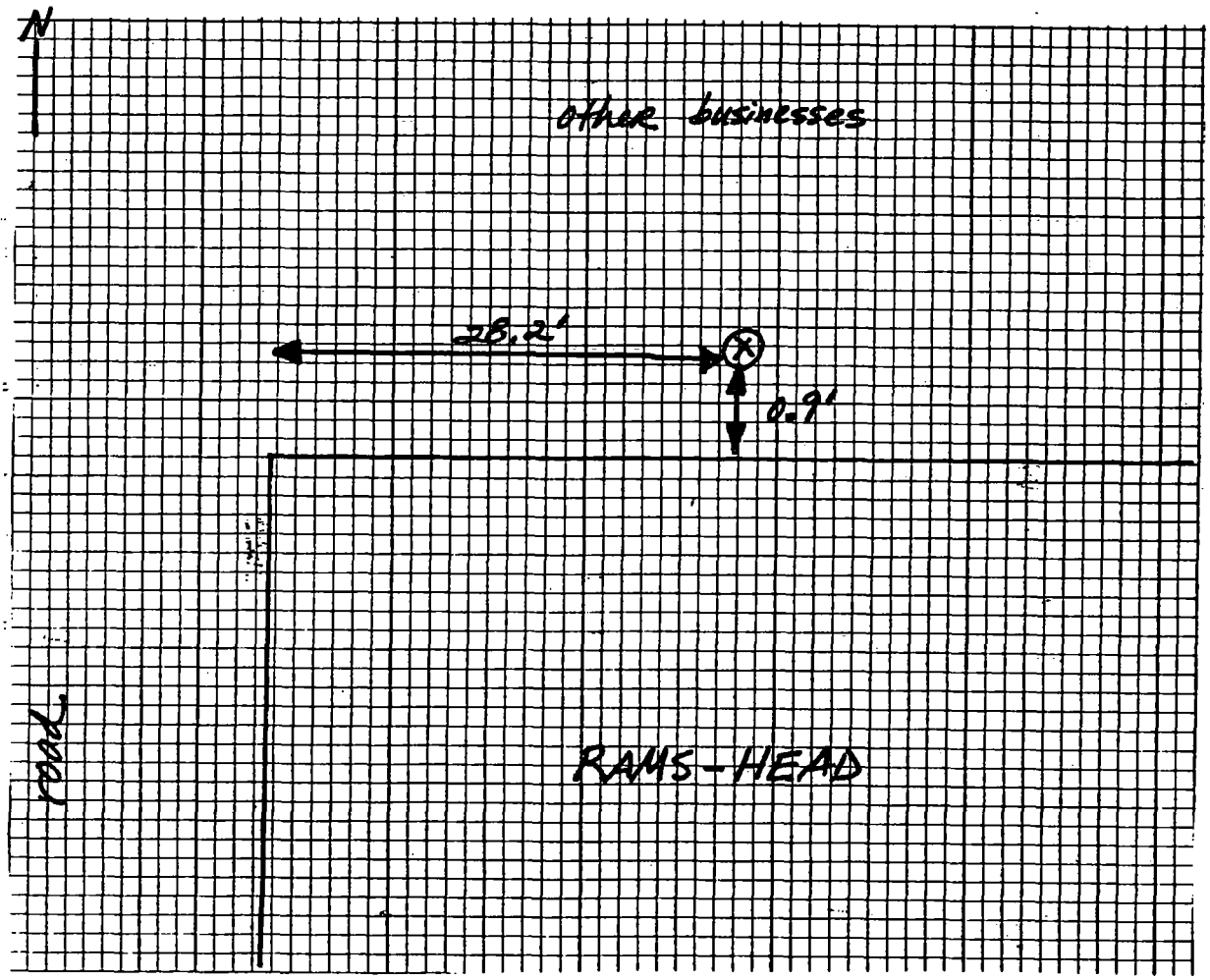
SAMPLER: STEVE VEVANG

DATE: 06/13/85 TIME: 1048 AM PM

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions):

SAMPLE LOCATION



FIELD PHOTOGRAPH LOG SHEET

DATE 6-13-85

TIME 10:52 (A.M.) P.M.

DIRECTION: N NNE NE ENE
E ESE SE SSE
S SSW (SW) WSW
W WNW NW NNW

WEATHER sunny, 70°'s

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017507

DESCRIPTION: Rear of production building. Unused, littered area.

DATE 6-13-85

TIME 10:52 (A.M.) P.M.

DIRECTION: N NNE NE ENE
E ESE SE SSE
S SSW SW (WSW)
W WNW NW NNW

WEATHER sunny, 70°'s

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017507

DESCRIPTION: Rear of production building. Unused, littered area.

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE017507

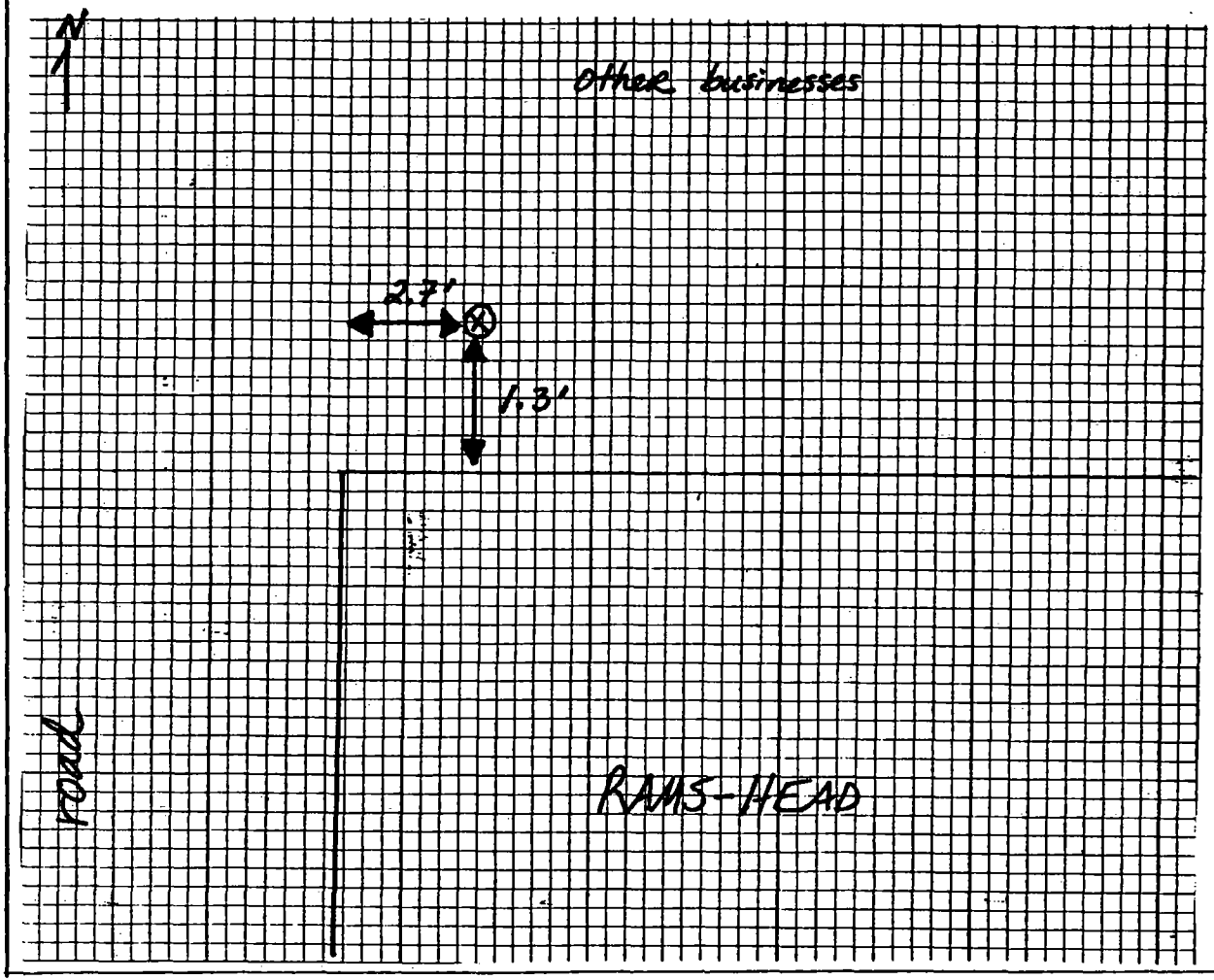
SAMPLER: PAT PETRELLA

DATE: 06/13/85 TIME: 1052 AM PM

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions):

SAMPLE LOCATION



DATE 6-13-85

TIME 10:57 (A.M.) P.M.

DIRECTION: N NNE NE ENE
E (ESE) SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 70's

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017508
DE017510

DESCRIPTION: West side of building.
Adjacent to roadway.

DATE 6-13-85

TIME 10:57 (A.M.) P.M.

DIRECTION: (N) NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 70's

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017508
DE017510

DESCRIPTION: West side of building.
Adjacent to roadway.

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE017508 and DE017510 (duplicate)

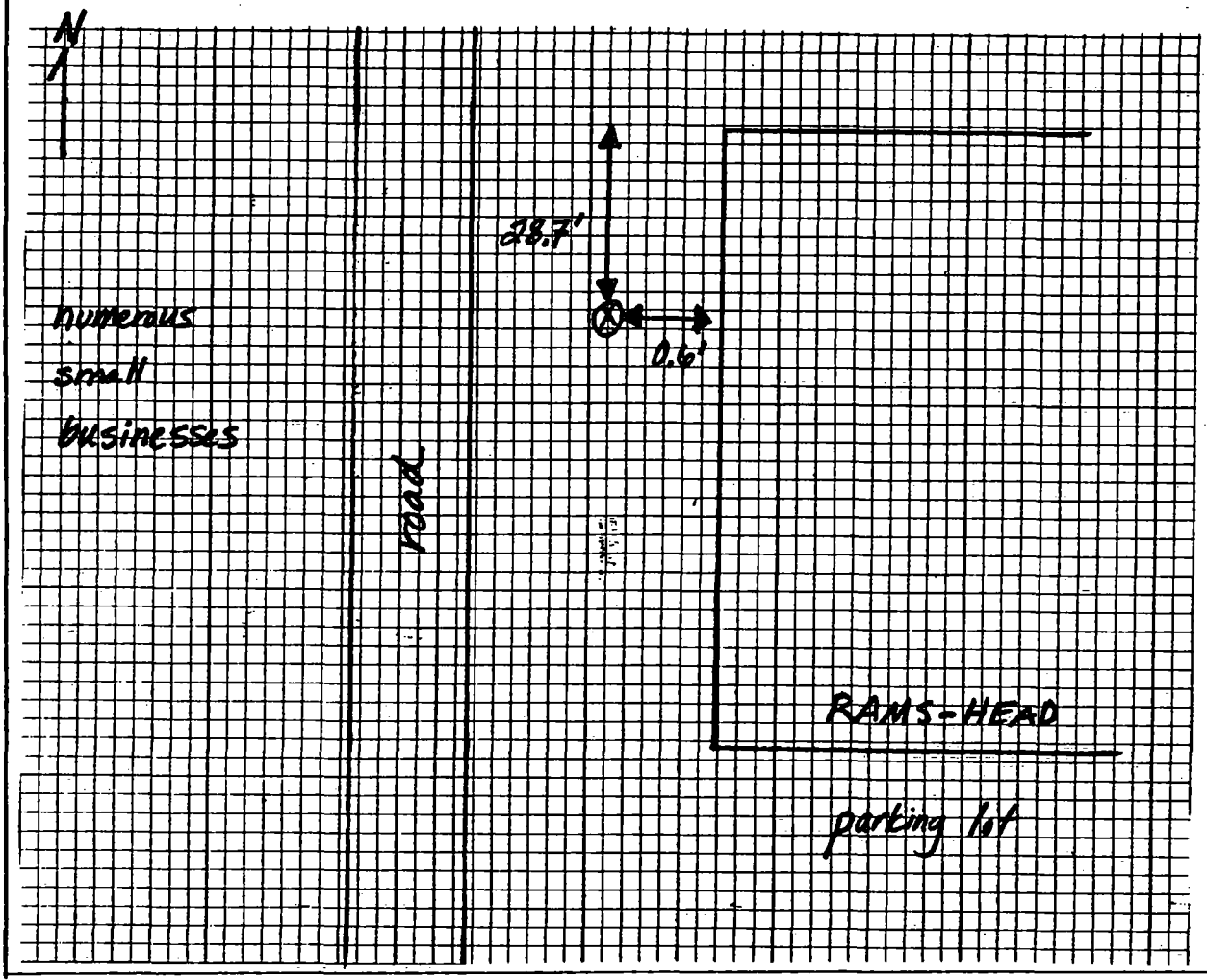
SAMPLER: STEVE VEVANG

DATE: 06/13/85 TIME: 1057 AM PM

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions):

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

PAGE 10

DATE 6-13-85

TIME 11:15 (A.M.) P.M.

DIRECTION: N NNE NE (ENE)
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 70's

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017509

DESCRIPTION: Adjacent to parking lot and roadway

DATE 6-13-85

TIME 11:15 (A.M.) P.M.

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

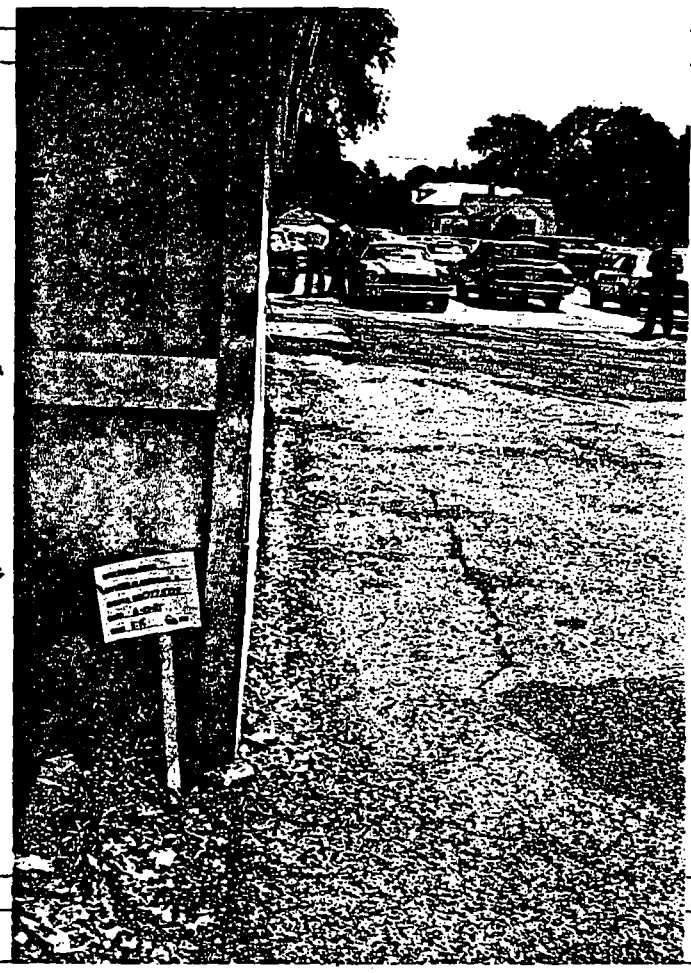
WEATHER sunny, 70's

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017509



DESCRIPTION: Adjacent to parking lot and roadway.

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE017509

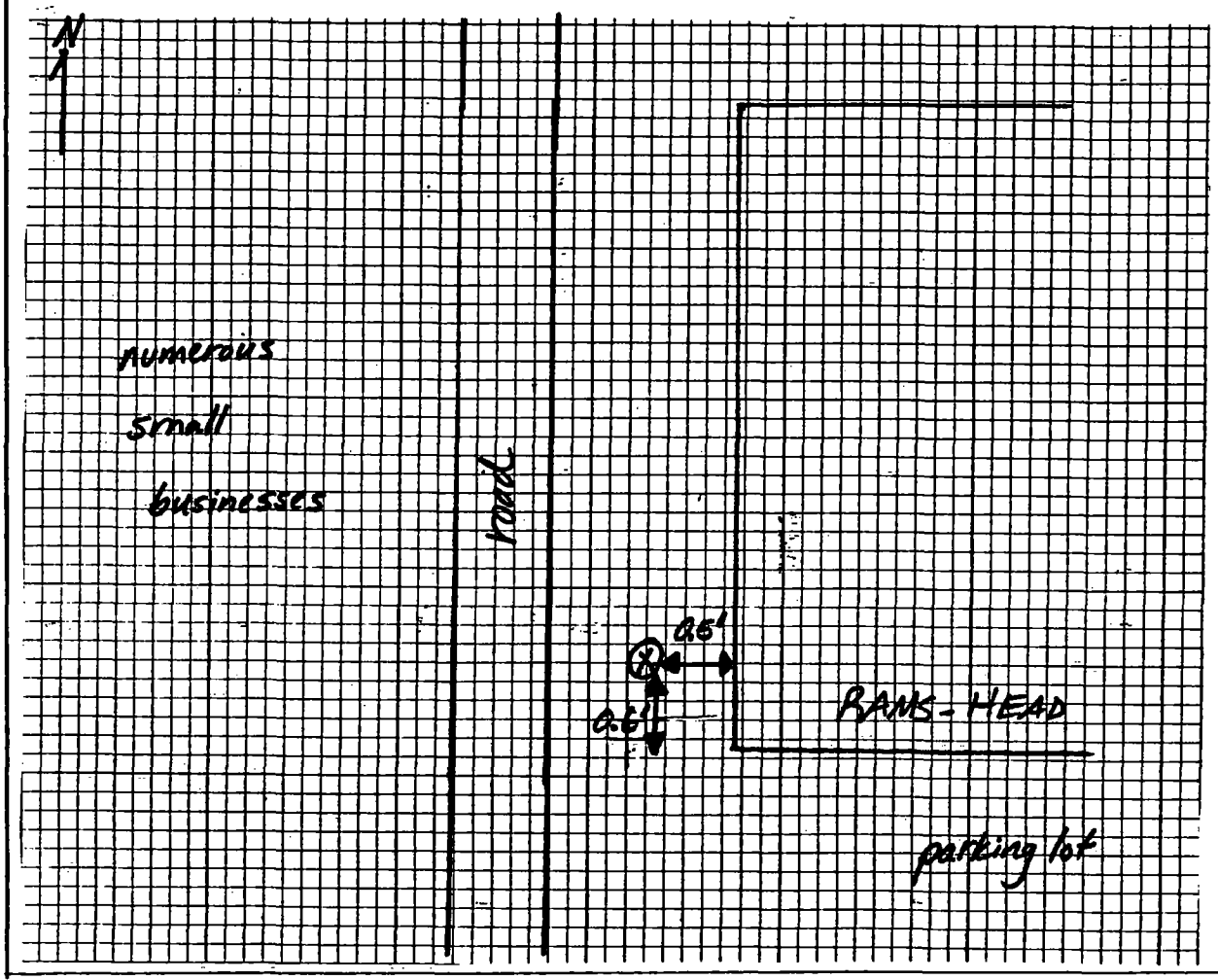
SAMPLER: PAT PETRELLA

DATE: 06/13/85 TIME: 11/11/15 AM PM

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions):

SAMPLE LOCATION



DATE 6-13-85

TIME 11:30 (A.M.) P.M.

DIRECTION: N (NNE) NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

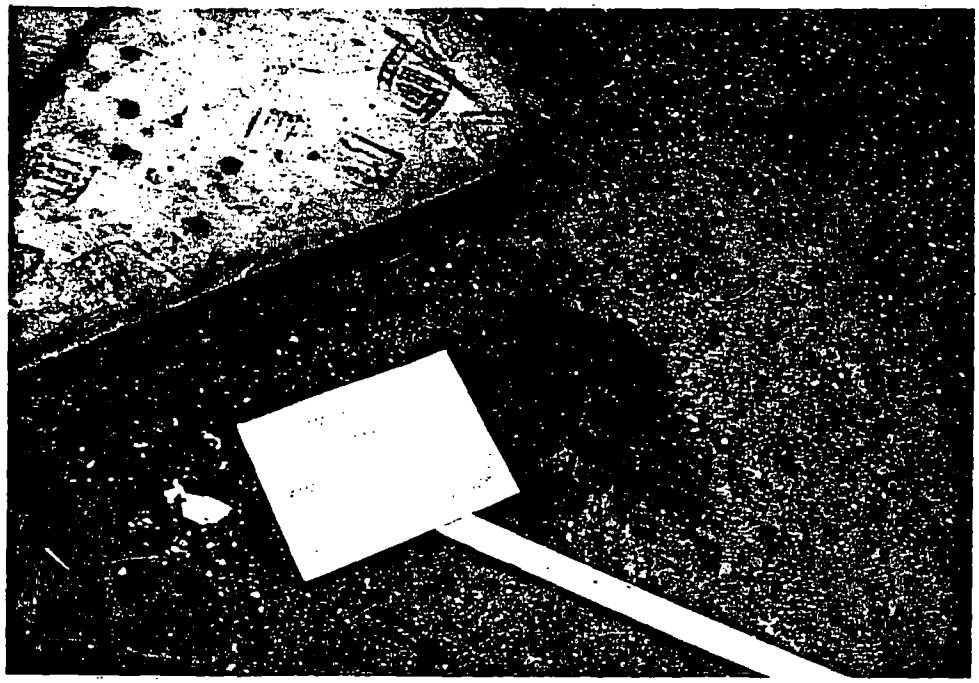
WEATHER sunny, 70's

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017511



DESCRIPTION: sampled near proposed garage concrete foundation. - appeared to be stained soil

DATE 6-13-85

TIME 11:30 (A.M.) P.M.

