Baker

38774

Baker Environmental, Inc.
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Coraopolis, Pennsylvania 15108

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January 29, 1997

Mr. John Osolin
Remedial Project Manager
U.S. Environmental Protection Agency
Emergency Remedial Response Division
290 Broadway, 19th Floor
New York, NY 10007-1866

Re: Results of Soil Excavation and Confirmation Sampling at the Adjoining Winstead Village Condominium Property
Pulverizing Services Site
Moorestown, New Jersey

Dear Mr. Osolin:

This correspondence has been prepared by Baker Environmental, Inc. (Baker) for PPG Industries, Inc. (PPG) to document the soil excavation and confirmation sampling activities at the Winstead Village Condominium (Winstead) property adjoining the Pulverizing Services Site in Moorestown, New Jersey. It is based on information derived from field notes; laboratory results from Quanterra Laboratories, Inc. (Quanterra) of North Canton, Ohio; and data validation reports provided by Environmental Data Services (EDS) of Glenshaw, Pennsylvania.

BACKGROUND

Five soil sample locations from the Winstead property were included as part of the Pulverizing Services Site Phase II Site Investigation conducted by McLaren/Hart Environmental Engineering Corporation (McLaren/Hart) of Pittsburgh, Pennsylvania (see Figure 1) in 1995. Each sample was field screened for DDT via chemical extraction method with final chloride measurement (Dexsil). Three samples were shipped offsite to Quanterra for fix-based laboratory analysis of DDT, dieldrin, and aldrin via SW846 Method 8080A. The results of the field screening and laboratory analysis indicated that soil located in a small portion of the extreme northern corner of the Winstead property contained elevated levels of pesticides in excess of risk-based residential Preliminary Remediation Goals established by the U.S. Environmental Protection Agency (EPA), Region II. This was based exclusively on the results from a single soil sample (34B) obtained from a depth of 0 to 0.5 inches below the ground surface.

As part of an effort to identify and remove contaminated soils from several adjoining properties, PPG contracted ERM-EnviroClean, Inc. (ERM) of Ewing, New Jersey to prepare a Work Plan and execute limited soil sampling and excavation activities. The Work Plan (Revision No. 1), dated November 21, 1995 was subsequently approved by EPA.

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FIELD SAMPLING AND EXCAVATION SUMMARY

In order to define the limits of excavation ERM obtained surface soil samples (0 to 0.5 feet bgs) from the Winstead property on three separate occasions in 1996 including June (11 samples), July (9 samples), and September (2 samples). Data validation reports for each sample set are provided in Attachment A. The locations of these samples are depicted on Figure 2. All of the samples were shipped to Quanterra for fix-based laboratory analysis of DDT, aldrin, and dieldrin. PPG and EPA agreed prior to initiating this work that fixed-base laboratory analyses rather than field screening tests were more appropriate at the Winstead property during this phase.

Based on the results, PPG and U.S. EPA Region II agreed on horizontal limits of excavation to remove soils contaminated with levels of DDT, dieldrin, and aldrin in excess of the residential PRGs [i.e., 1900 micrograms per kilogram (ug/kg) for DDT, 41 ug/kg for dieldrin, and 38 ug/kg for aldrin). A methodology known as Compliance Averaging was used to help identify the horizontal limits of excavation (see Attachment B). The horizontal limits of excavation are depicted on Figure 3.

ERM mobilized to the site to initiate excavation activities at the Winstead property on November 12, 1996. The field work was designed to progress from the Pulverizing Services Site. To facilitate this, a portion of the security fence located in the northern corner of the Winstead property was removed by ERM with various trees and brush situated along the fence line. All soil located within the preestablished horizontal limits was excavated to a depth of two feet below the ground surface. Excavated soil was transported by truck to the Pulverizing Services Site where it was placed in Building 29.

Upon the completion of excavation activities, ERM obtained three confirmation soil samples (i.e., COMPF1, COMPF2, and COMPF3) from the base of the excavation (see Figure 4). Since the area of the base of the excavation covers roughly 2,100 square feet, three confirmation samples exceeds the requirements of the Work Plan of 1 sample per 900 square feet of excavation. Each soil sample was obtained from the interval 0 to 0.5 feet below the base of the excavation which is roughly 2 to 2.5 feet below the ground surface. The three soil samples were shipped to Quanterra for fix-based analysis of DDT, dieldrin, and aldrin.

Prior to the initiation of excavation activities, PPG and EPA agreed that the surface soil samples defining the horizontal limits of the excavation would serve as the confirmation sidewall samples. According to the Work Plan one sidewall sample is required per 30 linear feet of sidewall. There is approximately 140 linear feet of sidewall within the Winstead property between fence points A and B on Figure 3 and five pre-excavation soil samples (i.e., 25A, 52A, 34A, 15A, and 90) were used as confirmation sidewall samples. Sidewall samples were not applicable along the fence line because excavation was determined not to be required at the adjoining commercial properties (i.e., Weschler property and Pulverizing Services Site)..

Upon completion of the confirmation sampling activities, ERM backfilled the excavation, replaced the fence, and planted trees along the fence line inside the boundary of the Winstead property. The backfill was seeded and covered with straw. Documentation that the backfill was obtained from an acceptable source is provided in Attachment C.

RESULTS

The analytical results from the three confirmation soil samples indicate that the contaminant levels at the base of the excavation are less than the residential PRGs (see Attachment D). All three samples were qualified as "estimated" by the data validator (EDS). This "j" qualifier was applied to the results because the samples were extracted four days past the allowable technical holding time identified in the Final Quality Assurance/Quality Control Plan for the Phase II Investigation at the Pulverizing Services Site, August 1, 1994. Due to the stable nature of DDT, dieldrin, and aldrin, it was the opinion of the data validator that the exceedance of the required holding time did not likely impact the results of the analysis (see Attachment E).

It is hoped that the information presented herein is sufficient for your needs at present. If you have any questions or comments, please feel free to contact me at (412) 269-2063 or Mr. Tom Ebbert of PPG at (412) 492-5478.

Sincerely,

BAKER ENVIRONMENTAL, INC.

Daniel L. Bonk, P.E.

DLB/rw
Attachments

cc: Joe Karas - PPG
Tom Ebbert - PPG
Joe Krisanda - Winstead Village Condominium Association