DIRECTION: N NNE (NE) ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

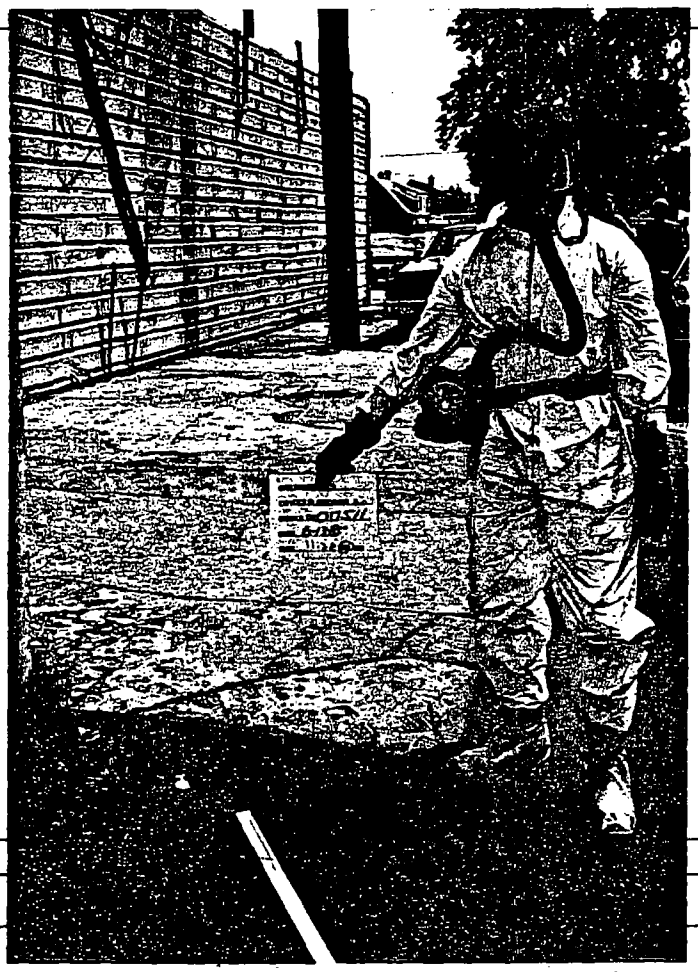
WEATHER sunny, 70's

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017511



DESCRIPTION: sampled near proposed garage concrete foundation.

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE017511

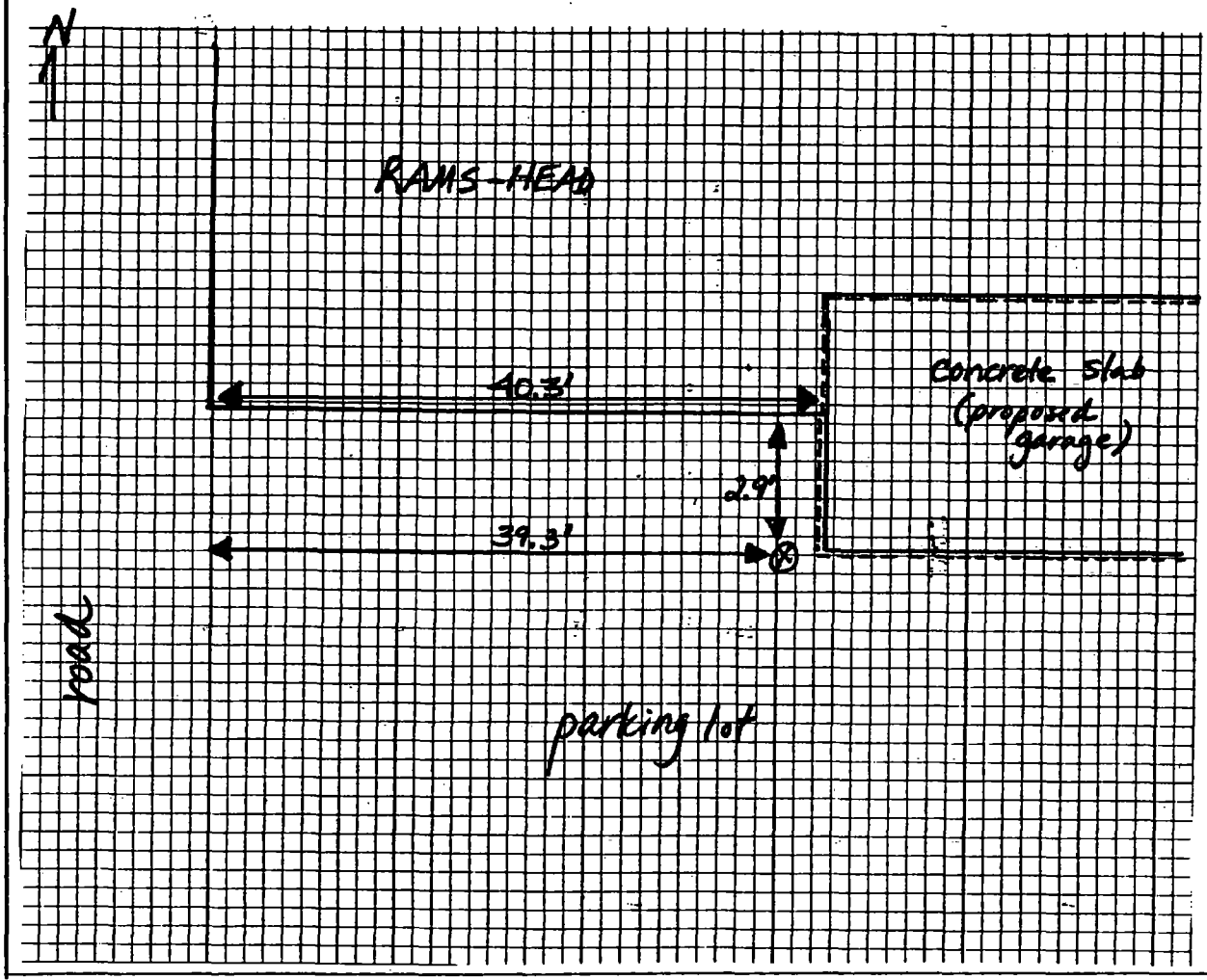
SAMPLER: STEVE VEVANG

DATE: 06/13/85 TIME: 11/30 (AM) PM

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions):

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

DATE 6-13-85

TIME 11:41 (A.M.) P.M.

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 70's

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017512

DESCRIPTION: sampled near pole

DATE 6-13-85

TIME 11:41 (A.M.) P.M.

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

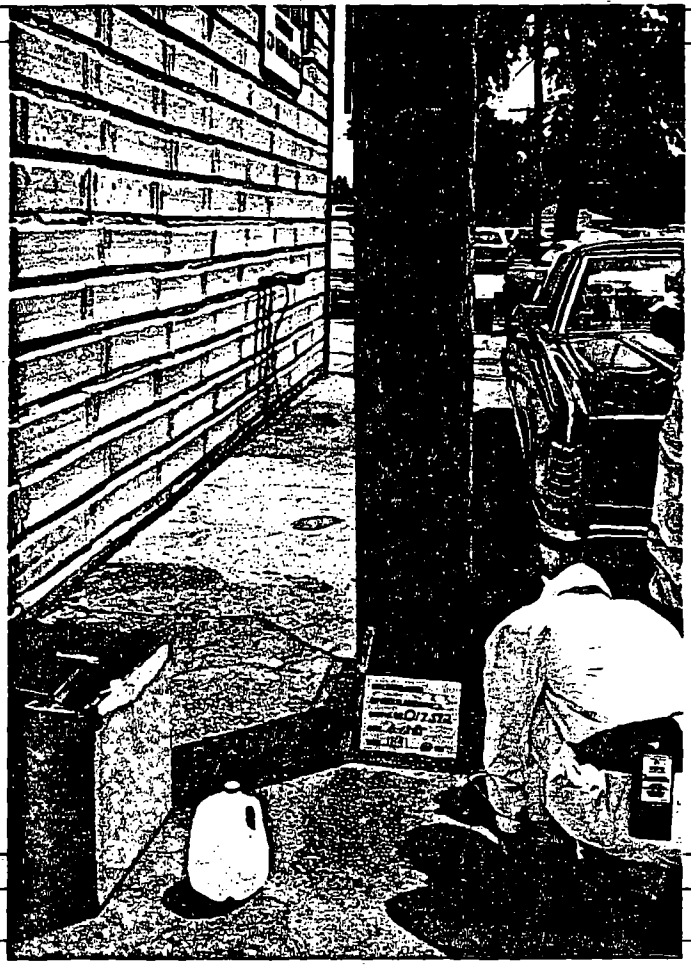
WEATHER sunny, 70's

SITE Rams-Head

TDD# R5-8404-9

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE017512



DESCRIPTION: Sampled near pole.

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE017512

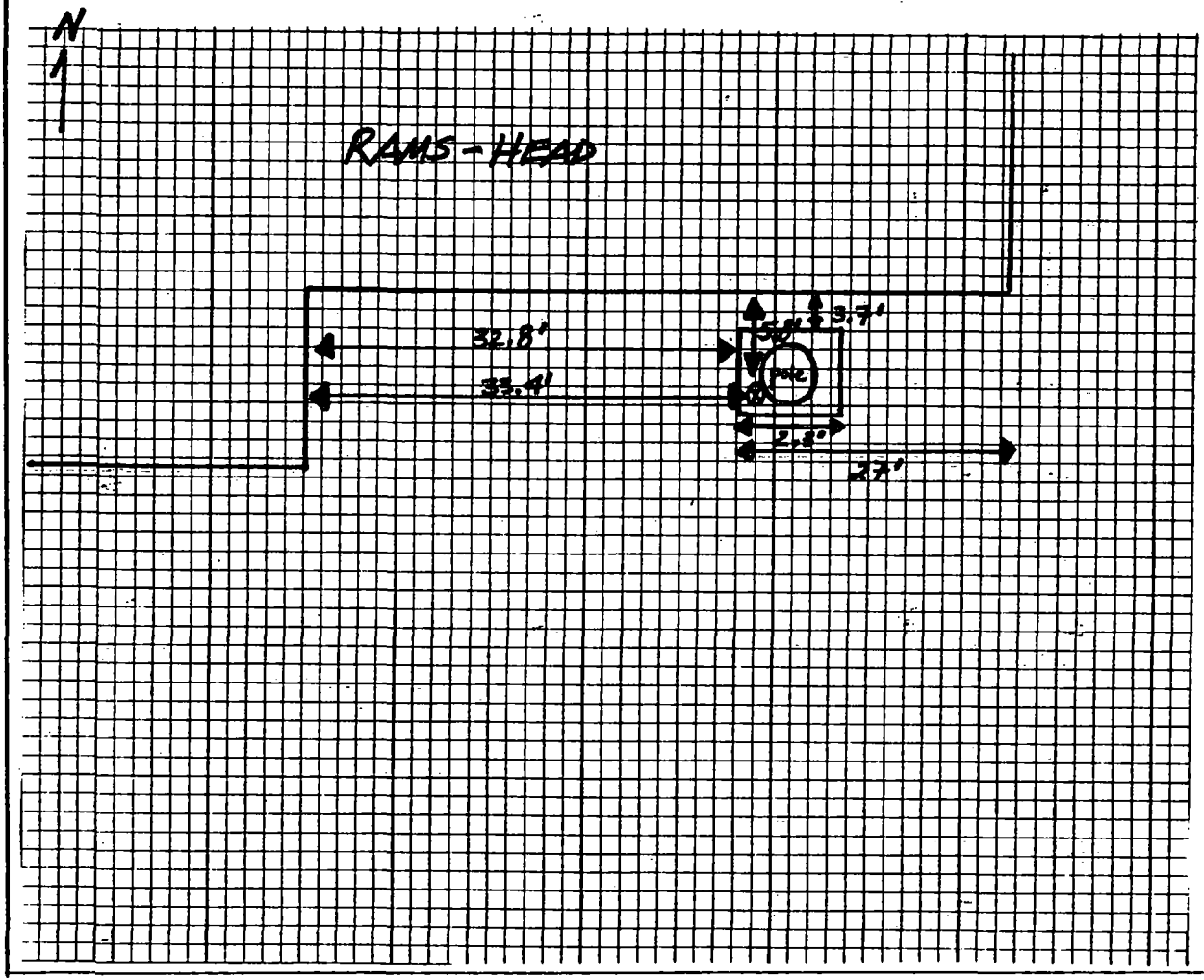
SAMPLER: PAT PETRELLA

DATE: 06/13/85 TIME: 11/41 AM PM

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions): sampled near pole.

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

Page_____

DATE 12·4·85

TIME 11:19 (A.M.) P.M.

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

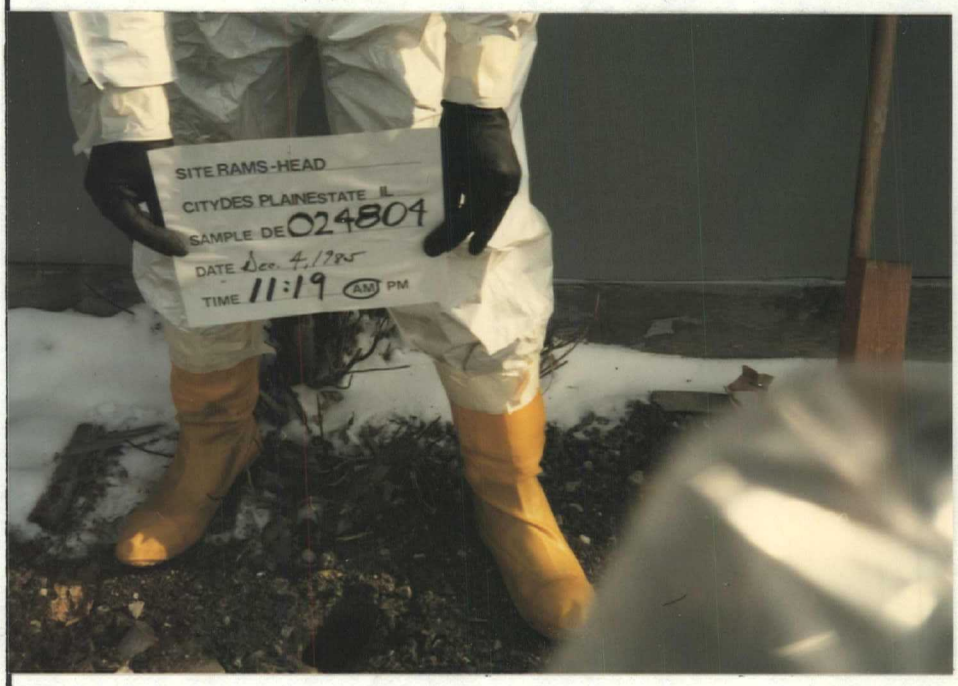
WEATHER Sunny, 10°F

SITE RAMS-HEAD

TDD# R5-8404-09

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE0 24804



DESCRIPTION: Collected along west side of plant building near confirmed contamination area.

DATE 12·4·85

TIME 11:19 (A.M.) P.M.

DIRECTION: (N) NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

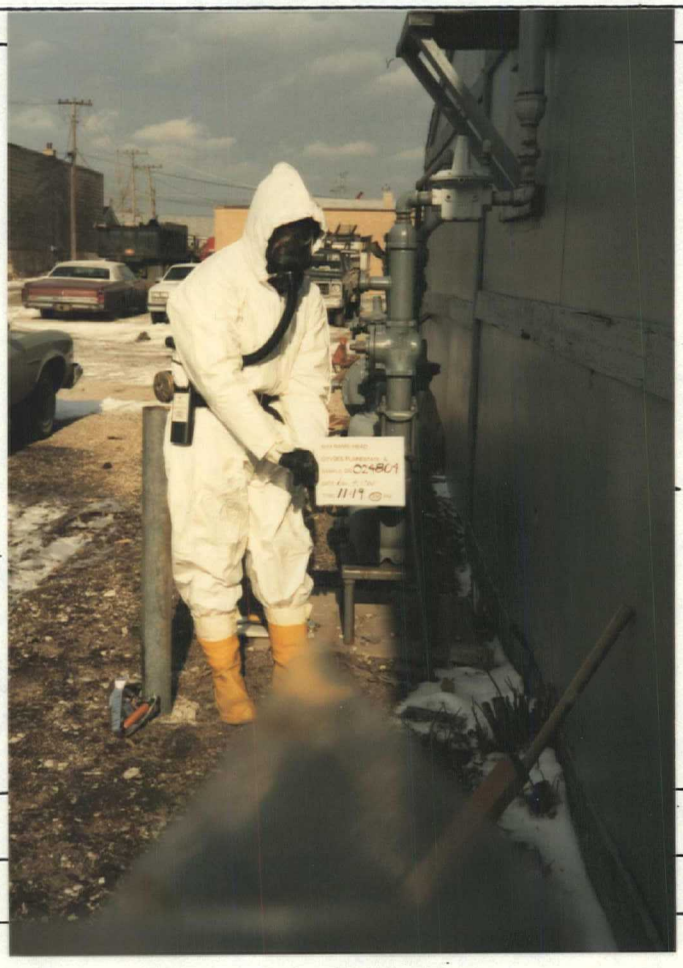
WEATHER sunny, 10°F

SITE RAMS-HEAD

TDD# R5-8404-09

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE024804



DESCRIPTION: Same as above

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE024804

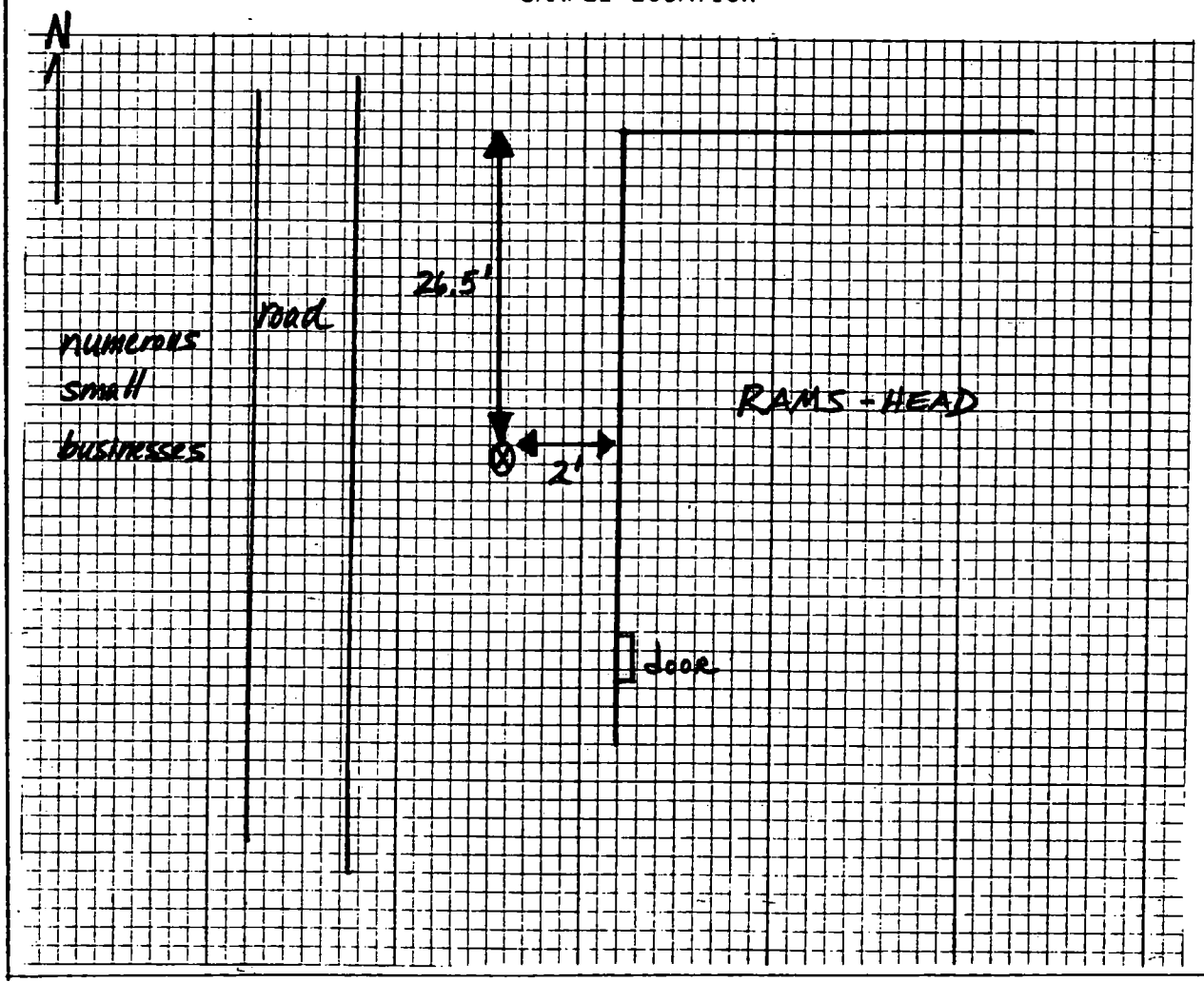
SAMPLER: Scott Green

DATE: 12 04 85 TIME: 11 11 19 (AM) PM

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions):

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

Page_____

DATE 12·4·85

TIME 11:33 (A.M.) P.M.

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 10°F

SITE RAMS-HEAD

TDD# R5-8404-09

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE024805

DESCRIPTION: collected along west side of plant building near confirmed contamination area.

DATE 12·4·85

TIME 11:33 (A.M.) P.M.

DIRECTION: (N) NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 10°F

SITE RAMS-HEAD

TDD# R5-8404-09

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE024805

DESCRIPTION: same as above.

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE024805

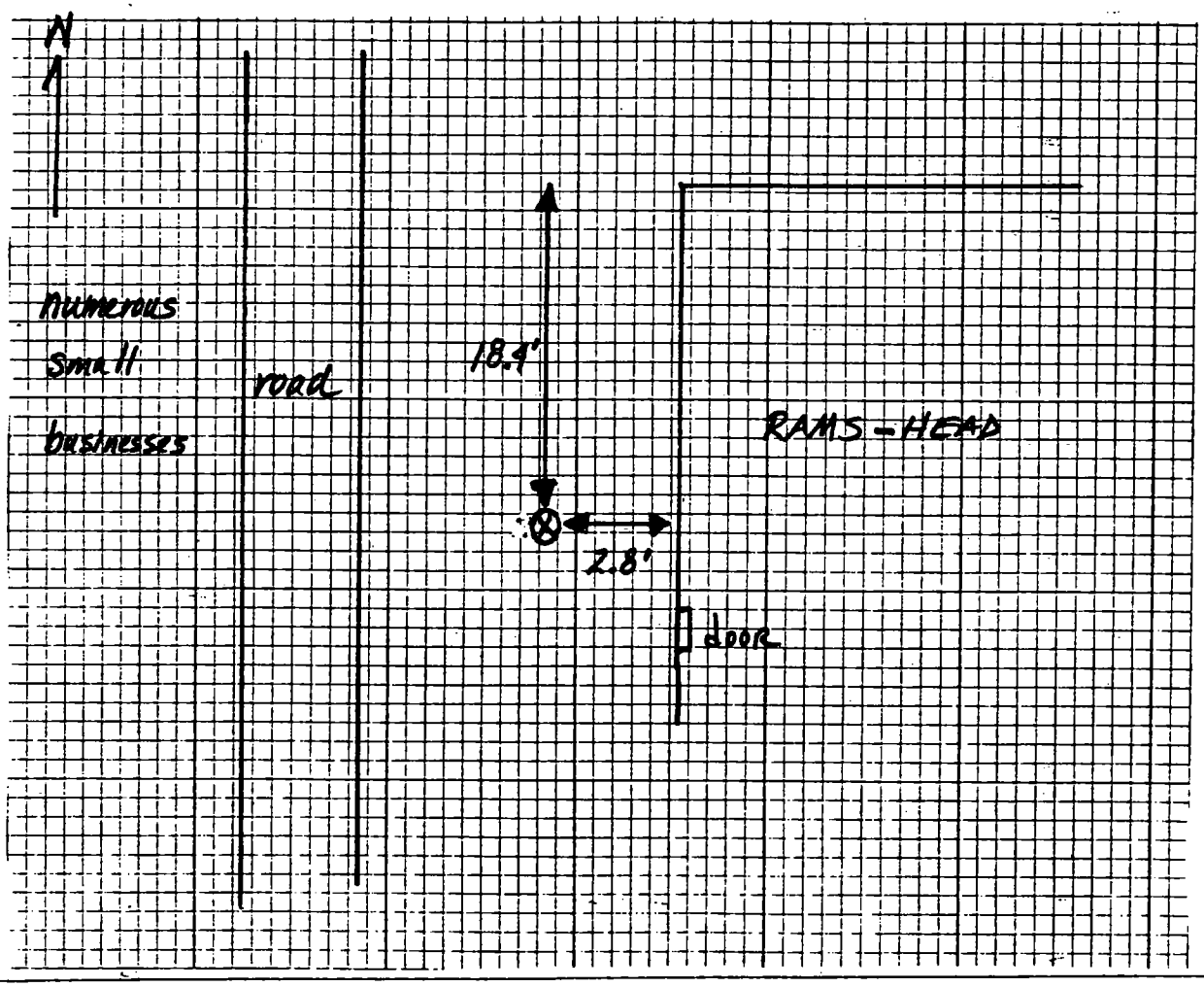
SAMPLER: Scott Green

DATE: 1 2 0 4 8 5 TIME: 1 1 3 3 (AM) PM

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions):

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

Page_____

DATE 12·4·85

TIME 11:52 (A.M.) P.M.

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 10°F

SITE RAMS-HEAD

TDD# R5-8404-09

PHOTOGRAPHED BY:
MARY JANE RIPP

SAMPLE ID# (if applicable)
DE024806

DESCRIPTION: collected along west side of plant building near confirmed contamination area.

DATE 12·4·85

TIME 11:52 (A.M.) P.M.

DIRECTION: (N) NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

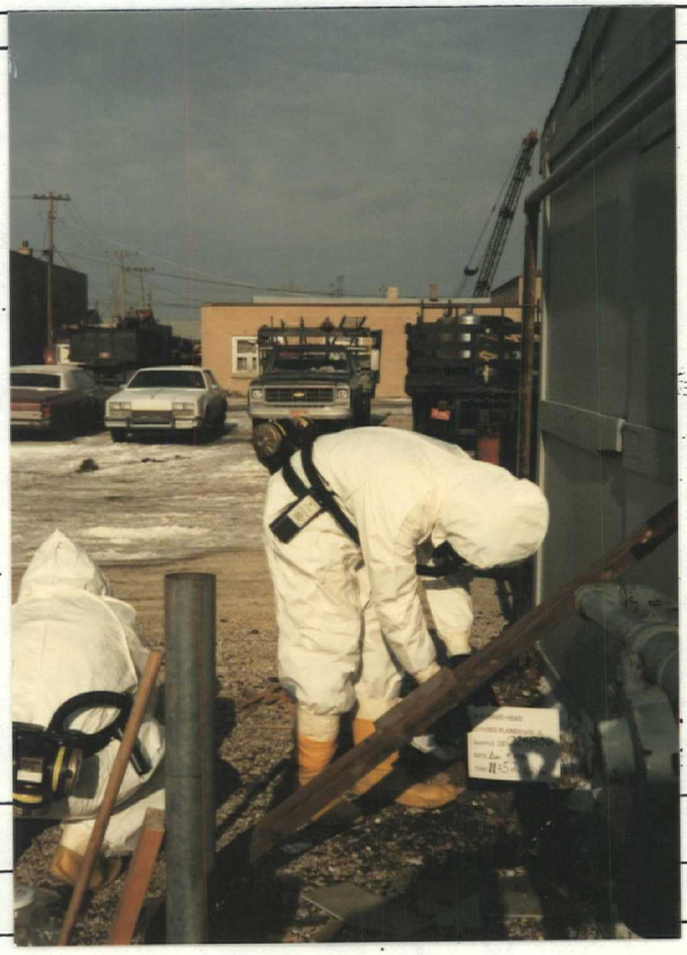
WEATHER sunny, 10°F

SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY:
Mary Jane Ripp

SAMPLE ID# (if applicable)
DE024806



DESCRIPTION: same as above.

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE024806

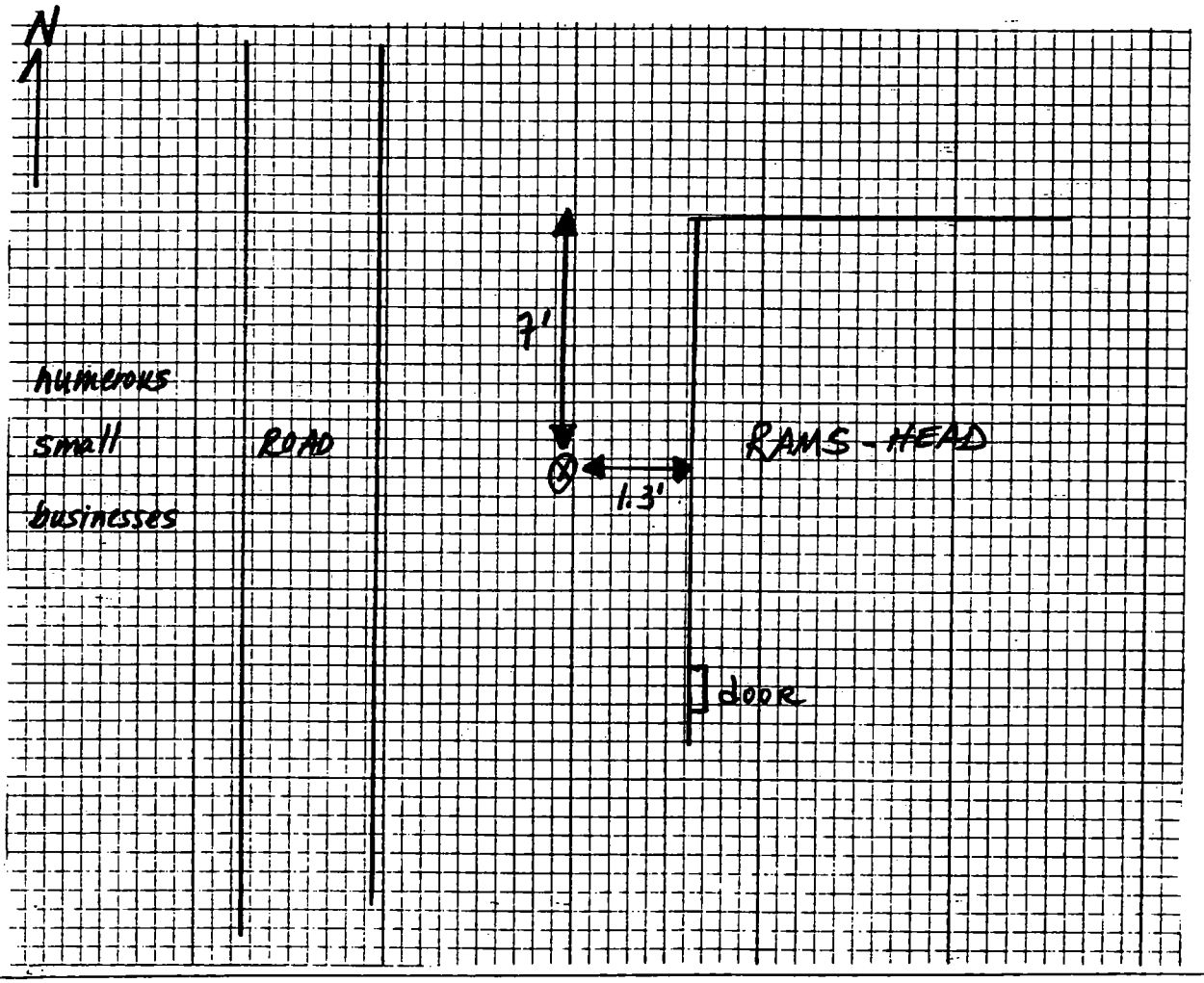
SAMPLER: SCOTT GREEN

DATE: 1 2 0 4 8 5 TIME: 1 1 5 2 (AM) PM

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions):

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

Page_____

DATE 12·4·85

TIME 12:03 A.M. (P.M.)

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

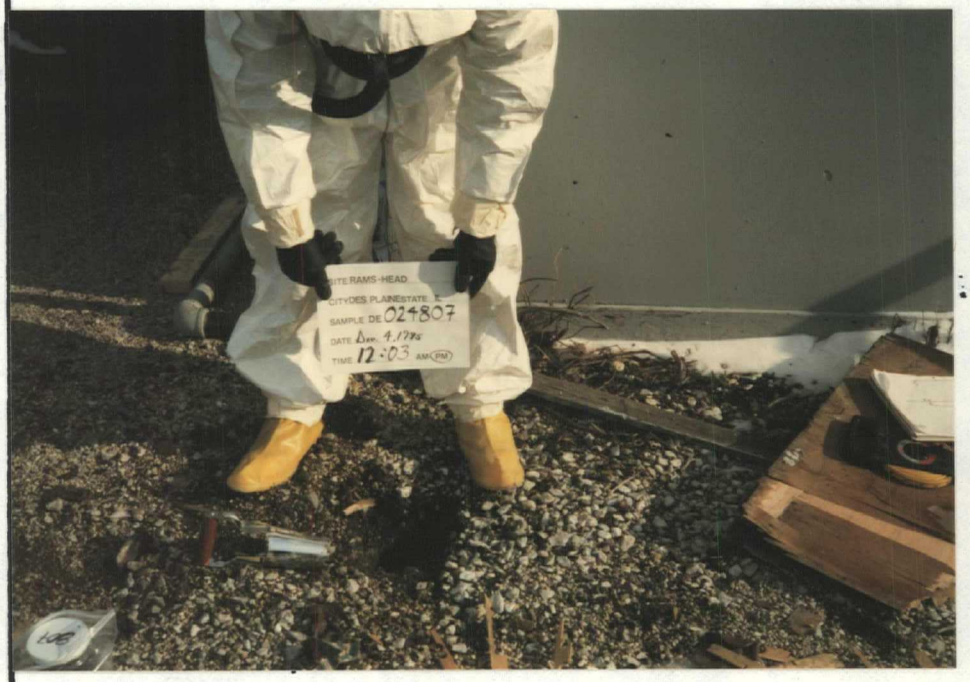
WEATHER sunny, 10°F

SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY: Mary Jane Ripp

SAMPLE ID# (if applicable) DE024807



DESCRIPTION: collected along west side of plant building near confirmed contamination area.

DATE 12·4·85

TIME 12:03 A.M. (P.M.)

DIRECTION: N NNE NE ENE
E ESE SE SSE
(S) SSW SW WSW
W WNW NW NNW

WEATHER sunny, 10°F

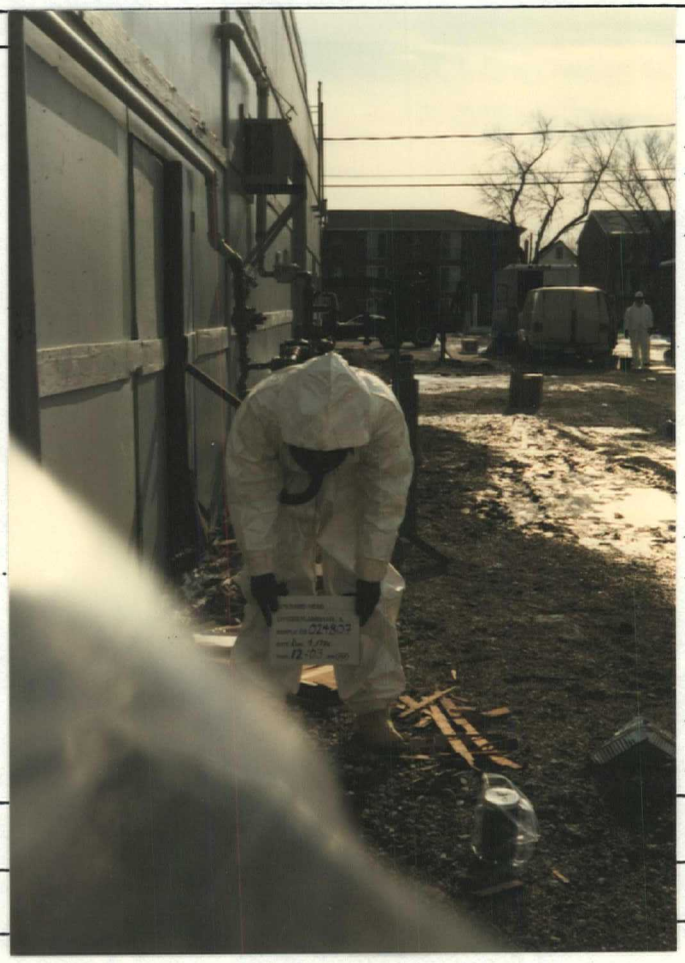
SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY: Mary Jane Ripp

SAMPLE ID# (if applicable) DE024807

DESCRIPTION: same as above.



PAGE _____

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE024807

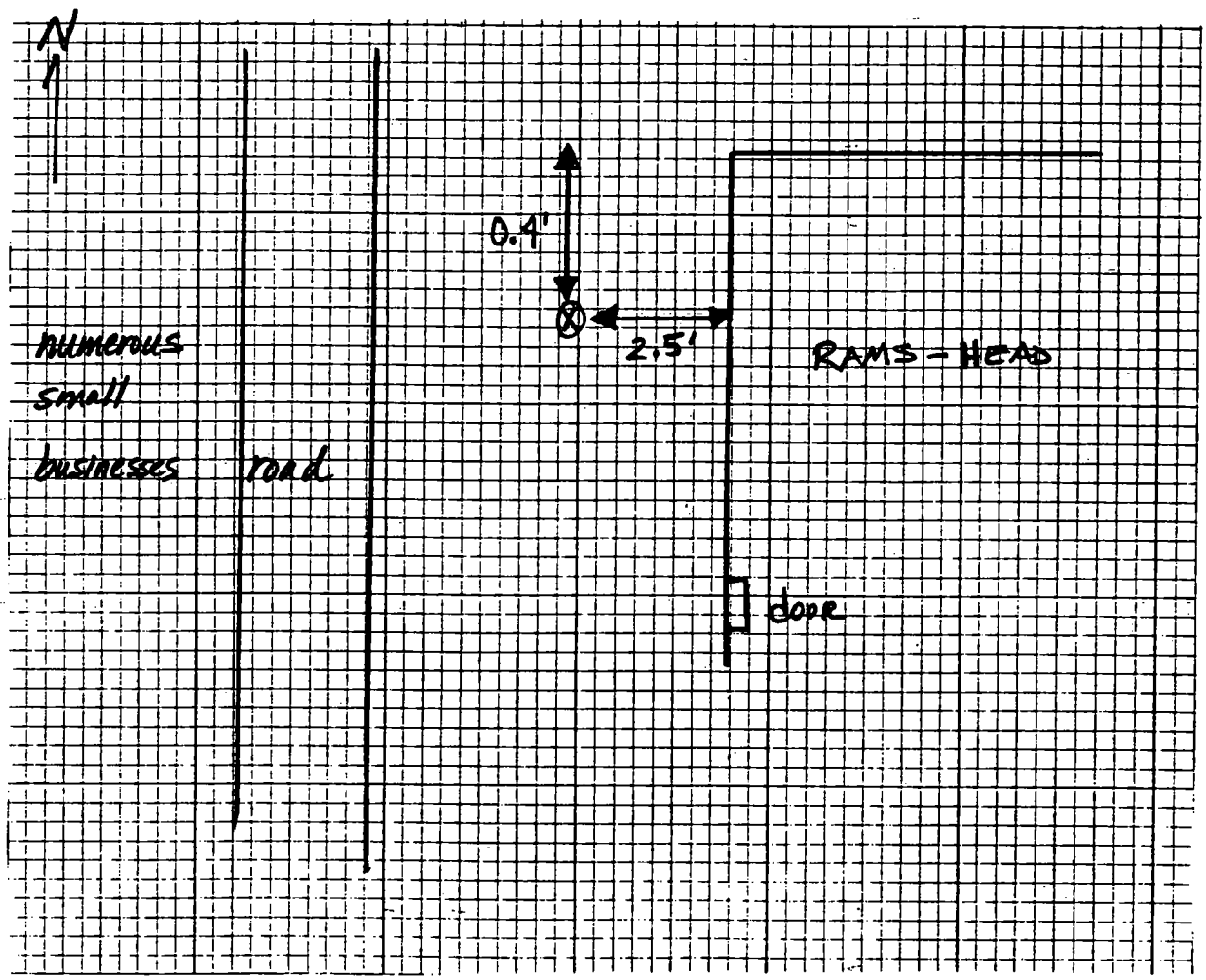
SAMPLER: Scott Green

DATE: 1 2 0 4 8 5 TIME: 1 2 0 3 AM PM

METHOD OF SAMPLE COLLECTION: Grab

PHOTOGRAPHY (including directions): _____

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

Page _____

DATE 12·4·85

TIME 1:00 A.M. (P.M.)

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 10°F

SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY:
Mary Jane Ripp

SAMPLE ID# (if applicable)
DE024808

DESCRIPTION: collected along west side of plant building near confirmed contamination area.

DATE 12·4·85

TIME 1:00 A.M. (P.M.)

DIRECTION: (N) NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 10°F

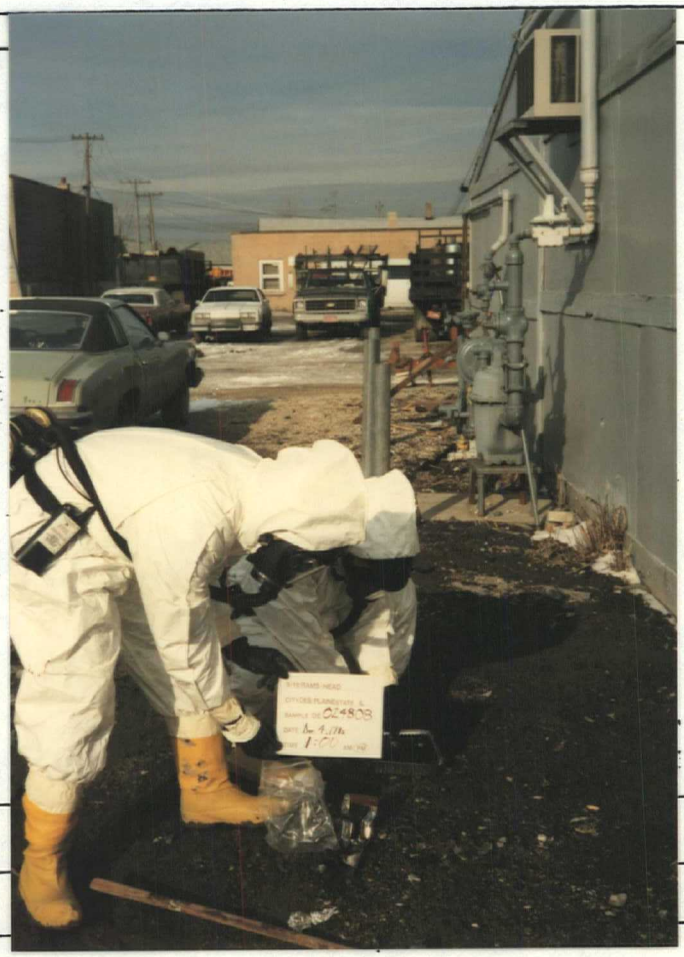
SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY:
Mary Jane Ripp

SAMPLE ID# (if applicable)
DE024809

DESCRIPTION: same as above.