FIGURES

200292

Computed by D. L. Bank Checked by _____ Date 1-23-97

MICHAEL BAKER, JR., INC.
DESIGN PAD

Subject _____ S.O. No. _____
Sheet No. _____ of _____

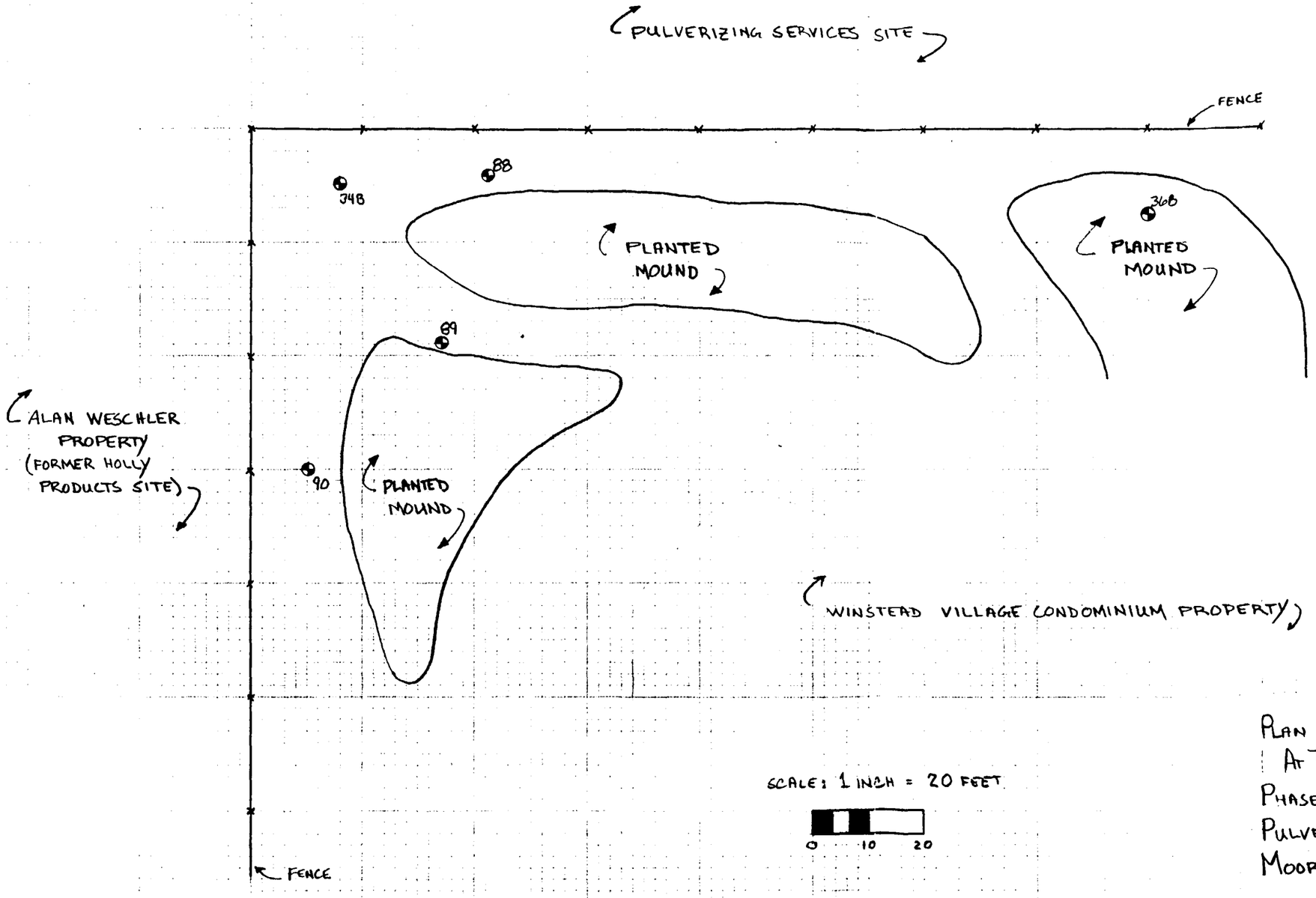

FIGURE 1

PLAN OF SURFACE SOIL SAMPLE LOCATIONS
AT THE WINSTEAD VILLAGE CONDOMINIUM PROPERTY
PHASE II SITE INVESTIGATION (1995)
PULVERIZING SERVICES SITE
MOORESTOWN, NJ

200293

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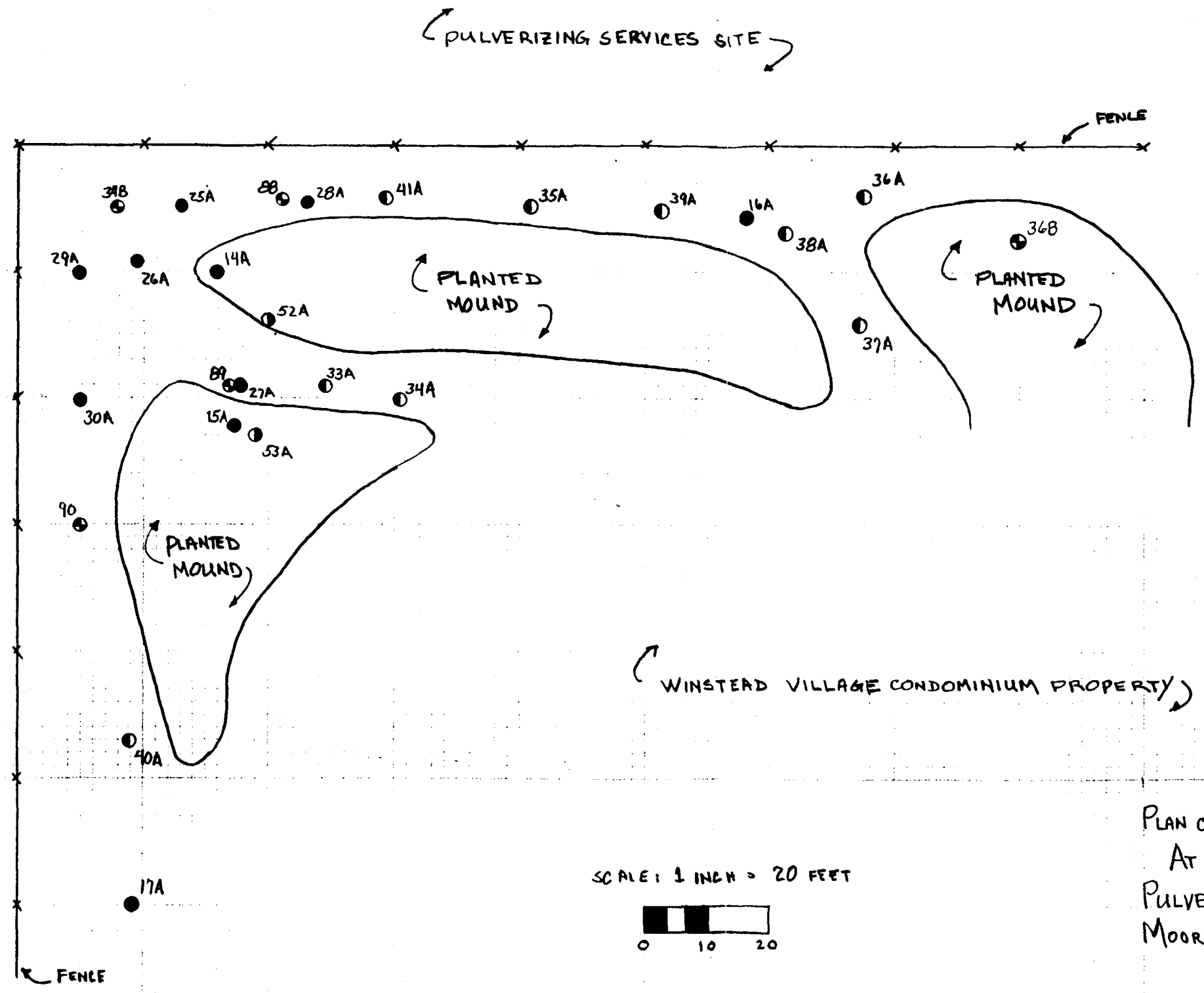

LEGEND

- 34B — PHASE II SAMPLES (OBTAINED BY McLAREN/HART 3/95)
- 25A — PRE-EXCAVATION SAMPLES (OBTAINED BY ERM 6/96)
- 35A — PRE-EXCAVATION SAMPLES (OBTAINED BY ERM 7/96)
- 52A — PRE-EXCAVATION SAMPLES (OBTAIND BY ERM 9/96)

SCALE: 1 INCH = 20 FEET

0 10 20

31A — BACKGROUND SAMPLE (LOCATED BETWEEN CONDO BLDGS)
COORDINATES: X = 80 FEET, Y = 270 FEET

FIGURE 2

PLAN OF PRE-EXCAVATION SURFACE SOIL SAMPLE LOCATIONS
AT THE WINSTEAD VILLAGE CONDOMINIUM PROPERTY
PULVERIZING SERVICES SITE
MOORESTOWN, NJ

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WINSTEAD PROPERTY — Drawing No. ____

Computed by D. L. BONK — Checked by ____ — Date 1-23-97

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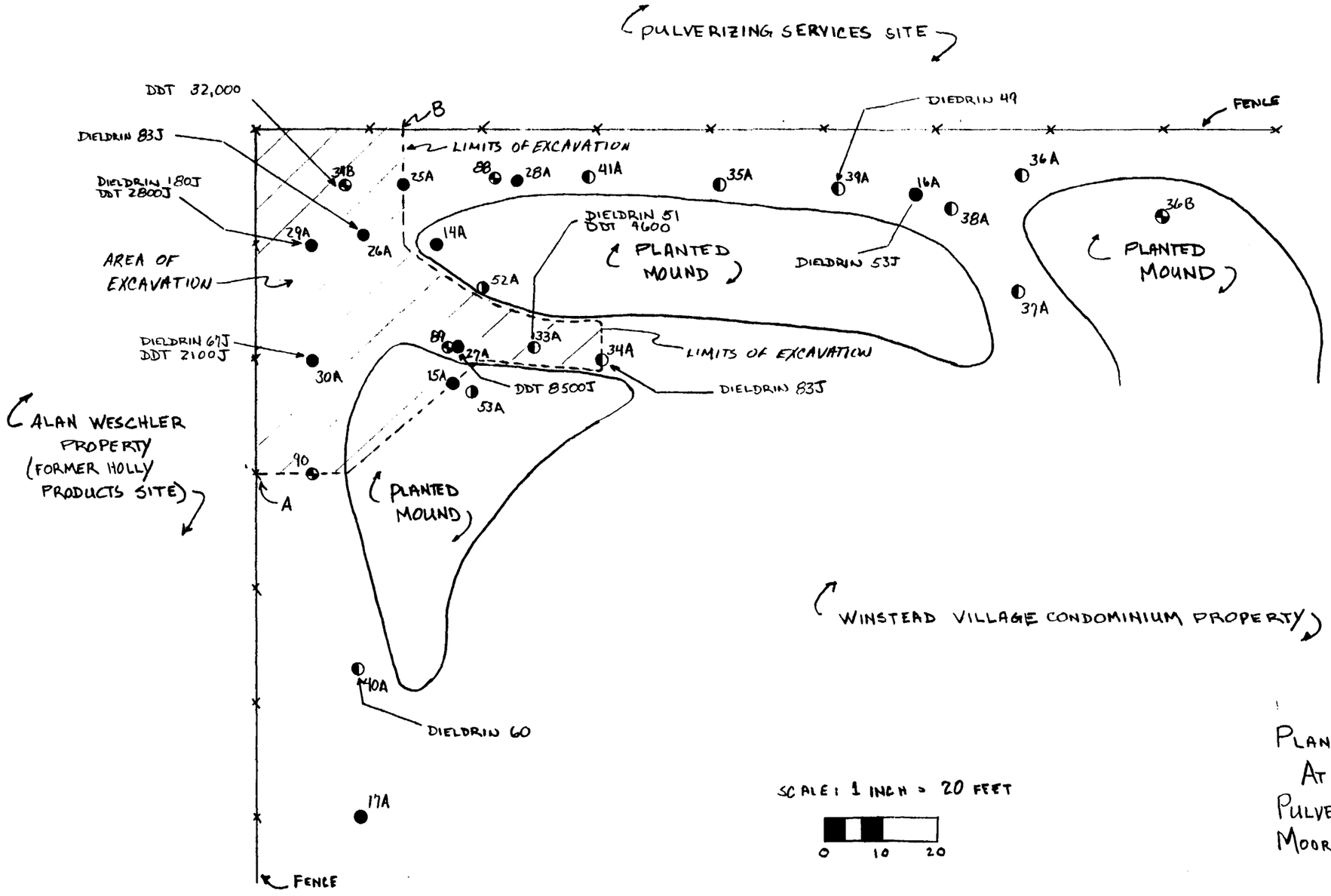
Sheet No. ____ of ____



LEGEND

- 34B — PHASE II SAMPLES (OBTAINED BY McLAREN/HART 3/95)
- 25A — PRE-EXCAVATION SAMPLES (OBTAINED BY ERM 6/96)
- 35A — PRE-EXCAVATION SAMPLES (OBTAINED BY ERM 7/96)
- 52A — PRE-EXCAVATION SAMPLES (OBTAIND BY ERM 9/96)

NOTES

- ALL ANALYTICAL RESULTS SHOWN ARE IN UNITS µg/kg.
- DDT, DIEDRIN, AND ALDRIN RESULTS DEPICTED ON THE FIGURE ARE LIMITED TO THOSE WHICH EXCEEDED THE RESIDENTIAL PRELIMINARY REMEDIATION GOALS (i.e., 1900 µg/kg FOR DDT, 41 µg/kg FOR DIELDRIN, AND 38 µg/kg FOR ALDRIN).
- DATA QUALIFIERS
  J = ESTIMATED
  D = DILUTED SAMPLE