PAGE _____

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE024808

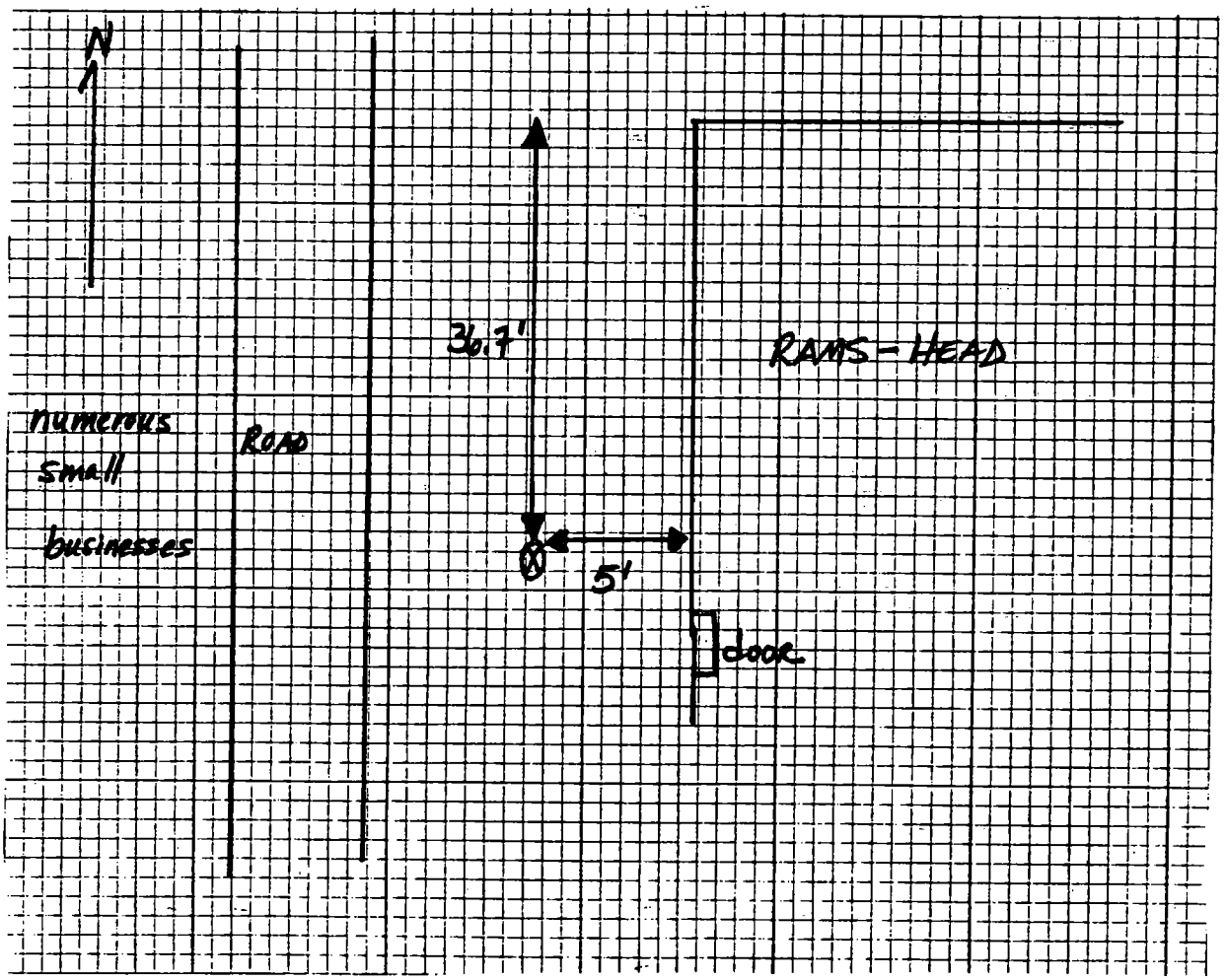
SAMPLER: BRIDGET HAUGH

DATE: 1 2 0 4 8 5 TIME: 0 1 0 0 AM (PM)

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions): _____

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

Page_____

DATE 12·4·85

TIME 1:23 A.M. (P.M.)

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 10°F

SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY: Mary Jane Ripp

SAMPLE ID# (if applicable) DE024809

DESCRIPTION: collected along west side of plant building near confirmed contamination area

DATE 12·4·85

TIME 1:23 A.M. (P.M.)

DIRECTION: (N) NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 10°F

SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY: Mary Jane Ripp

SAMPLE ID# (if applicable) DE024809

DESCRIPTION: same as above.

PAGE _____

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE024809

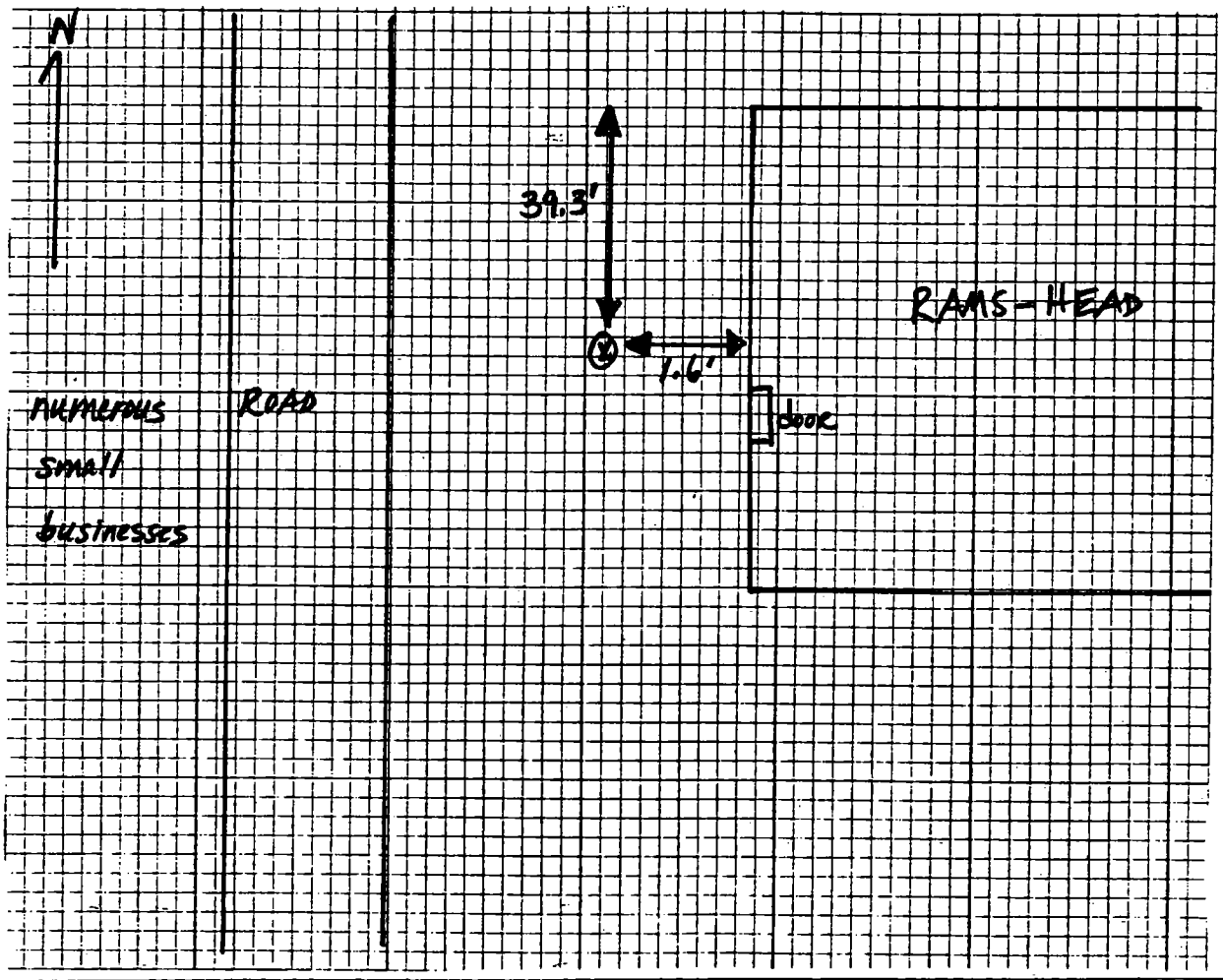
SAMPLER: BRIDGET HAUGH

DATE: 1 2 0 4 8 5 TIME: 0 1 2 3 AM (PM)

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions): _____

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

Page_____

DATE 12·4·85

TIME 1:31 A.M. (P.M.)

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 10°F

SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY: Mary Jane Ripp

SAMPLE ID# (if applicable) DE024810

DESCRIPTION: collected along west side of plant building. Sample location is directly west of confirmed contamination area.

DATE 12·4·85

TIME 1:31 A.M. (P.M.)

DIRECTION: (N) NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 10°F

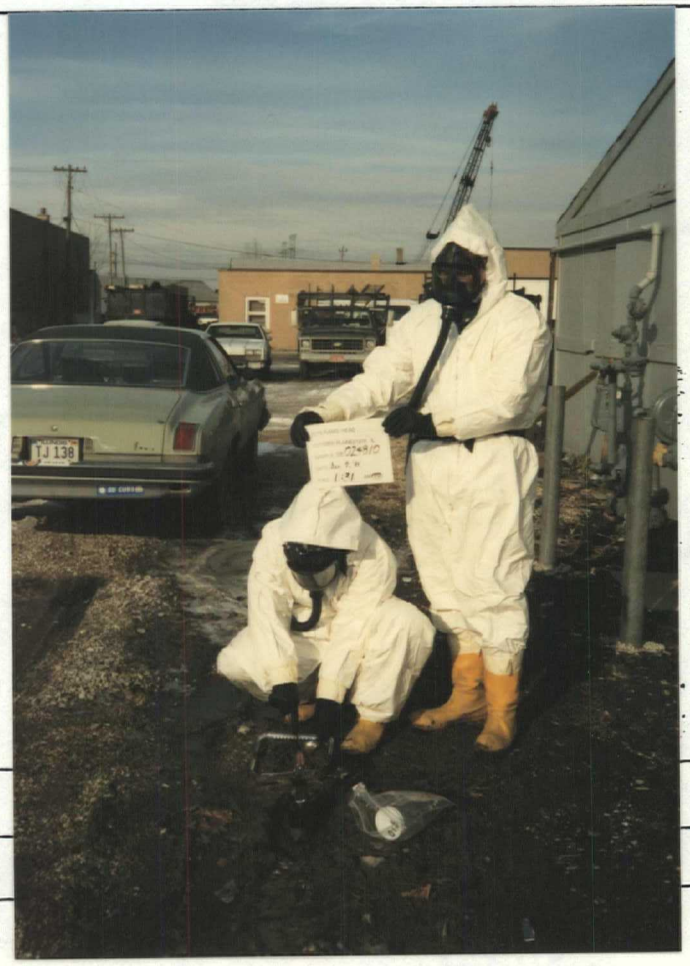
SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY: Mary Jane Ripp

SAMPLE ID# (if applicable) DE024810

DESCRIPTION: same as above.



PAGE _____

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE024810

SAMPLER: BRIDGET HAUGH

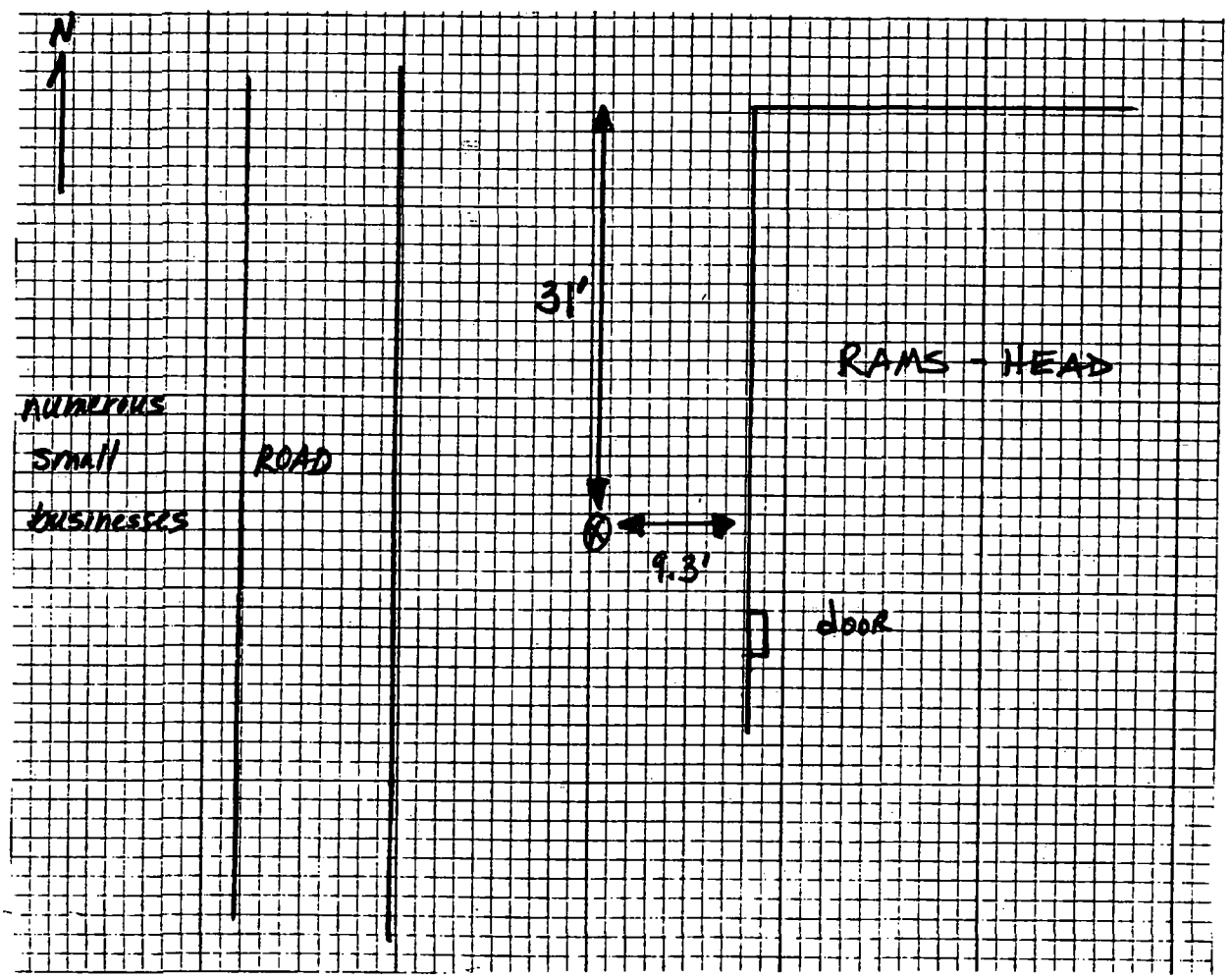
DATE: 1 2 0 4 8 5 TIME: 0 1 3 1 AM (PM)

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions): _____

NOTE: LOCATION is directly west of DE017508 and DE017510 (duplicate)

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

Page_____

DATE 12·4·85

TIME 12:51 A.M. (P.M.)

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER Sunny, 10°F

SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY: Mary Jane Ripp

SAMPLE ID# (if applicable) DE024811 and DE024812 (duplicate)

DESCRIPTION: collected along west side of plant building near confirmed contamination area.

DATE 12·4·85

TIME 12:51 A.M. (P.M.)

DIRECTION: (N) NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

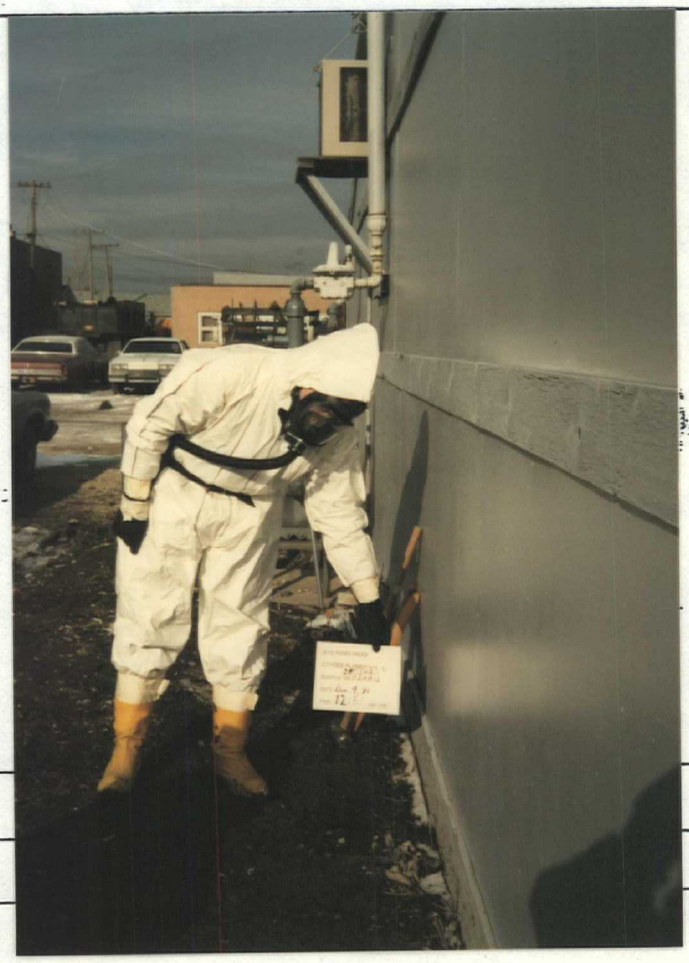
WEATHER Sunny, 10°F

SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY: Mary Jane Ripp

SAMPLE ID# (if applicable) DE024811 and DE024812 (duplicate)



DESCRIPTION: Same as above.

PAGE _____

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: DE024811 and DE024812 (duplicate)

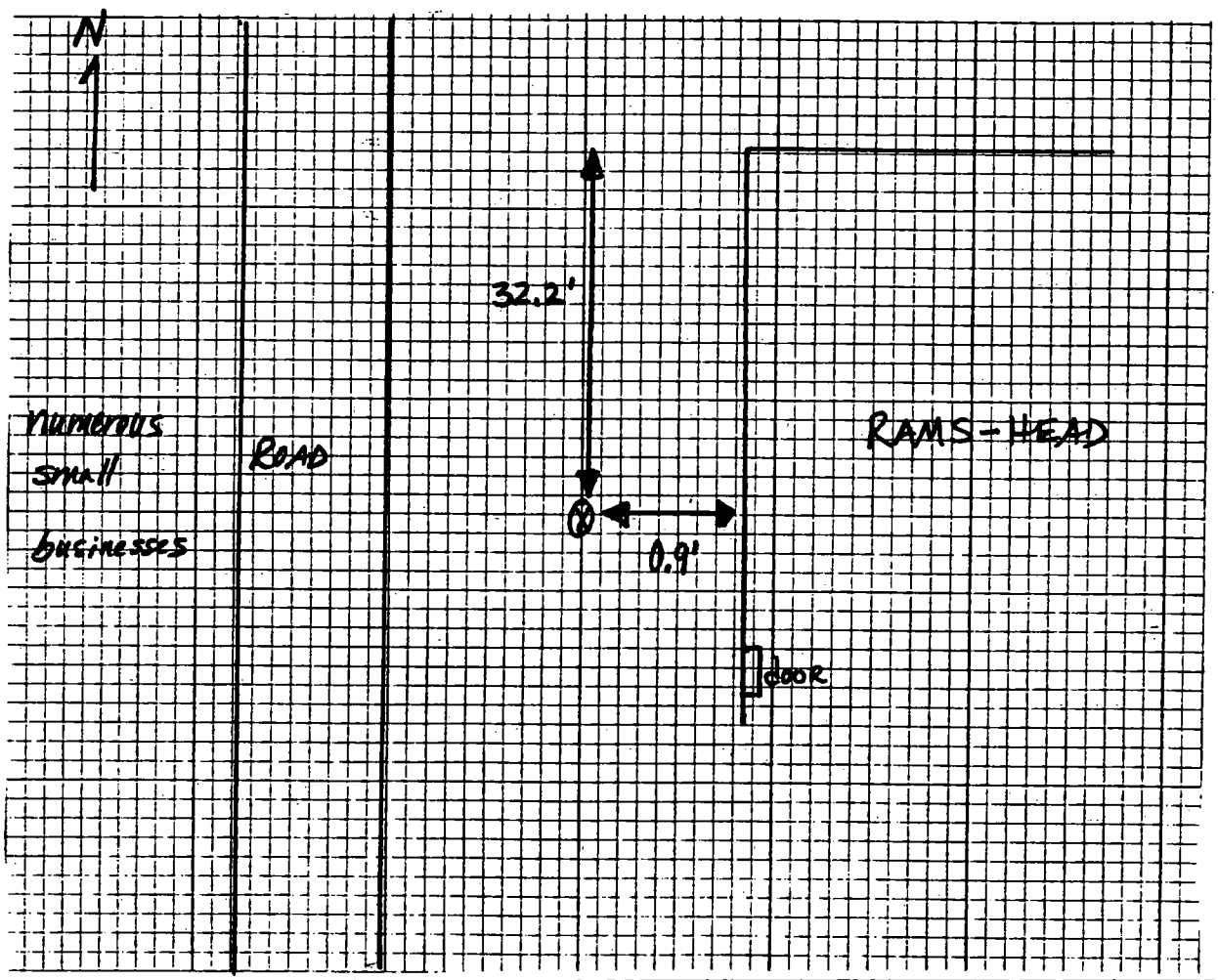
SAMPLER: Scott Green

DATE: 1 2 0 4 8 5 TIME: 1 2 5 1 AM PM

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions):

SAMPLE LOCATION



FIELD PHOTOGRAPHY LOG SHEET

Page _____

DATE 12.4.85

TIME 12:30 A.M. (P.M.)

DIRECTION: N NNE NE ENE
(E) ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 10°F

SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY:
Mary Jane Ripp

SAMPLE ID# (if applicable)
SAS 2068 E01

DESCRIPTION: collected along west side of plant building near confirmed contamination area.

DATE 12.4.85

TIME 12:30 A.M. (P.M.)

DIRECTION: (N) NNE NE ENE
E ESE SE SSE
S SSW SW WSW
W WNW NW NNW

WEATHER sunny, 10°F

SITE Rams-Head

TDD# R5-8404-09

PHOTOGRAPHED BY:
Mary Jane Ripp

SAMPLE ID# (if applicable)
SAS 2068 E01

DESCRIPTION: same as above.