SCALE: 1 INCH = 20 FEET

0 10 20

31A — BACKGROUND SAMPLE (LOCATED BETWEEN CONDO BLDGS)
COORDINATES: X = 80 FEET, Y = 270 FEET

FIGURE 3

PLAN OF EXCAVATION LIMITS
AT THE WINSTEAD VILLAGE CONDOMINIUM PROPERTY
PULVERIZING SERVICES SITE
MOORESTOWN, NJ

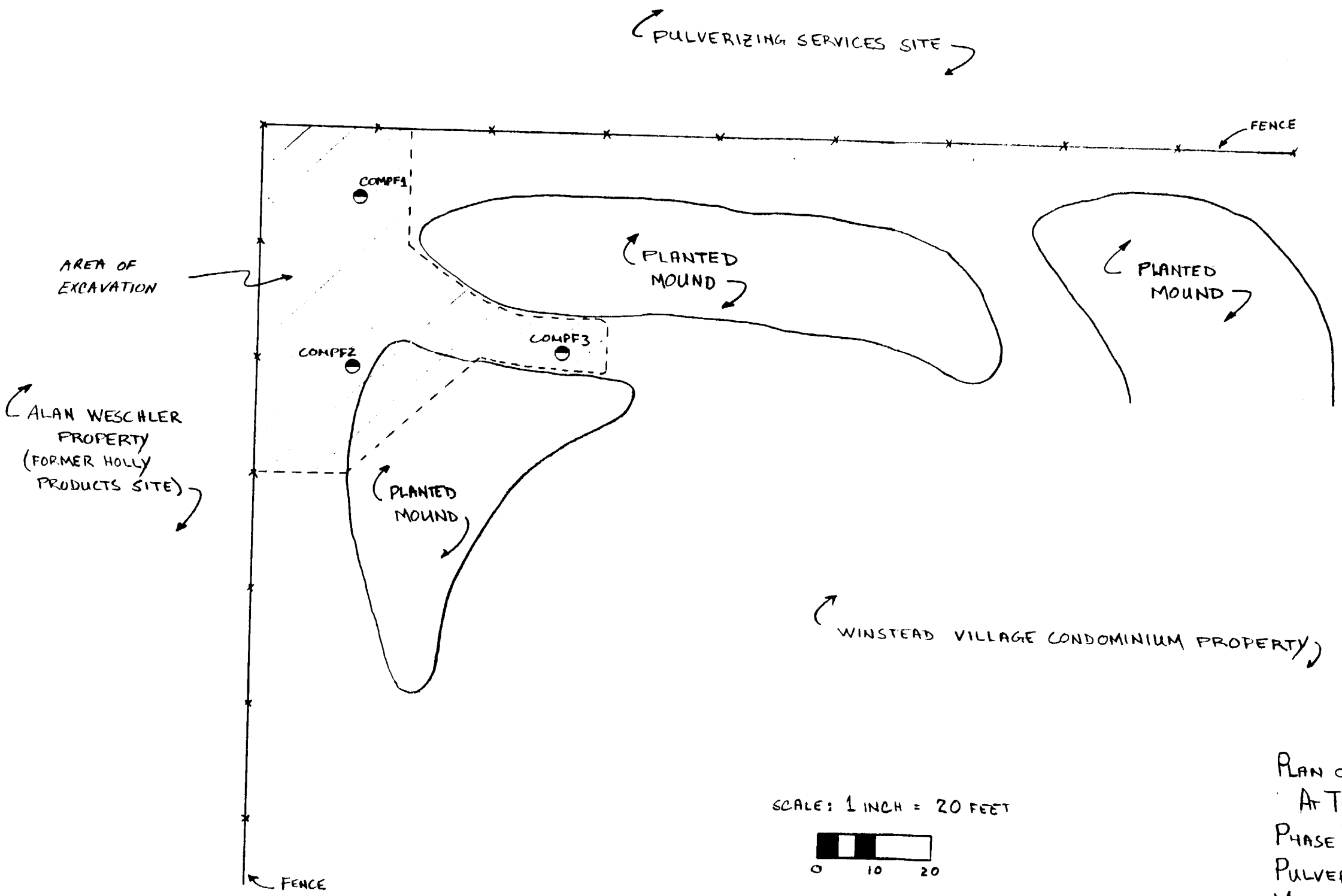
200295

Computed by _____ Checked by _____ Date 1-23-97

DESIGN PAD

Subject _____ S.O. No. _____

Sheet No. _____ of _____



LEGEND

COMPF1 — CONFIRMATION SOIL SAMPLES FROM THE BASE OF THE EXCAVATION (OBTAINED BY ERM 11/96)

SCALE: 1 INCH = 20 FEET

0 10 20

FIGURE 4

PLAN OF CONFIRMATION SOIL SAMPLE LOCATIONS
AT THE WINSTEAD VILLAGE CONDOMINIUM PROPERTY
PHASE II SITE INVESTIGATION (1995)
PULVERIZING SERVICES SITE
MOORESTOWN, NJ

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ATTACHMENT A

ENVIRONMENTAL DATA SERVICES

DATA VALIDATION · TECHNICAL WRITING · CONSULTING · DATA INTERPRETATION

PESTICIDE VALIDATION REPORT

(MOORESTOWN PULVERIZING SITE)

for

PPG Industries, Inc.

BY

ENVIRONMENTAL DATA SERVICES, LTD.

July 17, 1996

200298

1007 MOUNT ROYAL BOULEVARD • PITTSBURGH, PA 15223
412-486-9121 • FAX 412-486-3889

Data Assessment Narrative

Prepared for PPG Industries, Inc.
by Environmental Data Services, Ltd.

200299

SITE: PPG - Moorestown, NJ

LABORATORY: Quanterra

SAMPLE DELIVERY GROUP: SBERM-14A

This sample delivery group consists of the following soil samples:

SBERM- 14A	SBERM- 15A	SBERM- 16A	SBERM- 17A	SBERM- 25A	SBERM- 26A
SBERM- 27A	SBERM- 28A	SBERM- 29A	SBERM- 30A	SBERM- 31A	

Samples described above were analyzed via CLP 3/90 Protocol to determine the concentrations of the following pesticides :

Aldrin
Dieldrin
4,4' -DDT

Project specific QA objectives, as well as the USEPA Region II data validation SOP specified in the project QAPP (SOP No. HW-6 Rev. 8, 1/92)have been considered during validation of this data and its usability. Please note, although data for analytes other than those listed above were reported by the laboratory, validation was performed for aldrin, dieldrin and 4,4' -DDT results only.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence of the presence of the material), "R" (unusable), or "JN" (presumptive evidence of the presence of a material at an estimated value). All data qualification related to this group of samples is detailed on the attached sheets.

Major Data Quality Issues

None.

Minor Data Quality Issues

Pesticide Identification - Two samples in SDG - SBERM -14A had dieldrin results qualified as J or reported at a higher CRQL due to observed percent deviations between the results obtained on both analytical columns of greater than 25.

Irregularities During Sample Shipment- The samples were detained for a time by the carrier Federal Express. During a period of several days, the ice used to maintain adequate sample temperature had melted. Based on USEPA Region II validation guidelines, all results for samples in this delivery group have been qualified as estimated.

Holding Time- Four samples were extracted outside allowable holding time. All sample results had been previously qualified as estimated due to cooler temperature non-conformance's, therefore no additional qualification of data was necessary.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable due to significant QC problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort.

Lastly, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Diane Waldschmidt

Date: 7/17/96

Diane Waldschmidt
Environmental Scientist/Director

HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

All samples associated with this SDG were extracted and analyzed within allowable holding time with the following samples which were extracted two days past the technical holding time:

SBERM - 14A
SBERM - 15A
SBERM - 16A
SBERM - 17A

No data qualification was performed due to holding time excursions since all sample results were previously qualified as estimated due to cooler temperature during shipment. See section titled Sample Shipment for details.

BLANK CONTAMINATION

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for the common contaminants), the analytes are qualified as non-detects, "U".

Method Blank Contamination

A method blank was prepared and analyzed by the laboratory at the proper frequency. Upon examination none of the three pesticides examined here were found to be present in the method blank at levels greater than the reporting limit.

Field or Rinse Blank Contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

No field rinsate blank appears to have been collected in association with the samples comprising this sample delivery group. Without field blank data we cannot assess the potential for sample cross contamination during field sampling operations.