PAGE _____

SITE: The Rams-Head Company
1224 Harding Avenue
DesPlaines, Illinois 60016

TDD: R05-8404-009
WSTS: IL0364
ILD064421464

SAMPLE: SAS 2068E01

SAMPLER: BRIDGET HAUGH

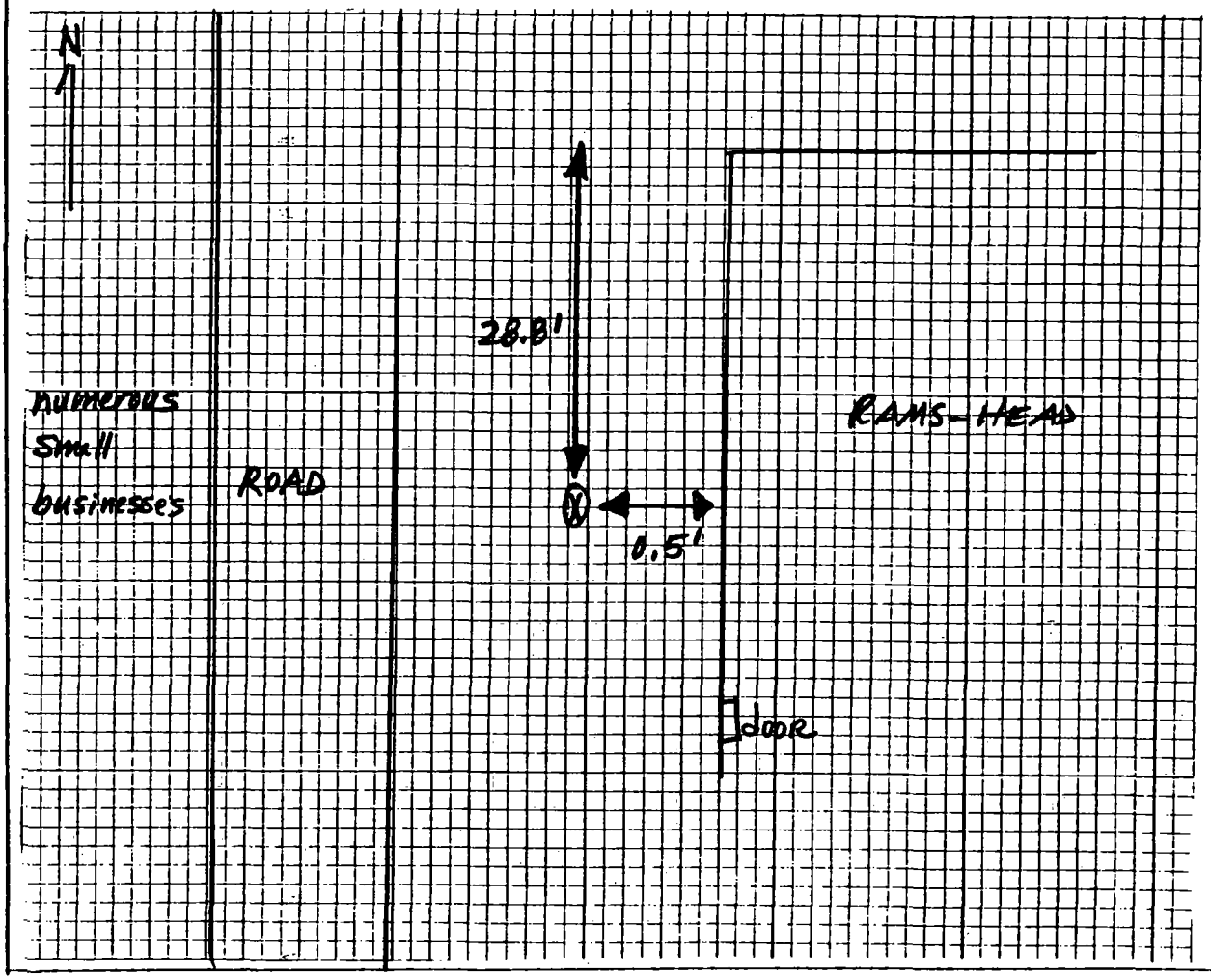
DATE: 1 2 0 4 8 5 TIME: 1 2 3 0 AM (PM)

METHOD OF SAMPLE COLLECTION: GRAB

PHOTOGRAPHY (including directions): _____

NOTE: COLLECTED ADJACENT AND TO THE SOUTH OF DE017508 and DE017510 (duplicate)

SAMPLE LOCATION



ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL 312-663-9415
International Specialists in the Environment

Date Received for Review: 3-25-86 Date Review Completed: 4-2-86

TO: Mary Jane Ripp

FROM: Suzanne Kozlowski

SUBJECT: Rams Head Illinois R05-8404-09

Sample Description: Case # 5292 one (1) low soil 2,4,5 TCP, tetra,octa dioxin,furans,% moisture,pentachlorophenol AND twelve (12) Med. Soil CLP dioxins

Project Data Status: COMPLETE

FIT Data Review Findings:

See attached CRL review. Data is acceptable for use.

Additional Comments:

Book No. 5

Page No. 90, 96

recycled paper

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 3/26/86

SUBJECT: Review of Region V CLP Data
Received for Review on 2/10/86

FROM: Curtis Ross, Director (5SCRL)
Central Regional Laboratory
James Thomas

TO: Data User: file

RECEIVED MAR 25 1986

We have reviewed the data for the following case(s).

SITE NAME: Romo Head SMO Case No. SAS2068E

EPA Data Set No. SF 2912 No. of Samples: 1 D.U./Activity Numbers 4905 C44000

CRL No. 86FR04508

SMO Traffic No. 2068E01

CLP Laboratory: Cal Hrs. Required for Review: 2

Following are our findings. DIOXIN/FURAN BLANK - OK PERFORMANCE CHECK - % VALLEYS OK (RESOLUTION). CALIBRATIONS - SPOT CHECK OF RF'S OK ION RATIOS OK. SURROGATE - OK. SPIKES OK - HEPTA CDD SLIGHTLY HIGH, AND OCTACDD SLIGHTLY LOW. DATA - SPOT CHECK OF POSITIVES CALCULATIONS OK, D.L.'S OK, ION RATIOS SPOT CHECK OK, ALL DIPHENYL ETHERS MONITORED - OK, CHANGED AMOUNTS & D.L.'S ON 2,3,7,8 TCDD & TCDF TO REFLECT DRY WT. BASIS. 2,4,5 TRICHLOROPHENOL/PENTACHLOROPHENOL TUNING OK CALIBRATION - %D & RF'S OK FOR THESE COMPOUNDS. DUPLICATE — 40% RPD FOR 2,4,5-TRICHLOROPHENOL - OK. MATRIX SPIKE - SPIKED AT 5 TIMES THE DETECTION LIMIT OF THE BLANK, THIS TURNED OUT TO BE TOO LOW (1000ppb) CONSIDERING THE AMOUNT FOUND OF 2,4,5-TRICHLOROPHENOL, AND THAT THE SAMPLES WERE DILUTED 10 TIMES SO THE SPIKE WAS DILUTED OUT. NO INFORMATION GAINED. DATA OK.

( ) Data are acceptable for use.
(X) Data are acceptable for use with qualifications noted above.
( ) Data are preliminary - pending verification by Contractor Laboratory.
( ) Data are unacceptable.

DJW 3/20/86

cc: Dr. Alfred Haeberer/Joan Fisk/Gary Ward, EPA Support Services
Ross K. Robeson, ESL-Las Vegas
Don Trees, CLP/Sample Management Office

SF 2912

California Analytical Laboratories, Inc.
2544 Industrial Boulevard • West Sacramento, CA 95691 • (916) 372-1393

February 7, 1986
Lab No: S7452
Received: 12/12/85
SAS No: 2068E

RECEIVED
FEB 10 1986
U.S. EPA, CENTRAL REGIONAL LAB.
536 S. CLARK STREET
CHICAGO, ILLINOIS 60605

Mr. Curtis Ross
USEPA Region V
Central Regional Laboratory
536 South Clark Street
10th Floor
Chicago, IL 60605

RECEIVED MAR 25 1986

Dear Mr. Ross:

Enclosed are data summaries and documentation for samples and QA/QC comprising SAS 2068E, which was received December 12, 1985. The soil sample was logged in under Cal Lab number S7452 and analyzed for 2,3,7,8-TCDD, 2,3,7,8-TCDF, and total tetra through octa dioxins and furans. It was also analyzed for 2,4,5-Trichlorophenol and Pentachlorophenol using the IFB-A/BN protocols. The cross correlation of ID number is shown below:

CAL ID	EPA ID
S7452	2068E-01

The sample was also analyzed as a Native Spike, recovery was 100% for 2,3,7,8-TCDD, recovery for 2,3,7,8-TCDF was 111%.

If you have any questions about the data, please don't hesitate to call.

Sincerely,

Michael J. Miille, Ph.D.
Director GC/MS Services

Michael Orbanosky
Senior Chemist

Robert Hart
Data Specialist

cc: SMO

TCDF DATA REPORT
California Analytical Laboratories
2544 Industrial Blvd.
W. Sacramento, CA 95691

Lab: California Analytical Laboratories
Case No. 2068E
Batch/Shipment No.

Report Date: 1/16/86
Column: DB-5

Cal Labs ID	Sample Number	C U	Aliquot Wet Wt. (grams)	PPB TCDF Meas	PPB TCDF Det. Lmt	Inst ID	Date	Time	304/306	316/318	304	306	316	318	Comments
S7450SXMB	METHOD BLANK	Y	10.00	ND	0.021	10	01/16/86	10:43:00	-	0.78	-	-	553440	707875	
S7452-1RI	2068E-01RI	Y	10.32	ND	~~0.070~~ 0.074	10	01/16/86	14:21:00	-	0.82	-	-	235688	287610	
S7452-1NS	2068E-01NS	Y	10.12	6.2 ~~1.1~~	-	10	01/16/86	14:45:00	0.72	0.80	87536	120998	209242	261826	~~111~~% RECOVERY. 120%

3/19/86 D/W (dry wt)

MB = Method Blank
P = Partial Scan/Confirmatory Analysis
NS = Native TCDF Spike
D = Duplicate/Fortified Field Blank
RI = Re-injection
FB = Field Blank
ND = Not Detected
DL = Detection Limit
RX = Re-extraction

FORM B-1

RECEIVED MAR 25 1986

TCDD DATA REPORT
California Analytical Laboratories
2544 Industrial Blvd.
W. Sacramento, CA 95691

Lab: California Analytical Laboratories
Case No. 2068E
Batch/Shipment No.

Report Date: 1-16-86
Column: SP-2331

Cal Labs ID	Sample Number	C U	Aliquot Wet Wt. (grams)	PPB TCDD Meas	PPB TCDD Det. Lmt	Inst ID	Date	Time	320/322	332/334	PPB Surrg Meas	Surrg % Acc'c	320	322	257	328*	332	334	Comments
S7450SXMB	METHOD BLANK	Y	10.00 DRY WT.	ND	0.036	10	01/16/86	10:43:00	-	0.74	0.99	99	-	-	-	378200	453080	609263	
S7452-1RI	2068E-01RI	Y	10.32 1.11	0.91	-	10	01/16/86	14:21:00	0.87	0.78	0.93	96	94792	109522	44788	204540	259942	331615	
S7452-1NS	2068E-01NS	Y	10.12 2.54	1.9	-	10	01/16/86	14:45:00	0.73	0.78	0.99	100	156766	214175	79720	185292	224832	289892	100% RECOVERY

3/19/86 DJN

MB = Method Blank
P = Partial Scan/Confirmatory Analysis
NS = Native TCDD Spike
D = Duplicate/Fortified Field Blank
RI = Re-injection
FB = Field Blank
ND = Not Detected
DL = Detection Limit
RX = Re-extraction

*Corrected for contribution by native TCDD; 0.9% of m/z 322 subtracted

FORM B-1

RECEIVED MAR 25 1986

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 2068E

EPA ID: METHOD BLANK Date Analyzed: 1/15/86 Column: DB-5

CAL ID: S7450SXMBRI Weight: 10.0

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.013
penta	ND	0.058
hexa	ND	0.059
hepta	ND	0.16
octa	ND	0.65
DIOXINS		
tetra (total)	ND	0.025
penta	ND	0.048
hexa	ND	0.18
hepta	ND	0.20
octa	ND	0.78

% Accuracy 37Cl-TCDD = 100%

RECEIVED MAR 2 5 1986

ND = Not Detected
RI = REINJECTION

PREPARED BY: [illegible]

APPROVED BY: [illegible] DATE: 2/5/86

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO.

86FR04508

EPA ID: 2068E-01

CAL ID: S7452

Date Analyzed: 1/15/86 Column: DB-5
Wet Weight: 10.32 g
Dry Weight: 7.8 g
Percent Moisture: 24.8%

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	0.35	-
penta	0.55	-
hexa	2.8	-
hepta	7.7	-
1234678	1.9	-
octa	9.0	-
DIOXINS		
tetra (total)	1.2	-
penta	8.0	-
12378	2.3	-
hexa	21.3	-
(123478 and 123678)	1.3	-
hepta	13.6	-
1234678	7.3	-
octa	97.7	-

% Accuracy 37Cl-TCDD = 96%

RECEIVED MAR 2 5 1986

ND = Not Detected

All calculations based on dry weight.

PREPARED BY: RJH

APPROVED BY: [illegible]

DATE: 2/5/86

California Analytical Laboratories, Inc.

QUALITY CONTROL SUMMARY

RECEIVED MAR 25 1986

CASE NO: 2068E

EPA ID: 2068E-01 NATIVE SPIKE
CAL ID: S7452NS

Wet Weight: 10.12 g
Dry Weight: 7.61 g

Percent Moisture: 24.8%

FURANS	ng/g Found in Sample	ng/g Spiked	ng/g Found in NS Sample	NS % Recovery
2378-tetra	0.35	1.3	1.3	73%
12378-penta	0.55	1.3	1.7	88%
123478-hexa	2.8	1.3	1.6	123%
1234678-hepta	1.9	1.3	3.6	133%
octa	9.1	6.28	18.0	142%
DIOXINS				
2378-tetra	1.2	1.3	2.4	92%
12378-penta	2.3	1.3	3.9	123%
123478-hexa and 123678-hexa	1.3	1.3	3.2	146%
1234678-hepta	7.3	1.3	9.6	176% *
octa	97.7	6.28	100.7	48% *

* Large amount of isomers in the sample and small amount spiked makes % recovery unreliable

ALL CALCULATIONS BASED ON DRY WEIGHT

PREPARED BY: [signature]

APPROVED BY: [signature]

DATE: 2/3/86

QUALITY CONTROL SUMMARY

Case No. 2068E

RECEIVED MAR 25 1986

Mean Accuracy, Surrogate Measurements: 98% # of Data Points 3

Accuracy, Fortified/Spike Field Blank: 100% Sample # 2068E-01

Rel. Diff. (%), Duplicate Analysis: — Sample # —

Prepared by: RDH

Approved by: [illegible] Date 2-7-86

FORM B-3A

California Analytical Laboratories, Inc.

2,4,5-TRICHLOROPHENOL RESULTS

SAS No: 2068E

CAL ID	EPA ID	2,4,5-TRICHLOROPHENOL DETECTED (ug/kg)	PENTACHLOROPHENOL DETECTED (ug/Kg)
S7452MB	METHOD BLANK	< 200 PPB	< 200 PPB
S7452	2068E-01	18000 PPB	< 2000 PPB
S7452-DUP	2068E-01-DUP	12000 PPB	< 2000 PPB
S7452-MS*	2068E-01-MS	21000 PPB	< 2000 PPB

* 2,4,5-TRICHLOROPHENOL AND PENTACHLOROPHENOL SPIKED AT 1000 ug/Kg

RECEIVED MAR 2 5 1986

Prepared By: RJH

Approved By: [illegible]

Date: 2/5/86

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

3/18/86

Review of Region V CLP Data
Received for Review on 1/9/86

RECEIVED MAR 2 5 1986

Curtis Ross, Director (SSCRL)
Central Regional Laboratory

Thomas Thomas

Data User: Fit

We have reviewed the data for the following case(s).

SITE NAME: Remo Head

SMO Case No. 5892

EPA Data Set No. SF 2869

No. of Samples: 12

D.U./Activity Numbers 1905 / C44000

CRL No. 86FR03570 - 86FR03077 ; 86FR03R15

SMO Traffic No. DE024801 - DE024812

CLP Laboratory: Compuchem

Hrs. Required for Review: 5

Following are our findings. BLANK - OK Resolution - % valley OK PERFORMANCE check: ION RATIOS OK, PERFORMANCE EVALUATIONS OK. SURROGATES: OK SPIKE RECOVERYS OK. CALIBRATIONS: SPOT CHECKS OF RF's OK, MEASURED RF OF SURROGATES IS > ± 10% OF MEAN SURROG. RF FOR 12/28 AND 12/30, THEREFORE DATA FOR THESE DATES HAS BEEN "J"ED. DATA: D.L.'s OK All POSITIVES CALCULATIONS OK. DUPLICATES HAVE GOOD AGREEMENT 13.6% RPD.

( ) Data are acceptable for use.
(X) Data are acceptable for use with qualifications noted above.
( ) Data are preliminary - pending verification by Contractor Laboratory.
( ) Data are unacceptable.

3/18/86
DJW.

cc: Dr. Alfred Haeberer/Joan Fisk/Gary Ward, EPA Support Services
Ross K. Robeson, EMSL-Las Vegas
Don Trees, CLP/Sample Management Office

EPA FORM 1320-6 (REV. 3-76)

SF 3869

COMPUCHEM LABORATORIES

January 3, 1986

JAN 0 1 1985

mpany
Street
, VA 22314

r. Richard Thacker, Contracting Officer

Report of Data - EPA Contract #68-01-6915

hacker:

herewith are results of analytical work performed in with the referenced contract.

In this report are the results associated with the analysis s from EPA Case# 5292-1 received by CompuChem Laboratories er 5, 1985, and with the analysis of a duplicate sample and sample.

D was found in the spiked sample with a recovery of 69%. value of the % Accuracy for all samples was 109 +/- 5% and s associated with the samples were free from contamination. le were analyzed on a CP SIL 88 column, and all data were ed using EICP areas.

n xperienced no technical difficulty with the analysis of amples. Two samples failed to pass all of the contract critera upon the analysis of the first extract. These w l be reextracted, subjected to carbon column cleanup and e by GC/MS. The data will be forwarded upon completion.

m les are:	CC#	EPA#	FAILED CRITERION
	31575	DE024806	332:334 Ratio
	31591	DE024808	Detection Limit

attempt to prevent dirty samples from contaminating our d causing excessive downtime in the GC/MS laboratory, all this case were subjected to carbon column cleanup during tial extraction rather than after the assessment of the C/MS run. CompuChem received permission to follow this from the Sample Management Office (Maka Grogard).

What is the next to the page?

RECEIVED MAR 2 5 1986

LAB: COMPUCHEM LABORATORIES, INC. FORM B-1. TCDD DATA REPORT FORM REPORT DATE: 1/3/85

CASE NO. 5292-1 COLUMN: CP SIL 88

Results

GC/MS ANALYSIS

EPA SAMPLE NO.	CC SAMPLE NO.	EXTR'N DATE	EXTRA CLEAN UP	ALIQUOT WET WT. (GRAMS)	PPB TCDD MEAS.	PPB TCDD D.L.	INSTR. ID	DATE	TIME	REL. ION ABUND 320/322	REL. ION ABUND 332/334	PPB SURROGATE MEAS.	PPB SURROGATE % ACCY	INTEGRATED PEAK AREA OR HEIGHT 320	322	257	328**	332	334	COMMENTS
RB	31641	12-13-85	Y	10.0	ND	0.05	5	12/28/85	03:39	--	0.82	1.09	109	11632	--	4608	1467360	2872340	3489210	
DE024802N	31526	12-13-85	Y	10.0	0.69	--	5	12/28/85	05:19	0.78	0.83	1.04	104	283728	362896	90320	1110010	2293200	2763440	
DE024804D	31534D	12-13-85	Y	10.0	0.41	--	5	12/28/85	06:29	0.74	0.80	1.09	109	131148	176192	40072	933582	1796830	2252470	
DE024803	31518	12-13-85	Y	10.0	3.00	--	5	12/28/85	07:01	0.71	0.80	1.08	108	976672	1369380	283865	947803	1831300	2292310	
DE024801	31542	12-13-85	Y	10.0	ND	0.07	5	12/28/85	07:36	--	0.82	1.13	113	24088	52208	--	1061590	1992870	2423350	
DE024804	31559	12-13-85	Y	10.0	0.47	--	5	12/29/85	18:10	0.82	0.80	1.07	107	96064	117008	32160	552850	1087700	1360670	
DE024805	31567	12-13-85	Y	10.0	1.10	--	5	12/29/85	18:47	0.75	0.83	1.06	106	574464	766080	181760	1476280	2987000	3610840	
DE024807	31583	12-13-85	Y	10.0	ND	0.22	5	12/29/85	19:56	--	0.82	1.08	108	7312	29206	12000	323312	635936	770208	
DE024810	31617	12-13-85	Y	10.0	ND	0.09	5	12/29/85	22:22	0.71	0.82	1.22	122	13915	19488	10048	485824	846450	1032760	
DE024811	31625	12-13-85	Y	10.0	1.10	--	5	12/30/85	18:09	0.72	0.84	1.09	109	166000	228720	77872	441685	873824	1039440	
DE024812	31633	12-13-85	Y	10.0	0.77	--	5	12/30/85	18:55	0.80	0.84	1.08	108	148416	167152	40048	501919	1003850	1188280	
DE024809	31609	12-13-85	Y	10.0	ND	0.17	5	12/30/85	20:13	1.42	0.87	1.14	114	32112	22545	6560	423768	822175	941376	

DE024803 is an EPA supplied PE sample

RECEIVED MAR 25 1986

RB = REAGENT BLANK
P = PARTIAL SCAN/ CONFIRMATORY ANALYSIS
N = NATIVE TCDD SPIKE/FORTIFIED FIELD BLANK
D = DUPLICATE

FB = FIELD BLANK
ND = NOT DETECTED
DL = DETECTION LIMIT

**CORRECTED FOR CONTRIBUTION BY NATIVE TCDD; 0.9% OF m/z 322 SUBTRACTED.
#HEIGHT USED

additional Results

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 3/18/86

SUBJECT: Review of Region V CLP Data
Received for Review on 1/16/1986

FROM: Curtis Ross, Director (5SCRL)
Central Regional Laboratory
Francis Thomas

TO: Data User: JL

RECEIVED MAR 25 1986

We have reviewed the data for the following case(s).

SITE NAME: Rams Head SMO Case No. 5292

EPA Data Set No. SF 2869 No. of Samples: 2 D.U./Activity Numbers VM5 / C44000

CRL No. 86FR03574 - 86FR03576

SMO Traffic No. DE024806, DE024808

CLP Laboratory: Compu Chem Hrs. Required for Review: 0.5

Following are our findings.

PARTIAL SCAN: TUNING OK. EVIDENCE OF 2,3,7,8TCDD PRESENT BUT NOT ALL ION RATIO CRITERIA MET DUE TO LOW LEVEL OF 2,3,7,8TCDD. RESOLUTION: OK CALIBRATIONS: OK. PERFORMANCE CHECK: % VALLEY OK DATA: POSITIVES - CALCULATIONS OK.

(X) Data are acceptable for use.
( ) Data are acceptable for use with qualifications noted above.
( ) Data are preliminary - pending verification by Contractor Laboratory.
( ) Data are unacceptable.

3/18/86
ejw

cc: Dr. Alfred Haeberer/Joan Fisk/Gary Ward, EPA Support Services
Ross K. Robeson, EMSL-Las Vegas
Don Trees, CLP/Sample Management Office

FORM 1320-4 REV 3/80

COMPUCHEM LABORATORIES, INC. FORM B-1. TCDD DATA REPORT FORM REPORT DATE: 1/14/86

NO. 5292-1 COLUMN: CP SIL 88

RECEIVED MAR 25 1986

Results

LE	DATA CODE	CC SAMPLE NO.	EXTR'N DATE	EXTRA CLEAN UP	ALIQUOT WET WT. (GRAMS)	GC/MS ANALYSIS PPB TCDD MEAS.	D.L.	INSTR. ID	DATE	TIME	REL. ION ABUND 320/322	332/334	PPB SURROGATE MEAS.	% ACCY	INTEGRATED PEAK AREA OR HEIGHT 320	322	257	328**	332	334	COMMENTS
	✓	BLANK 1	1-6-86	Y	10.0	ND	0.11	5	1/8/86	21:20	--	0.76	1.08	108	25616	12780	11152	582768	1098920	1439530	
4806	✓	31575	1-6-86	Y	10.0	0.25	--	5	1/9/86	12:55	0.81	0.77	1.06	106	89546	101344	40536	921338	1786050	2[illegible]38760	
4808	✓	31591	1-6-86	Y	10.0	0.74	--	5	1/10/86	11:15	0.72	0.76	1.03	103	337468	514432	135360	1351070	2675960	3510330	
CIATED QC FROM CASES 5317-1 & 5333-1 (REQUIRED FOR REEXTRACTS)																					
401		32037	1-6-86	Y	10.0	ND	0.09	5	1/9/86	01:44	--	0.77	1.19	119	6036	--	--	521280	903568	1167280	
401D		32037D	1-6-86	Y	10.0	ND	0.07	5	1/9/86	02:42	--	0.79	1.10	110	16672	6656	9800	560720	1060610	1346270	
917N		32177N	1-6-86	Y	10.0	1.00	--	5	1/10/86	12:14	0.76	0.75	1.03	103	184678	242016	88736	484701	956224	1270720	

REAGENT BLANK
RTIAL SCAN/ CONFIRMATORY ANALYSIS
TIVE TCDD SPIKE/FORTIFIED FIELD BLANK
PLICATE

FB =FIELD BLANK
ND = NOT DETECTED
DL = DETECTION LIMIT

ECTED FOR CONTRIBUTION BY NATIVE TCDD; 0.9% OF m/z 322 SUBTRACTED.
T USED

5F2869

COMPUCHEM LABORATORIES

Date January 14, 1986

RECEIVED

JAN 15 1986

U.S. EPA CENTRAL REGIONAL LAB.
536 S. CLARK STREET
CHICAGO, ILLINOIS 60605

VIAR and Company
300 N. Lee Street
Alexandria, VA 22314

Attention: Mr. Richard Thacker, Contracting Officer

Subject: Report of Data - EPA Contract #68-01-6915

Dear Mr. Thacker:

Enclosed herewith are results of analytical work performed in accordance with the referenced contract.

Included in this report are additional results associated with the analysis of samples from EPA Case# 5292-1 received by CompuChem Laboratories on December 5, 1985 and previously reported on January 3, 1986.

CompuChem experienced no technical difficulty with the analysis of these repeat samples. Upon reextraction, CC# 31575/EPA# DE024806 and CC# 31591/EPA# DE024808 passed all contract required criteria.

Also included in this report are results from analysis of a spiked sample from Case# 5333-1 which was included in the repeat extraction batch of January 6, 1986 and a duplicate and its original from Case# 5317-1. These samples are reported to comply with the modifications to the above mentioned contract regarding QC with repeat samples.

A partial scan was performed on CC# 31567/EPA# DE024811; it contains 1.10 ppb native dioxin. It appears that native dioxin is indeed in the sample but the level is too small to be distinquished very well from the other ions. Thus many of the ratios are not met.

Multipoint chromatograms associated with this data have been supplied previously in the January 3, 1986 report.

This report completes EPA Case # 5292-1. It contains two billable repeat samples.

RECEIVED MAR 25 1986

COMPUCHEM LABORATORIES

CompuChem welcomes any suggestions or comments regarding our deliverables package. If you have any questions concerning this report, please contact me at 800/334-8525 or 919/549-8263.

Sincerely,

Jill B Henes

Jill B. Henes, Ph.D.
Dioxin Project Manager

JH/blc
encl.

RECEIVED MAR 2 5 1986

cc: Region V
EMSL/LV
Selina Flynt

DATA RECEIPT ACKNOWLEDGEMENT FOR SMO AND THE REGION - Please sign, date, and return in envelope provided.

Case _____ was received on _____.

Signature _____

Date _____

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

Date Received for Review: 10/12/85 **Date Review Completed:** 10/25/85

To: Mary Jane Ripp

From: Cynthia Pugh

Subject: Rams Head (Illinois) (R05-8404-9)

Sample Description: Case # 4484 (SAS 1737E): Low Soil Organics & Rerun for Sample DE017504 (Low Soil CLP Dioxin) and Low Soil 2,4,5 TCP, Tetra-Octa Dioxins & Furans & % moisture for 1737E01

Project Data Status: COMPLETE

FIT Data Review Findings:

Organic Data Acceptable with qualifications noted on attached review sheet.

Low Soil CLP Dioxin Sample DE017504 acceptable only with qualifications noted on review sheets.

Use "worse case" results for DE017504 (sample # circled at top of page)
SAS 1737E01 DATA ACCEPTABLE.

Additional Comments:

Book No. 4
Page No. 270

recycled paper

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 10/10/85

SUBJECT: Review of Region V CLP Data
Received for Review on 7-17-85

RECEIVED OCT 12 1985

FROM: Curtis Ross, Director (5SCRL)
Central Regional Laboratory
J Francis Thomas

TO: Data User: FIT

We have reviewed the data for the following case(s).

SITE NAME: Rams Head SMO Case No. 4484

EPA Data Set No. SF2450 No. of Samples: 1 D.U./Activity Numbers Y905, C48500

CRL No. 85FR09556

SMO Traffic No. ED063

CLP Laboratory: CAL Hrs. Required for Review: 2

Following are our findings. BLANKS - 3 VOLATILES FOUND GREATER THAN CRDL. NOTED ON DATA SHEET AS UJ. SEMI-VOLS + PEST/PCB OK. SPIKES - VOA + PEST/PCB OK. SEMI-VOLS 1,4 DICHLOROBENZENE HAS HIGH % RPD. PENTACHLOROPHENOL + 4-NITROPHENOL HAS HIGH % REC. D.L.'s FOR THESE ARE QUESTIONABLE IN THIS SAMPLE. SURROGATES - OK TUNING - OK CALIBRATION - PEST/PCB'S OK, SOME CPDS. HAVE RF VALUES LESS THAN 0.05 FOR VOLS + SEMI-VOLS ALL SOME WITH HIGH %D. THESE ARE ACCOUNTED FOR WITH THE DATA QUALIFIERS "R" FOR UNUSABLE + "J" FOR ESTIMATED. DATA - ALL VALUES ARE AS THEY STAND WITH QUALIFIERS. TIC'S ARE AS NOTED ON SHEET.

10/8/85
RJW.

( ) Data are acceptable for use.
(X) Data are acceptable for use with qualifications noted above.
( ) Data are preliminary - pending verification by Contractor Laboratory.
( ) Data are unacceptable.

cc: Dr. Alfred Haeberer/Joan Fisk/Gary Ward, EPA Support Services
Ross K. Robeson, EMSL-Las Vegas
Don Trees, CLP/Sample Management Office

EPA FORM 1320-6 (REV 3-78)

Sample Number
ED 063

85FR09556

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: California Analytical Laboratories, Inc.
Case No: 4484 RECEIVED OCT 1 2 1985
Lab Sample ID No: L977
QC Report No: 84
Sample Matrix: SOIL
Contract No: 68-01-6965
Data Release Authorized By:
Date Sample Received: 6/15/85

Volatile Compounds

Concentration: Low
Date Extracted/Prepared: 6/25/85
Date Analyzed: 6/25/85
Conc/Dil Factor: 1 pH:6.8
Percent Moisture: 20
Percent Moisture (Decanted): NR

CAS Number		ug/Kg
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-09-2	Methylene Chloride	25 ~~B~~ UJ
67-64-1	Acetone	51 ~~B~~ UJ
75-15-0	Carbon Disulfide	5 U
75-35-4	1,1-Dichloroethene	5 U
75-34-3	1,1-Dichloroethane	19
156-60-5	Trans-1,2-Dichloroethene	5 U
67-66-3	Chloroform	5 U
107-06-2	1,2-Dichloroethane	5 U
78-93-3	2-Butanone	27 ~~B~~ UJ
71-55-6	1,1,1-Trichloroethane	110
56-23-5	Carbon Tetrachloride	5 U
108-05-4	Vinyl Acetate	10 UL R
75-27-4	Bromodichloromethane	5 UL R

DJW 10/8/85

CAS Number		ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	5 U
78-87-5	1,2-Dichloropropane	5 U
10061-02-6	Trans-1,3-Dichloropropene	5 U
79-01-6	Trichloroethene	26
124-48-1	Dibromochloromethane	5 U
79-00-5	1,1,2-Trichloroethane	5 U
71-43-2	Benzene	5 U
10061-01-5	cis-1,3-Dichloropropene	5 U
110-75-8	2-Chloroethylvinylether	10 UL R
75-25-2	Bromoform	5 U
591-78-6	2-Hexanone	10 U
108-10-1	4-Methyl-2-Pentanone	10 U
127-18-4	Tetrachloroethene	5 U
108-88-3	Toluene	5 U
108-90-7	Chlorobenzene	5 U
100-41-4	Ethylbenzene	5 U
100-42-5	Styrene	5 U
	Total Xylenes	5 U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. (e.g. 10J).

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides >= 10ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

NA Not Analyzed.
See cover letter.
NR Not Required.
S Spiked Compound.

Laboratory Name: CALIFORNIA ANALYTICAL LABORATORIES, INC.
Case No: 4484

Sample Number
ED 063

Organics Analysis Data Sheet
(Page 2)

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Semivolatile Compounds

Concentration: Medium

Date Extracted/Prepared: 6/21/85

Date Analyzed: 7/11/85

Conc/DiL Factor: 0.47G/ML

CAS Number		ug/Kg
62-75-9	N-Nitrosodimethylamine	NA
108-95-2	Phenol	6600 U
62-53-3	Aniline	6600 U J
111-44-4	bis(-2-Chloroethyl)Ether	6600 U
95-57-8	2-Chlorophenol	6600 U
541-73-1	1,3-Dichlorobenzene	6600 U
106-46-7	1,4-Dichlorobenzene	6600 U
100-51-6	Benzyl Alcohol	6600 U J
95-50-1	1,2-Dichlorobenzene	6600 U
95-48-7	2-Methylphenol	6600 U
39638-32-9	bis(2-chloroisopropyl)Ether	6600 U
106-44-5	4-Methylphenol	6600 U
621-64-7	N-Nitroso-Di-n-Propylamine	6600 U
67-72-1	Hexachloroethane	6600 U
98-95-3	Nitrobenzene	6600 U
78-59-1	Isophorone	6600 U
88-75-5	2-Nitrophenol	6600 U R DJW
105-67-9	2,4-Dimethylphenol	6600 U
65-85-0	Benzoic Acid	32000 U
111-91-1	bis(-2-Chloroethoxy)Methane	6600 U
120-83-2	2,4-Dichlorophenol	6600 U
120-82-1	1,2,4-Trichlorobenzene	6600 U
91-20-3	Naphthalene	6600 U
106-47-8	4-Chloroaniline	6600 U
87-68-3	Hexachlorobutadiene	6600 U
59-50-7	4-Chloro-3-Methylphenol	6600 U
91-57-6	2-Methylnaphthalene	6600 U
77-47-4	Hexachlorocyclopentadiene	6600 U J
88-06-2	2,4,6-Trichlorophenol	6600 U
95-95-4	2,4,5-Trichlorophenol	32000 J
91-58-7	2-Chloronaphthalene	6600 U
88-74-4	2-Nitroaniline	32000 U
131-11-3	Dimethyl Phthalate	6600 U
208-96-8	Acenaphthylene	6600 U
99-09-2	3-Nitroaniline	32000 J

CAS Number		ug/Kg
83-32-9	Acenaphthene	6600 U
51-28-5	2,4-Dinitrophenol	32000 U R DJW
100-02-7	4-Nitrophenol	32000 U
132-64-9	Dibenzofuran	6600 U
121-14-2	2,4-Dinitrotoluene	6600 U
606-20-2	2,6-Dinitrotoluene	6600 U
84-66-2	Diethylphthalate	6600 U
7005-72-3	4-Chlorophenyl-phenylether	6600 J
86-73-7	Fluorene	6600 U
100-01-6	4-Nitroaniline	32000 U
534-52-1	4,6-Dinitro-2-Methylphenol	32000 U R DJW 10/8/85
86-30-6	N-Nitrosodiphenylamine(1)	6600 U
101-55-3	4-Bromophenyl-phenylether	6600 U
118-74-1	Hexachlorobenzene	6600 U
87-86-5	Pentachlorophenol	32000 U
85-01-8	Phenanthrene	6600 J
120-12-7	Anthracene	6600 U
84-74-2	Di-n-Butylphthalate	6600 U
206-44-0	Fluoranthene	8900
92-87-5	Benzidine	52000 U R DJW
129-00-0	Pyrene	11000
85-68-7	Butylbenzylphthalate	6600 U
91-94-1	3,3'-Dichlorobenzidine	13000 U R DJW
56-55-3	Benzo(a)Anthracene	9000
117-81-7	bis(2-Ethylhexyl)Phthalate	18000
218-01-9	Chrysene	6600 J
117-84-0	Di-n-Octyl Phthalate	6600 U R DJW
205-99-2	Benzo(b)Fluoranthene(2)	6600 J
207-08-9	Benzo(k)Fluoranthene(2)	6600 J
50-32-8	Benzo(a)Pyrene	6600 J
193-39-5	Indeno(1,2,3-cd)Pyrene	6600 U
53-70-3	Dibenz(a,h)Anthracene	6600 U J
191-24-2	Benzo(g,h,i)Perylene	6600 U

(1) - Cannot be separated from diphenylamine
(2) - Compounds Co-elute - Analyzed as a single compound

Laboratory Name: CALIFORNIA ANALYTICAL LABORATORIES, INC.
Case No: 4484

Sample Number
ED 063

Organics Analysis Data Sheet
(Page 3)

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Pesticide/PCBs

Concentration: Medium

Date Extracted/Prepared: 6/21/85

Date Analyzed: 7/10/85

Conc/Dil Factor: 0.088G/5ML

CAS Number		ug/Kg
319-84-6	Alpha-BHC	1200 U
319-85-7	Beta-BHC	1200 U
319-86-8	Delta-BHC	1200 U
58-89-9	Gamma-BHC (Lindane)	1200 U
76-44-8	Heptachlor	1200 U
309-00-2	Aldrin	1200 U
1024-57-3	Heptachlor Epoxide	1200 U
959-98-8	Endosulfan I	1200 U
60-57-1	Dieldrin	2400 U
72-55-9	4,4'-DDE	2400 U
72-20-8	Endrin	2400 U
33213-65-9	Endosulfan II	2400 U
72-54-8	4,4'-DDD	2400 U
7421-93-4	Endrin Aldehyde	2400 U
1031-07-8	Endosulfan Sulfate	2400 U
50-29-3	4,4'-DDT	2400 U
72-43-5	Methoxychlor	12000 U
53494-70-5	Endrin Ketone	2400 U
57-74-9	Chlordane	12000 U
8001-35-2	Toxaphene	24000 U
12674-11-2	Aroclor-1016	12000 U
11104-28-2	Aroclor-1221	12000 U
11141-16-5	Aroclor-1232	12000 U
53469-21-9	Aroclor-1242	12000 U
12672-29-6	Aroclor-1248	12000 U
11097-69-1	Aroclor-1254	24000 U
11096-82-5	Aroclor-1260	24000 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s = NR or W_s = 0.088 V_t = 5000 V_i = 5

ORGANICS ANALYSIS DATA SHEET

LAB NAME: CAL CASE NO. 4484 SAMPLE NO. ED063

QC REPORT NO. 84 LAB SAMPLE NO. L97701AB

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PROBABILITY THAT IDENTIFICATION IS CORRECT:
A= HIGH B= MODERATE C= LOW D= SOLVENT IMPURITY, SEE VOA

	CASN	COMPOUND NAME	FRACTION	SCAN NUMBER	PURITY	ESTIMATED CONC. J VALUE
1.	30824-81-8	NAPHTHALENE, DECAHYDRO-1,4A-DIM	A/BN	834	55[illegible]	70.3 UG/G
2.	55401-65-5	PENTALENE, OCTAHYDRO-1-(2-OCTYL	A/BN	862	53[illegible]	71.3 UG/G
3.	591-35-5	PHENOL, 3,5-DICHLORO-	A/BN	877	47[illegible]	107.2 UG/G
4.	471-02-1	CYCLOHEXANOL, 5-METHYL-2-(1-M[illegible]	A/BN	891	37[illegible]	37.1 UG/G
5.	55976-07-3	5-UNDECENE, 7-ETHENYL-	A/BN	938	61[illegible]	143.5 UG/G
6.	1921-70-6	PENTADECANE, 2,6,10,14-TETRAM[illegible]	A/BN	1041	85[illegible]	140.4 UG/G
7.	638-36-8	HEXADECANE, 2,6,10,14-TETRAMETH	A/BN	1110	88[illegible]	171.3 UG/G
8.	5074-71-5	PHOSPHINE, BIS(PENTAFLUOROPHENY	A/BN	1171	65[illegible]	83.7 UG/G
9.	55976-07-3	5-UNDECENE, 7-ETHENYL-	A/BN	1570	44[illegible] *	39.5 UG/G
10.	10152-71-3	CYCLOPROPANEOCTANOICACID, 2-\\[illegible]	A/BN	1814	53[illegible] *	57.0 UG/G
11.	55334-01-5	PHENANTHRENE, 9-DODECYLTETRAD[illegible]	A/BN	1888	47[illegible] *	74.5 UG/G

	COMPOUND NAME	PROBABILITY		COMMENTS
1.	NAPHTHALENE, DECAHYDRO-1,4A-DIM	1. C	1	
2.	PENTALENE, OCTAHYDRO-1-(2-OCTYL	2. C	2	
3.	PHENOL, 3,5-DICHLORO-	3. =>	3	IS SEE QUANT REPORT
4.	CYCLOHEXANOL, 5-METHYL-2-(1-MET	4. C	4	
5.	5-UNDECENE, 7-ETHENYL-	5. C	5	
6.	PENTADECANE, 2,6,10,14-TETRAMET	6. A	6	
7.	HEXADECANE, 2,6,10,14-TETRAMETH	7. A	7	
8.	PHOSPHINE, BIS(PENTAFLUOROPHENY	8. =>	8	DFTPP
9.	5-UNDECENE, 7-ETHENYL-	9. C	9	
10.	CYCLOPROPANEOCTANOICACID, 2-\\2	10. C	10	
11.	PHENANTHRENE, 9-DODECYLTETRADEC	11. B	11	

* Poor matches DJW. 10/8/85

California Analytical Laboratories, Inc.
2544 Industrial Boulevard • West Sacramento, CA 95691 • (916) 372-1393

July 15, 1985

RECEIVED OCT 1 2 1985

Joan Fisk
U.S. EPA
Hazardous Waste Investigation
401 M Street, SW
Washington, DC 20460

Dear Joan Fisk:

Enclosed are data summary sheets and documentation for samples and QA/QC comprising Case 4484 of Contract 68-01-6965. These samples were received 6/15/85 and logged in under the following CAL Lab numbers:

CAL Lab Number	Sample I.D
L977	ED063

The sample was analyzed as a low and medium concentration sediment sample. The QA/QC data is satisfactory. The 2,4,5-trichlorophenol reported in this sample should be regarded as simply trichlorophenol. It would be impossible to make an isomer specific determination on this sample given the matrix effects on the chromatography (peak splitting and humpagram).

The following comments pertain to the initial and on-going calibration curves for volatiles and acid/base neutrals. The initial 5--point curve for volatile organics was reduced to a 4--point curve because the high-level standard saturated our systems. This is allowed by the contract. Two of the SPCC compounds are also outside the contract windows on both the initial curve and the on-going calibration curve; bromoform and methyl chloride. The bromoform has been a continual problem for us since the contract switched to the aromatic internal standards for quantitation. We have checked purge rates, temperatures, and replaced the traps, yet the Rf continually runs about 0.20. We have informed the program of this problem, and it is our understanding that the SPCC value is going to be lowered. The difficulties with methyl chloride and vinyl chloride result from highly variable standards which we obtain from Supelco (our sole source for the gas standards). Over 50% of the standards have had incorrect levels of both methyl chloride and vinyl chloride while bromomethane and chloroethane stay quite constant. We are working on this problem with Supelco but until it is resolved the Rf's for these two compounds will be erratic. We have documented that the correct Rf is about 1.2--1.5 for both compounds, and when we have samples that show positive responses for either compound, they are re-run with an accurate standard.