CALIBRATION

Percent Relative Standard Deviation (%RSD) and Percent Difference (%D)

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated

positive results "J" and non-detects "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

All calibrations related to data reported for this SDG met the criteria described above. No data qualification was necessary.

SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC)

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

Surrogate standards observed in samples fell within the established retention time windows and acceptable recovery ranges with the exception of samples diluted to a point where no surrogate was detected.

COMPOUND IDENTIFICATION

Pesticide Fraction

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be ≤25%.

Retention Time

Upon examination of positively identified contaminants, all instrument responses fell well within the retention time windows established during the appropriate initial calibration for both analytical columns.

Please note results for aldrin, dieldrin, and 4,4' -DDT only were evaluated.

Percent Difference

Two samples associated with this SDG had dieldrin results that required one of the following data qualifiers due to percent deviations between results on the two analytical columns exceeding 25.

J	=	Estimated
JN	=	Presumptive evidence of presence at an estimated concentration.
R	=	Un-useable

When possible, rather than qualifying data as un-useable the validator utilized the elevated CRQL from the sample analysis at a secondary dilution for the effected compound.

Dieldrin	%D	Qualifier added
SBERM -25A	26.7	J
SBERM -27A	183	reported at an elevated CRQL

MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data.

Matrix spike and matrix spike duplicate analyses were performed on sample SBERM-14A. All MS/MSD recoveries were within acceptable limits with the following exceptions :

	4,4' -DDT %R
MS	270
MSD	243

Unacceptably high DDT matrix spike recoveries were likely due to the relatively high concentration of DDT inherent to the sample itself rather than matrix interference.

No significant matrix interferences are apparent.

SAMPLE SHIPMENT

After the coolers containing the environmental samples were shipped off site, the carrier (Federal Express) delayed delivery to the laboratory due to leakage observed from the cooler. Mr. Stuart Bills of ERM Enviroclean inspected the coolers at the Federal Express location. Mr. Bills observations at that time were that all custody seals , and sample containers were intact. The ice however was melted. Mr. Bills repackaged the coolers including re-applying ice and Federal Express completed the shipment of samples to Quanterra North Canton.

Based on the USEPA Region II validation SOP, all sample results have been qualified as estimated due to the incomplete transport of samples at the required temperature.

SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

Overall the laboratory did a satisfactory job in meeting the requirements of the CLP 3/90 SOW for Pest/PCB's.

The following observations are noteworthy:

Sample Extract Cleanup - Sample extracts were not cleaned via GPC or florisil as required by protocol. The laboratory did not want to risk gross contamination (carryover) of samples. The data was not adversely impacted.

This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used:

SBERM - 14A	SBERM - 15A	SBERM - 16A	SBERM - 17A	SBERM - 25A
SBERM - 26A	SBERM - 27A	SBERM - 28A	SBERM - 29A	SBERM - 30A
SBERM- 31A				

Validated Data Tables

VALIDATED DATA TABLES
FOR
PPG MOORESTOWN

ANALYTE	UNITS	SBERM-14A	LQ	VQ	SBERM-15A	LQ	VQ	SBERM-16A	LQ	VQ
Aldrin	ug/kg	1.8	U	UJ	9.5	U	UJ	9.3	U	UJ
Dieldrin	ug/kg	7.3		J	22		J	53		J
4,4' -DDT	ug/kg	410	DC	J	760	DC	J	870	DC	J

ANALYTE	UNITS	SBERM-17A	LQ	VQ	SBERM-25A	LQ	VQ	SBERM-26A	LQ	VQ
Aldrin	ug/kg	1.9	U	UJ	9.0	U	UJ	9.3	U	UJ
Dieldrin	ug/kg	4.0		J	15	JP	J	83		J
4,4' -DDT	ug/kg	180	D	J	650	DC	J	1000	DC	J

ANALYTE	UNITS	SBERM-27A	LQ	VQ	SBERM-28A	LQ	VQ	SBERM-29A	LQ	VQ
Aldrin	ug/kg	93	U	UJ	9.2	U	UJ	9.1	U	UJ
Dieldrin	ug/kg	1800	U	UJ	40		J	180		J
4,4' -DDT	ug/kg	8500	DC	J	1600	DC	J	2800	DC	J

ANALYTE	UNITS	SBERM-30A	LQ	VQ	SBERM-31A	LQ	VQ
Aldrin	ug/kg	9.8	U	UJ	9.3	U	UJ
Dieldrin	ug/kg	67		J	19		J
4,4' -DDT	ug/kg	2100	DC	J	910	DC	J

200306

LQ = Laboratory Qualifier
VQ = Validation Qualifier

Qualified Laboratory Data Tables

200307

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM-14A

Lab Name: QUANTERRA, INC. Contract: -

Lab Code: QESOH Case No.: 99568.00 SAS No.: SDG No.: SBERM-14A

Matrix: (soil/water) SOIL Lab Sample ID: C4E9H102

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 007F0101

% Moisture: 10 decanted: (Y/N) N Date Received: 06/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/14/96

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 06/21/96

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.7 Sulfur Cleanup: (Y/N) N

7/16/96 DLU

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	1.8	U	
319-85-7	beta-BHC	1.8	U	
319-86-8	delta-BHC	1.8	U	
58-89-9	gamma-BHC(Lindane)	1.8	U	
76-44-8	Heptachlor	1.8	U	
309-00-2	Aldrin	1.8	U	UT
1024-57-3	Heptachlor epoxide	0.63	JP	
959-98-8	Endosulfan I	1.8	U	
60-57-1	Dieldrin	7.3		J
72-55-9	4,4'-DDE	240		
72-20-8	Endrin	0.42	J	
33213-65-9	Endosulfan II	3.7	U	
72-54-8	4,4'-DDD	3.7	U	
1031-07-8	Endosulfan sulfate	3.7	U	
50-29-3	4,4'-DDT	410 ~~390~~	~~E~~ DC	J
72-43-5	Methoxychlor	18	U	
53494-70-5	Endrin ketone	2.2	JP	
7421-93-4	Endrin aldehyde	3.7	U	
5103-71-9	alpha-Chlordane	0.56	JP	
5103-74-2	gamma-Chlordane	0.49	JP	
8001-35-2	Toxaphene	180	U	
12674-11-2	Aroclor-1016	37	U	
11104-28-2	Aroclor-1221	74	U	
11141-16-5	Aroclor-1232	37	U	
53469-21-9	Aroclor-1242	37	U	
12672-29-6	Aroclor-1248	37	U	
11097-69-1	Aroclor-1254	37	U	
11096-82-5	Aroclor-1260	37	U	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM-15A

Lab Name: QUANTERRA, INC. Contract: -

Lab Code: QESOH Case No.: 99568.00 SAS No.: SDG No.: SBERM-14A

Matrix: (soil/water) SOIL Lab Sample ID: C4E9K102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 011F0101

% Moisture: 12 decanted: (Y/N) N Date Received: 06/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/14/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/21/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.0 Sulfur Cleanup: (Y/N) N

7/16/96 DMN

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	9.5	U	
319-85-7	beta-BHC	9.5	U	
319-86-8	delta-BHC	9.5	U	
58-89-9	gamma-BHC(Lindane)	9.5	U	
76-44-8	Heptachlor	9.5	U	
309-00-2	Aldrin	9.5	U	UJ
1024-57-3	Heptachlor epoxide	9.5	U	
959-98-8	Endosulfan I	9.5	U	
60-57-1	Dieldrin	22		J
72-55-9	4,4'-DDE	440	C	
72-20-8	Endrin	19	U	
33213-65-9	Endosulfan II	19	U	
72-54-8	4,4'-DDD	19	U	
1031-07-8	Endosulfan sulfate	19	U	
50-29-3	4,4'-DDT	760 ~~870~~	~~C~~ DC	J
72-43-5	Methoxychlor	95	U	
53494-70-5	Endrin ketone	3.7	JP	
7421-93-4	Endrin aldehyde	19	U	
5103-71-9	alpha-Chlordane	9.5	U	
5103-74-2	gamma-Chlordane	9.5	U	
8001-35-2	Toxaphene	950	U	
12674-11-2	Aroclor-1016	190	U	
11104-28-2	Aroclor-1221	380	U	
11141-16-5	Aroclor-1232	190	U	
53469-21-9	Aroclor-1242	190	U	
12672-29-6	Aroclor-1248	190	U	
11097-69-1	Aroclor-1254	190	U	
11096-82-5	Aroclor-1260	190	U	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM-16A

Lab Name: QUANTERRA, INC. Contract: -

Lab Code: QESOH Case No.: 99568.00 SAS No.: SDG No.: SBERM-14A

Matrix: (soil/water) SOIL Lab Sample ID: C4E9L102

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 013F0101

% Moisture: 10 decanted: (Y/N) N Date Received: 06/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/14/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/21/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 7.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	7/14/96 DLW
319-84-6	alpha-BHC	9.3	U	
319-85-7	beta-BHC	4.3	J	
319-86-8	delta-BHC	9.3	U	
58-89-9	gamma-BHC(Lindane)	9.3	U	
76-44-8	Heptachlor	9.3	U	
309-00-2	Aldrin	9.3	U	UJ
1024-57-3	Heptachlor epoxide	9.3	U	
959-98-8	Endosulfan I	9.3	U	
60-57-1	Dieldrin	53		J
72-55-9	4,4'-DDE	700	C	
72-20-8	Endrin	0.57	JP	
33213-65-9	Endosulfan II	18	U	
72-54-8	4,4'-DDD	660	PC	
1031-07-8	Endosulfan sulfate	18	U	
50-29-3	4,4'-DDT	870 ~~890~~	~~C~~ DC	J
72-43-5	Methoxychlor	93	U	
53494-70-5	Endrin ketone	1.4	JP	
7421-93-4	Endrin aldehyde	18	U	
5103-71-9	alpha-Chlordane	9.3	U	
5103-74-2	gamma-Chlordane	0.75	JP	
8001-35-2	Toxaphene	930	U	
12674-11-2	Aroclor-1016	180	U	
11104-28-2	Aroclor-1221	370	U	
11141-16-5	Aroclor-1232	180	U	
53469-21-9	Aroclor-1242	180	U	
12672-29-6	Aroclor-1248	180	U	
11097-69-1	Aroclor-1254	180	U	
11096-82-5	Aroclor-1260	180	U	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM-17A

Lab Name: QUANTERRA, INC. Contract: -

Lab Code: QESOH Case No.: 99568.00 SAS No.: SDG No.: SBERM-14A

Matrix: (soil/water) SOIL Lab Sample ID: C4E9M102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 020F0101

% Moisture: 11 decanted: (Y/N) N Date Received: 06/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/14/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/21/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.0 Sulfur Cleanup: (Y/N) N

7/16/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	1.9	U	
319-85-7	beta-BHC	1.9	U	
319-86-8	delta-BHC	1.9	U	
58-89-9	gamma-BHC(Lindane)	1.9	U	
76-44-8	Heptachlor	1.9	U	
309-00-2	Aldrin	1.9	U	UJ
1024-57-3	Heptachlor epoxide	1.9	U	
959-98-8	Endosulfan I	1.9	U	
60-57-1	Dieldrin	4.0		J
72-55-9	4,4'-DDE	140		
72-20-8	Endrin	3.7	U	
33213-65-9	Endosulfan II	3.7	U	
72-54-8	4,4'-DDD	3.7	U	
1031-07-8	Endosulfan sulfate	3.7	U	
50-29-3	4,4'-DDT	180 ~~190~~	D	J
72-43-5	Methoxychlor	19	U	
53494-70-5	Endrin ketone	1.2	JP	
7421-93-4	Endrin aldehyde	3.7	U	
5103-71-9	alpha-Chlordane	1.9	U	
5103-74-2	gamma-Chlordane	1.9	U	
8001-35-2	Toxaphene	190	U	
12674-11-2	Aroclor-1016	37	U	
11104-28-2	Aroclor-1221	75	U	
11141-16-5	Aroclor-1232	37	U	
53469-21-9	Aroclor-1242	37	U	
12672-29-6	Aroclor-1248	37	U	
11097-69-1	Aroclor-1254	37	U	
11096-82-5	Aroclor-1260	37	U	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM-25A

Lab Name: QUANTERRA, INC. Contract: -

Lab Code: QESOH Case No.: 99568.00 SAS No.: SDG No.: SBERM-14A

Matrix: (soil/water) SOIL Lab Sample ID: C4E9N102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 022F0101

% Moisture: 7 decanted: (Y/N) N Date Received: 06/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/14/96

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 06/22/96

Injection Volume: 1.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.5 Sulfur Cleanup: (Y/N) N

7/10/96 DAN

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	9.0	U	
319-85-7	beta-BHC	9.0	U	
319-86-8	delta-BHC	9.0	U	
58-89-9	gamma-BHC (Lindane)	9.0	U	
76-44-8	Heptachlor	9.0	U	
309-00-2	Aldrin	9.0	U	UJ
1024-57-3	Heptachlor epoxide	9.0	U	
959-98-8	Endosulfan I	9.0	U	
60-57-1	Dieldrin	15	JP	J
72-55-9	4,4'-DDE	290		
72-20-8	Endrin	18	U	
33213-65-9	Endosulfan II	18	U	
72-54-8	4,4'-DDD	18	U	
1031-07-8	Endosulfan sulfate	18	U	
50-29-3	4,4'-DDT	650 ~~700~~	~~C~~ DC	J
72-43-5	Methoxychlor	90	U	
53494-70-5	Endrin ketone	1.3	JP	
7421-93-4	Endrin aldehyde	18	U	
5103-71-9	alpha-Chlordane	9.0	U	
5103-74-2	gamma-Chlordane	9.0	U	
8001-35-2	Toxaphene	900	U	
12674-11-2	Aroclor-1016	180	U	
11104-28-2	Aroclor-1221	360	U	
11141-16-5	Aroclor-1232	180	U	
53469-21-9	Aroclor-1242	180	U	
12672-29-6	Aroclor-1248	180	U	
11097-69-1	Aroclor-1254	180	U	
11096-82-5	Aroclor-1260	180	U	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM-26A