In the case of the acid/base neutrals, we have been unable to see benzidine in any of our standards except for the first day they are prepared. This is caused by two problems. First, the method itself is inappropriate for benzidine, as documented in EPA Method 605. Also, it degrades in the standards when combined with the other compounds. These two facts make it impossible to use on either the initial or continuing calibration curve. We also have difficulty with the di-n-octyl phthalate response factor being quite variable. We suspect the difficulty is with the injection port, and that the problem could be solved with an on-column injector. When this is the only CCC value out, we do not re-run the curve since many times the Rf has dropped out of the 25% window in less than 24 hours, then it often falls back in the next day.

These problems have all been discussed in detail with EMSL-LV and at the EPA caucus in Atlanta, and we know that several labs share these difficulties. We firmly believe that the quality of our data is not in question even though we are technically out of contractual compliance concerning the above discussed items. If you have any questions, please give us a call.

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Sincerely,

Michael J. Miille, Ph.D.
Director of GC/MS Services

Karin S. Yee
Data Specialist

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RIC LABEL KEY

ABN

D4-1,4-Dichlorobenzene	-	IS-1
2-Fluorophenol	-	SA-1
D5-Phenol	-	SA-2
D8-Naphthalene	-	IS-2
D5-Nitrobenzene	-	SB-1
D10-Acenaphthene	-	IS-3
2-Fluorobiphenyl	-	SB-2
2,4,6-Tribromophenol	-	SA-3
D10-Phenanthrene	-	IS-4
D14-Terphenyl	-	SB-3
D12-Chrysene	-	IS-5
D12-Perylene	-	IS-6
DFTPP	-	SB-4

VOA

Bromochloromethane	-	IS-1
1,4-Difluorobenzene	-	IS-2
D5-Chlorobenzene	-	IS-3
D4-1,2-Dichloroethane	-	S-1
D8-Toluene	-	S-2
4-Bromofluorobenzene	-	S-3

SOIL SURROGATE PERCENT RECOVERY SUMMARY

CASE NO.: 4484 CONTRACT LABORATORY: CALIFORNIA ANALYTICAL LABS, INC CONTRACT NO.:68-01-6965

LOW CONCENTRATION

SMO TRAFFIC NO.	VOLATILE			SEMI-VOLATILE						PESTICIDE
	TOLUENE D8 (50-160)	BFB (50-160)	1,2 DICHLORO ETHANE D4 (50-160)	NITRO-BENZENE D5 (20-140)	2-FLUORO BIPHENYL (20-140)	TERPHENYL D14 (20-150)	PHENOL-D5 (20-140)	2-FLUORO-PHENOL (20-140)	2,4,6 TRIBROMO-PHENOL (10-140)	DIBUTYL-CHLORENDATE (20-150)**
ED 063	124	106	104	NR	NR	NR	NR	NR	NR	NR
ED 063 MS	116	98	96	NR	NR	NR	NR	NR	NR	NR
ED 063 MSD	112	112	96	NR	NR	NR	NR	NR	NR	NR
VVBK30625	106	104	104	NR	NR	NR	NR	NR	NR	NR

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

** ADVISORY LIMITS ONLY

VOLATILES: 0 OUT OF 4 : OUTSIDE OF QC LIMITS
SEMI-VOLATILES: — OUT OF — : OUTSIDE OF QC LIMITS
PESTICIDES: — OUT OF — : OUTSIDE OF QC LIMITS

COMMENTS:

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FORM II DATA PREP/RELEASE BY: DB / MAU 10/84

SOIL SURROGATE PERCENT RECOVERY SUMMARY

CASE NO.: 4484 CONTRACT LABORATORY: CALIFORNIA ANALYTICAL LABS, INC CONTRACT NO.:68-01-6965

MEDIUM CONCENTRATION

SMO TRAFFIC NO.	VOLATILE			SEMI-VOLATILE						PESTICIDE
	TOLUENE D8 (50-160)	BFB (50-160)	1,2 DICHLORO ETHANE D4 (50-160)	NITRO-BENZENE D5 (20-140)	2-FLUORO BIPHENYL (20-140)	TERPHENYL D14 (20-150)	PHENOL-D5 (20-140)	2-FLUORO-PHENOL (20-140)	2,4,6 TRIBROMO-PHENOL (10-140)	DIBUTYL-CHLORENDATE (20-150)**
ED 063	NR	NR	NR	68	86	120	78	79	78	DL*
ED 063 MS	NR	NR	NR	82	58	112	87	93	110	DL*
ED 063 MSD	NR	NR	NR	72	88	124	81	90	129	DL*
L977MB	NR	NR	NR	90	94	102	90	99	92	85

1

* VALUES ARE OUTSIDE OF CONTRACT REQUIRED QC LIMITS

** ADVISORY LIMITS ONLY

VOLATILES: — OUT OF — : OUTSIDE OF QC LIMITS
SEMI-VOLATILES: 0 OUT OF 4 : OUTSIDE OF QC LIMITS
PESTICIDES: 3 OUT OF 4 : OUTSIDE OF QC LIMITS

COMMENTS:

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FORM II DATA PREP/RELEASE BY: DB 10/84

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. 4484 Contractor CAL Contract No. 68-01-6965

Low Level _____ Medium Level ✓

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug/Kg)	SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY
VOA SMO SAMPLE NO.	1,1-Dichloroethene								22	59-172
	Trichloroethene								24	62-137
	Chlorobenzene								21	60-133
	Toluene								21	59-139
	Benzene								21	66-142
B/N SMO SAMPLE NO.	1,2,4-Trichlorobenzene	166 000	0	77900	47	72000	43	8.9	23	38-107
	Acenaphthene	166 000	0	97600	59	100000	60	1.7	19	31-137
	2,4 Dinitrotoluene	166 000	0	94400	57	95700	58	1.7	47	28-89
	Di-n-Butylphthalate	166 000	0	118000	71	135000	81	13	47	29-135
	Pyrene	166 000	11000	88100	46	83400	50	5.3	36	35-142
ED063	N-Nitrosodi-n-Propylamine	166 000	0	88 900	54	86 000	52	3.3	38	41-126
	1,4-Dichlorobenzene	166 000	0	89800	54	55000	33	48 *	27	28-104
ACID SMO SAMPLE NO.	Pentachlorophenol	233 000	0	234000	100	336000	144 *	36	47	17-109
	Phenol	233 000	0	186 000	80	167000	72	11	35	26-90
	2-Chlorophenol	233 000	0	187000	80	174000	75	6.5	50	25-102
	4-Chloro-3-Methylphenol	233 000	0	164 000	70	186000	80	13	33	26-103
ED063	4-Nitrophenol	233 000	0	331000	142 *	386000	167 *	16	50	11-114
PEST SMO SAMPLE NO.	Lindane	1000	0	850	85	1190	119	33	50	46-127
	Heptachlor	1000	0	775	78	1040	104	29	31	35-130
	Aldrin	1000	0	900	90	1180	118	27	43	34-132
	Dieldrin	2500	0	2630	105	3230	129	21	38	31-134
	Endrin	2500	0	2130	85	2630	105	21	45	42-139
ED063	4,4'-DDT	2500	0	2130	85	2500	100	16	50	23-134

*ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPD: VOAs NR out of NR ; outside QC limits
B/N 1 out of 7 ; outside QC limits
ACID 0 out of 5 ; outside QC limits
PEST 0 out of 6 ; outside QC limits

RECOVERY: VOAs NR out of NR ; outside QC limits
B/N 6 out of 14 ; outside QC limits
ACID 3 out of 10 ; outside QC limits
PEST 0 out of 12 ; outside QC limits

Comments:

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SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Case No. 4484 Contractor CAL Contract No. 68-01-6965

Low Level ✓ Medium Level

FRACTION	COMPOUND	CONC. SPIKE ADDED (ug/Kg)		SAMPLE RESULT	CONC. MS	% REC	CONC. MSD	% REC	RPD	QC LIMITS* RPD	QC LIMITS* RECOVERY
VOA SMO SAMPLE NO. ED 063	1,1-Dicholorethene	156	136	0	144	92	108	79	15	22	59-172
	Trichloroethene	156	136	26	163	88	156	96	8.7	24	62-137
	Chlorobenzene	156	136	0	168	108	154	113	4.5	21	60-133
	Toluene	156	136	0	174	112	163	120	6.9	21	59-139
	Benzene	156	136	0	171	110	163	120	8.7	21	66-142
B/N SMO SAMPLE NO.	1,2,4-Trichlorobenzene									23	38-107
	Acenaphthene									19	31-137
	2,4 Dinitrotoluene									47	28-89
	Di-n-Butylphthalate									47	29-135
	Pyrene									36	35-142
	N-Nitrosodi-n-Propylamine									38	41-126
	1,4-Dichlorobenzene									27	28-104
ACID SMO SAMPLE NO.	Pentachlorophenol									47	17-109
	Phenol									35	26-90
	2-Chlorophenol									50	25-102
	4-Chloro-3-Methylphenol									33	26-103
	4-Nitrophenol									50	11-114
PEST SMO SAMPLE NO.	Lindane									50	46-127
	Heptachlor									31	35-130
	Aldrin									43	34-132
	Dieldrin									38	31-134
	Endrin									45	42-139
	4,4'-DDT									50	23-134

*ASTERISKED VALUES ARE OUTSIDE QC LIMITS.

RPD: VOAs 0 out of 5; outside QC limits
B/N NR out of 7; outside QC limits
ACID NR out of 5; outside QC limits
PEST NR out of 6; outside QC limits

RECOVERY: VOAs 0 out of 10; outside QC limits
B/N NR out of 14; outside QC limits
ACID NR out of 10; outside QC limits
PEST NR out of 12; outside QC limits

Comments:

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REAGENT BLANK SUMMARY

Case No. 4484 Contractor CAL Contract No. 68-01-6965

FILE ID	DATE OF ANALYSIS	FRACTION	MATRIX	CONC. LEVEL	INST. ID	CAS NUMBER	COMPOUND (HSL, TIC OR UNKNOWN)	CONC.	UNITS	CRQL
VVBK30625	6/25/85	VOA	Soil	LOW	3	75-09-2	METHYLENE CHLORIDE	20	ug/kg	5
						67-64-1	ACETONE	25	ug/kg	10
						78-93-3	2-BUTANONE	23	ug/kg	10
L977	7/10/85	Pest	Soil	MED	GCHTZ	—	No pesticides found	—	—	—
L977	7/11/85	ABN	Soil	MED	FS	—	No compounds found	—	—	—

Comments:

FORM IV

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GC/MS TUNING AND MASS CALIBRATION
Decafluorotriphenylphosphine (DFTPP)

Case No. 4494 Contractor CAL Contract No. 68-01-6965

Instrument ID FS Date 7/11/85 Time 5:51

Lab ID ST5950711 Data Release Authorized By: [illegible]

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m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE	
51	30.0 - 60.0% of mass 198	40.1	
68	less than 2.0% of mass 69	0	(0)[1]
69	mass 69 relative abundance	47.5	
70	less than 2.0% of mass 69	0	(0)[1]
127	40.0 - 60.0% of mass 198	43.9	
197	less than 1.0% of mass 198	0	
198	base peak, 100% relative abundance	100.	
199	5.0 - 9.0% of mass 198	6.52	
275	10.0 - 30.0% of mass 198	20.0	
365	greater than 1.00% of mass 198	1.92	
441	present, but less than mass 443	7.66	
442	greater than 40.0% of mass 198	43.6	
443	17.0 - 23.0% of mass 442	8.14	(19.7)[2]

[1] Value in parenthesis is % mass 69.
[2] Value in parenthesis is % mass 442.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
50ng STD. II-107d	ST5950711	7/11/85	5:51
METHOD BLANK	L977MBAB	7/11/85	7:50
E0063	L9770IAB	7/11/85	9:54
E0063 MS	L9770IMSAB	7/11/85	10:30 REINJ. HT. 3.1

GC/MS TUNING AND MASS CALIBRATION

Bromofluorobenzene (BFB)

Case No. 4484 Contractor CAL Contract No. 68-01-6965

Instrument ID F3 Date 6-25-85 Time 11:28

Lab ID VV30625 Data Release Authorized By: [illegible]

RECEIVED OCT 1 2 1985

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	15.0 - 40.0% of the base peak	19.3
75	30.0 - 60.0% of the base peak	40.4
95	Base peak, 100% relative abundance	100
96	5.0 - 9.0% of the base peak	7.54
173	Less than 1.0% of the base peak	Ø
174	Greater than 50.0% of the base peak	90.0
175	5.0 - 9.0% of mass 174	7.73 (8.59)[1]
176	Greater than 95.0%, but less than 101.0% of mass 174	87.4 (97.1)[1]
177	5.0 - 9.0% of mass 176	6.23 (7.13)[2]

[1] Value in parenthesis is % mass 174.
[2] Value in parenthesis is % mass 176.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
	VVBK30625	6-25-85	8:59
	VV30625	6-25-85	11:28
ED 063	L97702VV	6-25-85	14:47
ED 063 MS	L97702MSVV	6-25-85	15:34
ED 063 DS	L97702DSVV	6-25-85	16:21

4/84

FORM V

GC/MS TUNING AND MASS CALIBRATION
Decafluorotriphenylphosphine (DFTPP)

Case No. 4494 e Contractor CAL Contract No. 68-01-6965

Instrument ID F5 Date 7/12/85 Time 5:55

Lab ID STS850712 Data Release Authorized By: [illegible]

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	59.0
68	less than 2.0% of mass 69	1.22 (1.93)
69	mass 69 relative abundance	63.3
70	less than 2.0% of mass 69	⊖ (⊖)
127	40.0 - 60.0% of mass 198	50.1
197	less than 1.0% of mass 198	⊖
198	base peak, 100% relative abundance	100.
199	5.0 - 9.0% of mass 198	6.77
275	10.0 - 30.0% of mass 198	21.0
365	greater than 1.00% of mass 198	2.67
441	present, but less than mass 443	10.2
442	greater than 40.0% of mass 198	65.2
443	17.0 - 23.0% of mass 442	12.3 (18.9)[2]

RECEIVED OCT 12 1985

[1] Value in parenthesis is % mass 69.
[2] Value in parenthesis is % mass 442.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
50ng L STD II 1070d	STS850712	7/12/85	5:55
ED 063 DUP. SPIKE	L97901DSAB	7/12/85	7:06

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 10/10/85

SUBJECT: Review of Region V CLP Data
Received for Review on 8/5/85

RECEIVED OCT 12 1985

TO: Curtis Ross, Director (5SCRL)
Central Regional Laboratory
Francis Thomas

Data User: Fit

We have reviewed the data for the following case(s).

SITE NAME: Ramo Head SMO Case No. 4484SA51731E

EPA Data Set No. SF 2450 No. of Samples: 1 D.U./Activity Numbers 190051 C48500

CRL No. 85FR09556

SMO Traffic No. 1736 E01

CLP Laboratory: CAL Hrs. Required for Review: 2 hrs

Following are our findings. BLANKS - OK 1 BLANK SPIKED WITH NATIVE CPDS. RECOVERIES 84% to 150% OVER THE RANGE OF ISOMERS - OK. SURROGATE - 37Cl TCDD - GOOD % RECOVERIES. DUPLICATE: HEPCDF + OCTACDF have an RPD of 22% + 13% RESPECTIVELY. HEXCDD is 68%, HEPCDD is 14% + OCTACDD is 6% RPD. PRECISION FOR DUPLICATE IS GOOD. DATA: SPOT CHECKS SHOW QUANTITATION is OK + RF VALUES OK (AVERAGE OF 2 STD. RUNS USED). ION RATIOES ARE SLIGHTLY OUTSIDE ± 10% WINDOW FOR SAMPLE DE017504 for HEPCDF + OCTACDF ALSO FOR HEPCDF IN THE DUPLICATE. THIS MAKES THE QUANTITATIONS DOUBTFUL. SAMPLES WERE RE-EXTRACTED TWICE AND REANALYZED DUE TO POOR NATIVE SPIKE RECOVERIES IN MATRIX. ALL THREE RESULTS SHOW PROBLEMS THAT DEMONSTRATE SAMPLE INHOMOGENEITY. THE METHODS IS OK AS SEEN BY THE GOOD BLANK SPIKE RECOVERIES.
4,5 TCP - BLANK, SPIKE, TUNING, DATA - OK.

( ) Data are acceptable for use.
(X) Data are acceptable for use with qualifications noted above.
( ) Data are preliminary - pending verification by Contractor Laboratory.
( ) Data are unacceptable.

10/9/85
GW.

cc: Dr. Alfred Haeberer/Joan Fisk/Gary Ward, EPA Support Services
Ross K. Robeson, EMSL-Las Vegas
Don Trees, CLP/Sample Management Office

FORM 1220-1 (REV 3-78)

ESD/Central Regional Laboratory

DATA TRACKING - FORM I

Data Set No. SF 2450 ERRIS No. _____

SMO Case No. 4484 17375 Site Name: Ramo Head

Name of Laboratory: CAL Data User: Fit

No. of Samples: 1 Date Samples Received: 7/29/85

1. Have chain-of-custody records been received? YES ✓ NO ___
2. Have Traffic reports been received? YES ___ NO ✓
3. If no, are Traffic report numbers written on the chain-of-custody record? YES ___ NO ___
4. If no, which Traffic report numbers are missing?

5. Are basic data forms in? YES ✓ NO ___
6. Number of samples claimed: 1 Number of samples received: 1
7. Checked by: Nidia Feliciano Date: 7/31/85
8. Received by Contract Project Management Section: J Thomas Date: 8/5/85
9. Review Started: 9/20/85 Reviewer Signature: D Wenlowski
10. Total time spent on review: 2 hrs. Date review completed: 10/9/85
11. Copied (xeroxed) by: _____ Date: _____
12. Mailed to Data User by: Nidia Feliciano Date: 10/11/85

TO DATA USERS:

Please fill in the blanks and return this form to:

Charles Elly, DPO, Region V, SSCRL

13. Data received by: _____ Date: _____
14. Q.A. review received by: _____ Date: _____
15. Received by CRL - CPM Section for file by: _____

Date: _____

California Analytical Laboratories, Inc.
2544 Industrial Boulevard • West Sacramento, CA 95691 • (916) 372-1393

RECEIVED OCT 12 1985

July 25, 1985
Lab No. S6182
Received: 6/14/85
SAS 1737E

Mr. Curtis Ross
U.S. EPA Region 5 Laboratory
536 South Clark Street
Tenth Floor, CRL
Chicago, Illinois 60605

29

Dear Mr. Ross:

Enclosed are data summaries and documentation for the sample and QA/QC comprising SAS 1737E which was received June 14, 1985. The sample was logged in under CAL Lab number S6182 and analyzed for total tetra through octa dioxins and furans, 2,4,5-TCP, and percent moisture.

As you will notice from the large amount of data, the sample was repeated a number of times. The problem with the first analysis was the high recoveries for the native spike analysis. A re-extraction had the same problem, and also showed differences in the sample itself. A second re-extraction included a method blank spike which demonstrated the problem was not our method or standards. Again, the same difficulties with the high recoveries and differences in compounds detected occurred.

Our only explanation for these unusual results is that the sample is quite non-homogeneous, and we feel that our many analyses document this fact.

If you have any questions after examining all the data, please call.

Sincerely,

Paul A. Taylor, Ph.D
President

Michael J. Miille, Ph.D.
Director of GC/MS Services

Michael Orbanosky
Senior Chemist

cc SMO
EMSL

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 1737E

EPA ID: METHOD BLANK

CAL ID: S6182MB

Date Analyzed: 6/26/85 Column: DB-5
Wet Weight: 10.0 g
Dry Weight: 10.0 g
Percent Moisture: NR

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.0092
penta	ND	0.016
hexa	ND	0.027
hepta	ND	0.32
octa	ND	0.80
DIOXINS		
tetra (total)	ND	0.015
penta	ND	0.074
hexa	ND	0.037
hepta	ND	0.43
octa	ND	1.2

% Accuracy 37Cl-TCDD = 97%

ND = Not Detected
All calculations based on dry weight.

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-24-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 1737E

EPA ID: DE017504

CAL ID: S6182

Date Analyzed: 6/26/85 Column: DB-5
Wet Weight: 10.56 g
Dry Weight: 8.5 g
Percent Moisture: 19.5

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.064
penta	ND	0.11
hexa	ND	0.24
hepta	5.1 *	-
octa	2.5 *	-
DIOXINS		
tetra (total)	ND	0.13
penta	ND	0.21
hexa	6.3	-
hepta	8.5	-
octa	14.2	-

% Accuracy 37Cl-TCDD = 91%

ND = Not Detected
All calculations based on dry weight.

*ION RATIOS OUTSIDE ± 10% WINDOW
QW. 10/9/85

PREPARED BY: JW

APPROVED BY: MAM

DATE: 7-24-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 1737E

EPA ID: DE017504 DUP

CAL ID: S6182D

Date Analyzed: 6/26/85 Column: DB-5
Wet Weight: 9.82 g
Dry Weight: 7.9 g
Percent Moisture: 19.5

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.090
penta	ND	0.13
hexa	ND	0.14
hepta	4.1 *	-
octa	2.2	-
DIOXINS		
tetra (total)	ND	0.087
penta	ND	0.46
hexa	11.5	-
hepta	7.4	-
octa	13.4	-

% Accuracy 37Cl-TCDD = 80%

* ION RATIOS OUTSIDE ±10% WINDOW
DJW. 10/9/85

ND = Not Detected
All calculations based on dry weight.

PREPARED BY: DJW

APPROVED BY: MGM DATE: 7-24-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 1737E

EPA ID: DE017504 NAT. SPK.