Lab Name: QUANTERRA, INC. Contract: -

Lab Code: QESOH Case No.: 99568.00 SAS No.: SDG No.: SBERM-14A

Matrix: (soil/water) SOIL Lab Sample ID: C4E9P102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 024F0101

% Moisture: 11 decanted: (Y/N) N Date Received: 06/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/14/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/22/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.4 Sulfur Cleanup: (Y/N) N

7/16/96 DHR

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	9.3	U	
319-85-7	beta-BHC	9.3	U	
319-86-8	delta-BHC	9.3	U	
58-89-9	gamma-BHC(Lindane)	9.3	U	
76-44-8	Heptachlor	9.3	U	
309-00-2	Aldrin	9.3	U	JJ
1024-57-3	Heptachlor epoxide	9.3	U	
959-98-8	Endosulfan I	9.3	U	
60-57-1	Dieldrin	83		J
72-55-9	4,4'-DDE	760	C	
72-20-8	Endrin	1.0	J	
33213-65-9	Endosulfan II	19	U	
72-54-8	4,4'-DDD	19	U	
1031-07-8	Endosulfan sulfate	19	U	
50-29-3	4,4'-DDT	1000 ~~1000~~	~~C~~ DC	J
72-43-5	Methoxychlor	93	U	
53494-70-5	Endrin ketone	2.7	JP	
7421-93-4	Endrin aldehyde	19	U	
5103-71-9	alpha-Chlordane	9.3	U	
5103-74-2	gamma-Chlordane	9.3	U	
8001-35-2	Toxaphene	930	U	
12674-11-2	Aroclor-1016	190	U	
11104-28-2	Aroclor-1221	370	U	
11141-16-5	Aroclor-1232	190	U	
53469-21-9	Aroclor-1242	190	U	
12672-29-6	Aroclor-1248	190	U	
11097-69-1	Aroclor-1254	190	U	
11096-82-5	Aroclor-1260	190	U	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM-27A

Lab Name: QUANTERRA, INC. Contract: -

Lab Code: QESOH Case No.: 99568.00 SAS No.: SDG No.: SBERM-14A

Matrix: (soil/water) SOIL Lab Sample ID: C4E9Q102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 022F0101

% Moisture: 10 decanted: (Y/N) N Date Received: 06/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/14/96

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 06/25/96

Injection Volume: 1.0 (uL) Dilution Factor: 50.0

GPC Cleanup: (Y/N) N pH: 6.7 Sulfur Cleanup: (Y/N) N

7/16/96 DKW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	93	U	
319-85-7	beta-BHC	93	U	
319-86-8	delta-BHC	93	U	
58-89-9	gamma-BHC(Lindane)	93	U	
76-44-8	Heptachlor	93	U	
309-00-2	Aldrin	93	U	UJ
1024-57-3	Heptachlor epoxide	93	U	
959-98-8	Endosulfan I	93	U	
60-57-1	Dieldrin	1800 ~~46~~	~~JP~~ DU	UJ
72-55-9	4,4'-DDE	610	C	
72-20-8	Endrin	180	U	
33213-65-9	Endosulfan II	180	U	
72-54-8	4,4'-DDD	180	U	
1031-07-8	Endosulfan sulfate	180	U	
50-29-3	4,4'-DDT	8500 ~~8400~~	~~C~~ DC	J
72-43-5	Methoxychlor	930	U	
53494-70-5	Endrin ketone	180	U	
7421-93-4	Endrin aldehyde	180	U	
5103-71-9	alpha-Chlordane	93	U	
5103-74-2	gamma-Chlordane	93	U	
8001-35-2	Toxaphene	9300	U	
12674-11-2	Aroclor-1016	1800	U	
11104-28-2	Aroclor-1221	3700	U	
11141-16-5	Aroclor-1232	1800	U	
53469-21-9	Aroclor-1242	1800	U	
12672-29-6	Aroclor-1248	1800	U	
11097-69-1	Aroclor-1254	1800	U	
11096-82-5	Aroclor-1260	1800	U	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM-28A

Lab Name: QUANTERRA, INC. Contract: -

Lab Code: QESOH Case No.: 99568.00 SAS No.: SDG No.: SBERM-14A

Matrix: (soil/water) SOIL Lab Sample ID: C4E9R102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 032F0101

% Moisture: 10 decanted: (Y/N) N Date Received: 06/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/14/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/22/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.5 Sulfur Cleanup: (Y/N) N

7/16/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	9.2	U	
319-85-7	beta-BHC	9.2	U	
319-86-8	delta-BHC	9.2	U	
58-89-9	gamma-BHC(Lindane)	9.2	U	
76-44-8	Heptachlor	9.2	U	
309-00-2	Aldrin	9.2	U	UJ
1024-57-3	Heptachlor epoxide	9.2	U	
959-98-8	Endosulfan I	9.2	U	
60-57-1	Dieldrin	40		J
72-55-9	4,4'-DDE	670	C	
72-20-8	Endrin	18	U	
33213-65-9	Endosulfan II	18	U	
72-54-8	4,4'-DDD	18	U	
1031-07-8	Endosulfan sulfate	18	U	
50-29-3	4,4'-DDT	1600 ~~1500~~	~~C~~ DC	J
72-43-5	Methoxychlor	92	U	
53494-70-5	Endrin ketone	5.9	J	
7421-93-4	Endrin aldehyde	18	U	
5103-71-9	alpha-Chlordane	9.2	U	
5103-74-2	gamma-Chlordane	9.2	U	
8001-35-2	Toxaphene	920	U	
12674-11-2	Aroclor-1016	180	U	
11104-28-2	Aroclor-1221	370	U	
11141-16-5	Aroclor-1232	180	U	
53469-21-9	Aroclor-1242	180	U	
12672-29-6	Aroclor-1248	180	U	
11097-69-1	Aroclor-1254	180	U	
11096-82-5	Aroclor-1260	180	U	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM-29A

Lab Name: QUANTERRA, INC. Contract: -

Lab Code: QESOH Case No.: 99568.00 SAS No.: SDG No.: SBERM-14A

Matrix: (soil/water) SOIL Lab Sample ID: C4E9T102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 034F0101

% Moisture: 8 decanted: (Y/N) N Date Received: 06/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/14/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/22/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.5 Sulfur Cleanup: (Y/N) N

7/16/96 DMW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	9.1	U	
319-85-7	beta-BHC	9.1	U	
319-86-8	delta-BHC	9.1	U	
58-89-9	gamma-BHC(Lindane)	9.1	U	
76-44-8	Heptachlor	9.1	U	
309-00-2	Aldrin	9.1	U	UJ
1024-57-3	Heptachlor epoxide	9.1	U	
959-98-8	Endosulfan I	9.1	U	
60-57-1	Dieldrin	180		J
72-55-9	4,4'-DDE	1200	C	
72-20-8	Endrin	1.5	J	
33213-65-9	Endosulfan II	18	U	
72-54-8	4,4'-DDD	18	U	
1031-07-8	Endosulfan sulfate	18	U	
50-29-3	4,4'-DDT	2800 ~~2400~~	E DC	J
72-43-5	Methoxychlor	91	U	
53494-70-5	Endrin ketone	5.0	JP	
7421-93-4	Endrin aldehyde	18	U	
5103-71-9	alpha-Chlordane	9.1	U	
5103-74-2	gamma-Chlordane	9.1	U	
8001-35-2	Toxaphene	910	U	
12674-11-2	Aroclor-1016	180	U	
11104-28-2	Aroclor-1221	360	U	
11141-16-5	Aroclor-1232	180	U	
53469-21-9	Aroclor-1242	180	U	
12672-29-6	Aroclor-1248	180	U	
11097-69-1	Aroclor-1254	180	U	
11096-82-5	Aroclor-1260	180	U	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM-30A