CAL ID: S6182NS

Date Analyzed: 6/26/85 Column: DB-5
Wet Weight: 10.06 g
Dry Weight: 8.1 g
Percent Moisture: 19.5

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	1.3 (105%)	-
penta	6.4 (520%)	-
hexa	6.5 (527%)	-
hepta	4.2 (0%)	-
octa	8.1 (89%)	-
DIOXINS		
tetra (total)	1.3 (105%)	-
penta	2.2 (178%)	-
hexa	11.1 (364%)	-
hepta	14.0 (412%)	-
octa	11.0 (0%)	-

% Accuracy 37Cl-TCDD = 106%

ND = Not Detected
All calculations based on dry weight.

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-24-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 1737E

EPA ID: METHOD BLANK

CAL ID: S6182MBRX

Date Analyzed: 7/15/85 Column: DB-5
Wet Weight: 10.0 g
Dry Weight: 10.0 g
Percent Moisture: NR

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.0035
penta	ND	0.0061
hexa	ND	0.0078
hepta	ND	0.034
octa	ND	0.051
DIOXINS		
tetra (total)	ND	0.0042
penta	ND	0.023
hexa	ND	0.013
hepta	ND	0.051
octa	ND	0.078

% Accuracy 37Cl-TCDD = 94%

RX = Re-extraction
ND = Not Detected
All calculations based on dry weight.

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-24-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 1737E

EPA ID: DE017504

CAL ID: S6182RX

Date Analyzed: 7/15/85 Column: DB-5
Wet Weight: 9.94 g
Dry Weight: 8.0 g
Percent Moisture: 19.5

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.065
penta	ND	0.060
hexa	2.4	-
hepta	6.2	-
octa	2.1	-
DIOXINS		
tetra (total)	ND	0.036
penta	ND	0.24
hexa	8.1	-
hepta	8.2	-
octa	12.3	-

% Accuracy 37Cl-TCDD = 92%

RX = Re-extraction
ND = Not Detected
All calculations based on dry weight.

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-24-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 1737E

EPA ID: DE017504 NAT. SPK.

CAL ID: S6182NSRX

Date Analyzed: 7/15/85 Column: DB-5
Wet Weight: 9.99 g
Dry Weight: 8.0 g
Percent Moisture: 19.5

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	1.57 (126%)	-
penta	11.3 (913%)	-
hexa	48.0 (3670%)	-
hepta	8.8 (210%)	-
octa	9.7 (122%)	-
DIOXINS		
tetra (total)	1.20 (97%)	-
penta	6.1 (492%)	-
hexa	39.1 (2500%)	-
hepta	11.1 (236%)	-
octa	21.1 (142%)	-

% Accuracy 37Cl-TCDD = 88%

RX = Re-extraction
ND = Not Detected
All calculations based on dry weight.

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-24-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 1737E

EPA ID: METHOD BLANK

CAL ID: S6182MBRXRX

Date Analyzed: 7/18/85 Column: DB-5
Wet Weight: 10.0 g
Dry Weight: 10.0 g
Percent Moisture: NR

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.0015
penta	ND	0.0036
hexa	ND	0.0037
hepta	ND	0.13
octa	ND	0.23
DIOXINS		
tetra (total)	ND	0.0025
penta	ND	0.013
hexa	ND	0.062
hepta	ND	0.16
octa	ND	0.27

% Accuracy 37Cl-TCDD = 99%

RX = Re-extraction
ND = Not Detected
All calculations based on dry weight.

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-24-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 1737E

EPA ID: METH. BLANK NAT. SPK.
CAL ID: S6182MBNSRX2

Date Analyzed: 7/18/85 Column: DB-5
Wet Weight: 10.0 g
Dry Weight: 10.0 g
Percent Moisture: NR

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	1.2 (120%)	-
penta	1.0 (100%)	-
hexa	0.84 (84%)	-
hepta	1.49(149%)	-
octa	6.5 (130%)	-
DIOXINS		
tetra (total)	1.0 (100%)	-
penta	0.92 (92%)	-
hexa	0.99 (99%)	-
hepta	1.5 (150%)	-
octa	5.2 (104%)	-

% Accuracy 37Cl-TCDD = 98%

RX = Re-extraction
ND = Not Detected
All calculations based on dry weight.

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-24-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 1737E

EPA ID: DE017504

CAL ID: S6182RXRX

Date Analyzed: 7/18/85 Column: DB-5
Wet Weight: 10.15 g
Dry Weight: 8.2 g
Percent Moisture: 19.5

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	ND	0.62
penta	ND	1.1
hexa	ND	2.0
hepta	5.1	-
octa	31	-
DIOXINS		
tetra (total)	ND	0.16
penta	ND	0.76
hexa	1.2	-
hepta	29.8	-
octa	708	-

% Accuracy 37Cl-TCDD = 102%

RX = Re-extraction
ND = Not Detected
All calculations based on dry weight.

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-24-85

California Analytical Laboratories, Inc.

POLYCHLORINATED DIOXIN/FURAN ANALYSIS

CASE NO. 1737E

EPA ID: DE017504 NAT. SPK.
CAL ID: S6182NSRXRX

Date Analyzed: 7/18/85 Column: DB-5
Wet Weight: 10.22 g
Dry Weight: 8.2 g
Percent Moisture: 19.5

FURANS	AMOUNT FOUND (ng/g)	DETECTION LIMIT (ng/g)
tetra (total)	4.5 (375%)	-
penta	4.3 (358%)	-
hexa	2.2 (180%)	-
hepta	8.2 (258%)	-
octa	31 (0%)	-
DIOXINS		
tetra (total)	2.6 (215%)	-
penta	2.1 (175%)	-
hexa	2.5 (204%)	-
hepta	38.5 (725%)	-
octa	594 (0%)	-

% Accuracy 37Cl-TCDD = 103%

RX = Re-extraction
ND = Not Detected
All calculations based on dry weight.

PREPARED BY: _____

APPROVED BY: _____ DATE: 7-24-85

CASE: 1737E

2,4,5-TRICHLOROPHENOL RESULTS

CAL ID	EPA ID	ug/Kg 2,4,5-TCP Detected (ppb)
S6182MB	METHOD BLANK	< 100
S6182	DE017504	11,700
S6182MS	DE017504-MS(#)	15,800
S6182MSD	DE017504-MSD(#)	16,300

= Matrix Spike and Matrix Spike Duplicate were spiked at 1000 ug/Kg with 2,4,5-TCP.

PREPARED BY _____

APPROVED BY _____ DATE 7-25-85

GC/MS TUNING AND MASS CALIBRATION
Decafluorotriphenylphosphine (DFTPP)

Case No _____ Contractor CAL Contract No. 68-01-69

Instrument ID F4 Date 7/23/85 Time 6:02

Lab ID L4850723 Data Release Authorized By: [signature]

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	43.2
68	less than 2.0% of mass 69	0 (0)[1]
69	mass 69 relative abundance	44.3
70	less than 2.0% of mass 69	0 (0)[1]
127	40.0 - 60.0% of mass 198	40.0
197	less than 1.0% of mass 198	0
198	base peak, 100% relative abundance	100.
199	5.0 - 9.0% of mass 198	6.33
275	10.0 - 30.0% of mass 198	14.5
365	greater than 1.00% of mass 198	1.40
441	present, but less than mass 443	6.24
442	greater than 40.0% of mass 198	42.3
443	17.0 - 23.0% of mass 442	7.64 (18.0)[2]

[1] Value in parenthesis is % mass 69.
[2] Value in parenthesis is % mass 442.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
Std L STD A-122cl	L4850723	7/23/85	6:02
DE012504 MS	S6182 MSAB	7/23/85	8:46
DE017504 DS	S6182 DSAB	7/23/85	9:19
DE017504	S6182 AB	7/23/85	11:24

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

Date Received for Review: 10/8/85 Date Review Completed: 10/11/85

To: Mary Jane Ripp

From: Arlene Pratl

Subject: Rams Head R05-SU04-09 (SLL)

Sample Description: Case # 4484 low soil CLP Dioxin

Project Data Status: Still awaiting low soil organic & SAS sample

FIT Data Review Findings:

See attached CRL review.

Additional Comments:

Book No. 4
Page No. 270

35X:3M

recycled paper

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

10/4/85

Review of Region V CLP Data
Received for Review on 7/9/85

Curtis Ross, Director (SSCRL)
Central Regional Laboratory
Francis Thomas

TO: Data User: KT

We have reviewed the data for the following case(s).

SITE NAME: Rams Head SMO Case No. 5484

EPA Data Set No. JF2450 No. of Samples: 12 D.U./Activity Numbers 1905 1C48500

CRL No. 85FR09354 - 85FR09365

SMO Traffic No. DE017501 - DE017512

CLP Laboratory: CAL Hrs. Required for Review: 2½ hrs.

Following are our findings. Blank: OK. Surrogates: % Recovery all OK. Performance Check: 1 RF value for the surrogate is slightly greater than 10% of mean of triplicate analysis. - No action needed. Calibration - Initial: RF's for native + surrogates OK, % RSD's OK. These also OK for daily calibration. P.E sample OK. Duplicate OK. Data - Internal Std. ratios all OK. 2 positive values calculation OK. Ion ratios OK. RT is OK. D.L. check is OK. Partial Scan OK. Tuning OK.

RECEIVED OCT 8 1985

(X) Data are acceptable for use.
( ) Data are acceptable for use with qualifications noted above.
( ) Data are preliminary - pending verification by Contractor Laboratory.
( ) Data are unacceptable.

9/10/85
DJW.

cc: Dr. Alfred Haeberer/Joan Fisk/Gary Ward, EPA Support Services
Ross K. Robeson, EMSL-Las Vegas
Don Trees, CLP/Sample Management Office

FORM 1320-4 (REV 3-78)

Region V, U.S. Environmental Protection Agency
ESD/Central Regional Laboratory

DATA TRACKING - FORM I

CRL Data Set No. JF 2450 ERRIS No. _____

GMO Case No. 4484 Site Name: Rams Head

Name of Laboratory: CAL Data User: Fit

No. of Samples: 12 Date Samples Received: 7/8/85

1. Have chain-of-custody records been received? YES ✓ NO ___
2. Have Traffic reports been received? YES ___ NO ✓
3. If no, are Traffic report numbers written on the chain-of-custody record? YES ✓ NO ___
4. If no, which Traffic report numbers are missing?

5. Are basic data forms in? YES ✓ NO ___
6. Number of samples claimed: 12 Number of samples received: 12
7. Checked by: Nidia Feliciano Date: 7/9/85
8. Received by Contract Project Management Section: J Thomas Date: 7/9/85
9. Review Started: 9/6/85 Reviewer Signature: D. Wesolowski
10. Total time spent on review: 2½ Date review completed: 9/10/85
11. Copied (xeroxed) by: _____ Date: _____
12. Mailed to Data User by: Nidia Feliciano Date: 10/7/85

TO DATA USERS:

Please fill in the blanks and return this form to:

RECEIVED OCT 8 1985

Charles Elly, DPO, Region V, SSCRL

13. Data received by: Arlene Osael Date: 10/10/85
14. Q.A. review received by: Arlene Osael Date: 10/10/85
15. Received by CRL - CPM Section for file by: _____

Date: _____

California Analytical Laboratories, Inc.
2544 Industrial Boulevard • West Sacramento, CA 95691 • (916) 372-1393

July 5, 1985
Lab No. T3064-T3075
Received: 6/14/85
Case 4484
68-01-6916

RECEIVED
JUL 8 1985
U.S. EPA, CENTRAL REGIONAL LAB.
536 S. CLARK STREET
CHICAGO, ILLINOIS 60605

Mr. Curtis Ross
U.S. EPA Region 5 Laboratory
536 South Clark Street
Tenth Floor, CRL
Chicago, Illinois 60605

Dear Mr. Ross:

Enclosed are data summaries and documentation for the samples and QA/QC comprising Case 4484 which was received June 14, 1985. The samples were logged in under CAL Lab numbers T3064 through T3075 and analyzed for 2,3,7,8-TCDD under contract 68-01-6916. The correlation of ID numbers is shown on the data summary sheet (form B-1).

All of the samples were cleaned-up using Option D prior to injection. Sample DE017502 was analyzed as a native spike sample; recovery was 113%. Our mean surrogate accuracy was 111%. A partial scan was done on sample DE017503. There were no problems to discuss.

If you have any questions about the data, please don't hesitate to call.

Sincerely,

Paul A. Taylor, Ph.D.
President

Michael J. Miille, Ph.D.
Director of GC/MS Services

Teri J. Vergara
Data Specialist

cc SMO
EMSL

RECEIVED OCT 8 1985

TCDD DATA REPORT
California Analytical Laboratories
2544 Industrial Blvd.
W. Sacramento, CA 95691

Lab: California Analytical Laboratories
Case No. 4484
Batch/Shipment No.

Report Date: 7/2/85
Column: SP-2331 60M X 0.32MM

Cal Lab ID	Sample Number	C U	Aliquot Wet Wt. (grams)	PPB TCDD Meas	PPB TCDD Det. Lmt	Inst ID	Date	Time	320/322	332/334	PPB Surrg Meas	Surrg % Acc'c	320	322	257	328*	332	334	Comments
13064MB	METHOD BLANK	Y	10.00	ND	0.040	8	06/25/85	20:40:00	1.00	0.81	1.11	111	-	-	-	153898	295664	367207	
13064	DE017501	Y	9.96	ND	0.064	8	06/25/85	21:02:00	1.00	0.77	1.10	110	-	-	-	90256	171458	221732	
13065NS	DE017502NS	Y	9.94	1.14	-	8	06/25/85	20:19:00	0.77	0.81	0.93	92	59981	77962	42924	124560	287900	354085	
13066	DE017503	Y	10.12	7.98	-	8	06/25/85	21:22:00	0.79	0.79	1.07	109	260468	329548	177676	90958	170836	216095	
13067	DE017504	Y	9.99	ND	0.37	8	06/25/85	21:42:00	1.00	0.79	1.10	109	-	-	-	25324	48728	61676	
13068	DE017505	Y	9.46	ND	0.050	8	06/25/85	22:03:00	1.00	0.80	1.16	109	-	-	-	150506	290827	365527	
13068D	DE017505D	Y	10.00	ND	0.055	8	07/02/85	22:11:00	1.00	0.86	1.09	109	-	-	-	101882	206066	240190	
13069	DE017506	Y	10.15	ND	0.23	8	06/26/85	09:17:00	1.00	0.81	1.15	116	-	-	-	31585	57716	71660	
13070	DE017507	Y	10.75	ND	0.14	8	06/26/85	09:48:00	1.00	0.78	1.07	115	-	-	-	34026	63409	81048	
13071	DE017508	Y	10.37	0.40	-	8	06/26/85	10:19:00	0.81	0.80	1.12	117	11887	14604	6648	83604	151741	190098	
13072	DE017509	Y	10.54	ND	0.090	8	06/26/85	10:35:00	1.00	0.79	1.05	111	-	-	-	71194	135148	170894	
13073	DE017510	Y	10.28	0.36	-	8	06/26/85	10:56:00	0.82	0.79	1.10	113	9552	11680	5933	72712	135486	171044	
13074RI	DE017511	Y	9.87	ND	0.49	8	06/26/85	17:13:00	1.00	0.80	1.26	124	-	-	-	18872	32280	40108	
13075	DE017512	Y	10.77	ND	0.43	8	06/26/85	11:43:00	1.00	0.81	1.03	111	-	-	-	18154	34980	43075	

MB = Method Blank
P = Partial Scan/Confirmatory Analysis
NS = Native TCDD Spike
D = Duplicate/Fortified Field Blank
RI = Re-injection
FB = Field Blank
ND = Not Detected
DL = Detection Limit
RX = Re-extraction

*Corrected for contribution by native TCDD; 0.9% of m/z 322 subtracted

DE017503 is P.E. Sample

FORM B-1

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TCDD DATA REPORT - PARTIAL SCAN CONFIRMATION

Sample Number	Response Ratios					% Relative Abundances*								
	320/322	320/324	257/322	257/259	194/196	160	161	194	196	257	259	320	322	324
DE017503	0.86	1.80	0.49	0.83	1.17	7.47	-0-	30.8	26.3	40.3	48.7	85.7	100	47.7

CALIBRATION

Standard Number	320/322	320/324	257/322	257/259	194/196	160	161	194	196	257	259	320	322	324
ST5850627T	0.80	1.65	0.47	1.02	1.62	11.3	11.7	38.6	23.8	47.9	47.1	79.7	100	48.3

*Relative to m/e 322

FORM B-4

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APPENDIX A

Soil Sample Collection Procedures:

1. Prior to sampling, check to see that the equipment is clean. If it appears dusty or dirty, it is from insufficient cleaning, handling, or packaging. If this is the case, another piece should be used.

2. Before sampling, the grass should be trimmed to just above the soil surface in the areas to be cored.

3. Soil samples will be collected by forcing a bulb planter into the soil to an approximate depth of four (4) inches. Three to five cores may be needed to obtain a sufficient quantity of soil, enough to fill a 1-quart wide mouth glass container half full. This will constitute one grab sample.

4. When the core is extracted, it will be placed in a clean disposable aluminum foil pan. The cores will be mixed with a clean stainless steel spoon and knife. The stones, roots, twigs, grass, and other foreign debris will be discarded with clean stainless steel tweezers or strawberry hullers.

5. Once the grab sample is collected and all debris removed, place the sample into the glass 1-quart wide mouth container that was cleaned and supplied by Versar. After each grab sample is collected, the disposable aluminum pan, bulb planter, tweezers and spoon should be discarded, and new decontaminated equipment used for the next grab sample.

6. Sediments will be obtained from selected sites in sufficient volume to fill the sampling containers. Samples will be collected with stainless steel spoons and initially placed in a clean, disposable aluminum foil pan. Free water will be decanted from the grab sample of sediments prior to

introduction to the sample containers. After each grab sample is collected, the aluminum foil pan and stainless steel spoon should be discarded, and new decontaminated equipment used for the next grab sample.

7. Fill out all necessary field data forms for the sample and attach identifying labels to the sample jars. Initiate a chain-of-custody record for the sample. Pack the samples for shipment including the required field blanks and performance evaluation samples.

8. Prepare site documents. Since it may be necessary to revisit the site in the future to resample, sample activities must be thoroughly documented. At a minimum, a map should be drawn showing approximate sample locations with distances to two or three permanent features (ex. corner of a building, trees, light poles, etc.). A site photograph is required to document the location.

9. Prepare site map. On a 8 1/2 x 11 inch sheet of paper, draw a map of the sampling site showing its general location (include street names), and the positions of any permanent features such as roads, telephone poles, large trees, etc. Also, note anything which might help to make the site easier to locate for any follow up sampling. Each map should contain the following information: city, county, and/or state names, date of sampling, facility, address, name of site, north arrow, and scale, if applicable.

10. Photograph the sampling site. Place the site number on a large card within the area to be photographed and take a color photograph of the site. Indicate the direction of the photo on the sketched site map. If it can be accomplished

easily, try to include identifying landmarks, such as houses, telephone poles, etc., in the photograph. When the pictures or slides have been developed, write the name of the city, county and state, the site number, and the sampling date on the back of the photos or on the front of the slides.

APPENDIX B

Sampling Equipment:

Versar will supply the sample jars. A field blank and a performance evaluation sample will also be submitted for analyses.

There should be very little variation in equipment used in obtaining soil samples. After the sampling locations are chosen, the sample will be collected with a clean bulb planter and placed in the sample jars. To avoid cross contamination among sampling locations, the bulb planter, spoon, knife, tweezer, and the aluminum foil pan will be properly discarded in a 55 gallon drum after sampling at each location. Sampling personnel should inspect all equipment before it is used to ensure it is clean.

A. Cleaning of Sampling Equipment

Each piece of sampling equipment will be cleaned prior to the collection of the samples. This should take place in a relatively clean location, not in field locations.

1. A stainless steel wash basin will be used. 1 1/2 tablespoons of Alconox detergent solution will be added per gallon of hot tap water.
   Scrub sample equipment with a wooden handled bristle brush.

2. Rinse equipment with tap water.

3. Final rinse with distilled water.

4. Air dry equipment. Wrap equipment with aluminum foil - dull side out.

B. Checklist of Supplies and Equipment for Soil Sampling

1. Cleaning Supplies and Equipment
   - Natural bristle brushes/wooden handles
   - Stainless steel wash basins
   - Distilled and tap water
   - Alconox
   - Bulb planters, stainless steel
   - Strawberry hullers, stainless steel
   - Knives, stainless steel, serated
   - Spoons, stainless steel
   - Aluminum foil disposable pans
   - Aluminum foil
   - Sample kit (supplied and cleaned by Versar to include one quart glass jars and teflon-lined lids, tulip bulb planters, and packaging and shipping materials).
   - Gloves, neoprene

2. Miscellaneous equipment

   - Hammer
   - Wood stakes
   - USGS maps
   - Site maps
   - Scale
   - Measuring tape
   - Compass
   - Outdoor thermometer
   - Camera and film
   - Bound field sampling logbook
   - Field data sheets
   - Chain-of-custody records
   - Masking tape
   - Clear plastic tape
   - Strapping tape (for specimen boxes)

- Pencils (use preferred over pens)
- Permanent felt-tip markers
- Ice chests (for shipping and to cool samples)
- Ice, baggies
- Vermiculite for sample containers during shipping
- Shipping instructions and appropriate shipping forms

3. Decontamination of Personnel and Non-Expendable Sampling Equipment

Non-expendable sampling equipment is thoroughly decontaminated after each use to prevent cross-contamination of samples and contamination of personnel. During the set-up of the on-site sampling and packaging station, an area is designated to be the decontamination zone. This area will consist of an initial wash and four rinse steps as follows:

Note: The sampling surface of the equipment to be cleaned will be scrubbed with a wooden handled natural bristle brush and will not be touched by the personnel without protective wear (gloves and tyvek).

Initial Wash: Alconox detergent solution, 1 1/2 tablespoon per gallon tap water in a stainless steel wash basin.

First Rinse: Rinse with tap water. Shake or drip excess water off equipment.

Second Rinse: Rinse with distilled water. Allow to drip dry.

Third Rinse: Rinse using a plastic squeeze bottle containing specially denatured anhydrous ethyl alcohol. Allow equipment to dry.

Fourth Rinse: Rinse using a squeeze bottle containing trichloroethylene-reagent grade.

Allow equipment to dry. Wrap in foil until required for use.