Lab Name: QUANTERRA, INC. Contract: -

Lab Code: QESOH Case No.: 99568.00 SAS No.: SDG No.: SBERM-14A

Matrix: (soil/water) SOIL Lab Sample ID: C4E9V102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 036F0101

% Moisture: 15 decanted: (Y/N) N Date Received: 06/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/14/96

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 06/22/96

Injection Volume: 1.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.5 Sulfur Cleanup: (Y/N) N

7/10/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	9.8	U	
319-85-7	beta-BHC	9.8	U	
319-86-8	delta-BHC	9.8	U	
58-89-9	gamma-BHC(Lindane)	9.8	U	
76-44-8	Heptachlor	9.8	U	
309-00-2	Aldrin	9.8	U	UJ
1024-57-3	Heptachlor epoxide	9.8	U	
959-98-8	Endosulfan I	9.8	U	
60-57-1	Dieldrin	67		J
72-55-9	4,4'-DDE	1200	C	
72-20-8	Endrin	0.95	JP	
33213-65-9	Endosulfan II	20	U	
72-54-8	4,4'-DDD	20	U	
1031-07-8	Endosulfan sulfate	20	U	
50-29-3	4,4'-DDT	2100 ~~2000~~	~~C~~ DC	J
72-43-5	Methoxychlor	98	U	
53494-70-5	Endrin ketone	2.1	JP	
7421-93-4	Endrin aldehyde	20	U	
5103-71-9	alpha-Chlordane	9.8	U	
5103-74-2	gamma-Chlordane	9.8	U	
8001-35-2	Toxaphene	980	U	
12674-11-2	Aroclor-1016	200	U	
11104-28-2	Aroclor-1221	390	U	
11141-16-5	Aroclor-1232	200	U	
53469-21-9	Aroclor-1242	200	U	
12672-29-6	Aroclor-1248	200	U	
11097-69-1	Aroclor-1254	200	U	
11096-82-5	Aroclor-1260	200	U	

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM-31A

Lab Name: QUANTERRA, INC. Contract: -

Lab Code: QESOH Case No.: 99568.00 SAS No.: SDG No.: SBERM-14A

Matrix: (soil/water) SOIL Lab Sample ID: C4E9W102

Sample wt/vol: 29.9 (g/mL) G Lab File ID: 038F0101

% Moisture: 10 decanted: (Y/N) N Date Received: 06/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 06/14/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 06/22/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.7 Sulfur Cleanup: (Y/N) N

7/16/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	9.3	U	
319-85-7	beta-BHC	9.3	U	
319-86-8	delta-BHC	9.3	U	
58-89-9	gamma-BHC(Lindane)	9.3	U	
76-44-8	Heptachlor	9.3	U	
309-00-2	Aldrin	9.3	U	UJ
1024-57-3	Heptachlor epoxide	5.3	J	
959-98-8	Endosulfan I	9.3	U	
60-57-1	Dieldrin	19		J
72-55-9	4,4'-DDE	290		
72-20-8	Endrin	19	U	
33213-65-9	Endosulfan II	19	U	
72-54-8	4,4'-DDD	170	P	
1031-07-8	Endosulfan sulfate	19	U	
50-29-3	4,4'-DDT	910 ~~910~~ ~~e~~ DC		J
72-43-5	Methoxychlor	93	U	
53494-70-5	Endrin ketone	19	U	
7421-93-4	Endrin aldehyde	19	U	
5103-71-9	alpha-Chlordane	9.3	U	
5103-74-2	gamma-Chlordane	2.6	JP	
8001-35-2	Toxaphene	930	U	
12674-11-2	Aroclor-1016	190	U	
11104-28-2	Aroclor-1221	370	U	
11141-16-5	Aroclor-1232	190	U	
53469-21-9	Aroclor-1242	190	U	
12672-29-6	Aroclor-1248	190	U	
11097-69-1	Aroclor-1254	190	U	
11096-82-5	Aroclor-1260	190	U	

ENVIRONMENTAL DATA SERVICES

DATA VALIDATION · TECHNICAL WRITING · CONSULTING · DATA INTERPRETATION

DATA VALIDATION REPORT

prepared for

PPG Industries Inc.

(MOORESTOWN PULVERIZING SITE)

by

ENVIRONMENTAL DATA SERVICES, LTD.

August 15, 1996

1007 MOUNT ROYAL BOULEVARD • PITTSBURGH, PA 15223
412-486-9121 • FAX 412-486-3889

200319

Data Assessment Narrative

Prepared for PPG Industies Inc.
by Environmental Data Services, Ltd.

200320

SITE: PPG - Moorestown, NJ

LABORATORY: Quanterra

SAMPLE DELIVERY GROUP: SBERM-33A

This sample delivery group consists of the following soil samples:

SBERM-33A	SBERM-34A	SBERM-35A
SBERM-36A	SBERM-37A	SBERM-38A
SBERM-39A	SBERM-40A	SBERM-41A

Samples described above were analyzed via CLP 3/90 Protocol to determine the concentrations of the following pesticides :

Aldrin
Dieldrin
4,4' -DDT

Project specific QA objectives, as well as the USEPA Region II data validation SOP specified in the project QAPP (SOP No. HW-6 Rev. 8, 1/92)have been considered during validation of this data and its usability. All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence of the presence of the material), "R" (unusable), or "JN" (presumptive evidence of the presence of a material at an estimated value). All data qualification related to this group of samples is detailed on the attached sheets.

Major Data Quality Issues

Pesticide Identification- One sample in SDG -SBERM-33A had an aldrin result qualified as unusable due to extremely large percent deviation values observed between positive results obtained on both analytical columns.

Minor Data Quality Issues

Pesticide Identification - Several samples in SDG - SBERM -33A had results for various pesticides qualified as J, JN or reported at a higher CRQL due to observed percent deviations between the results obtained on both analytical columns of greater than 25.

Calibration- One initial calibration had an observed percent relative standard deviation value for 4,4'-DDT outside validation guidelines. Associated sample results for the effected compound have been qualified as estimated.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable due to significant QC problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort.

Lastly, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Diane Waldschmidt
Environmental Scientist/Director

Date: 8/15/96

HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

All samples associated with this SDG were extracted within allowable holding time.

BLANK CONTAMINATION

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for the common contaminants), the analytes are qualified as non-detects, "U".

Method Blank Contamination

A method blank was prepared and analyzed by the laboratory at the proper frequency. Upon examination none of the pesticide compounds examined for this project, were found to be present in the method blank.

Please note, a significant response (approximately 70 ppb) was observed for aldrin on the RTX-5 column only. Aldrin was not confirmed to be present on the RTX-1701 column, therefore this observation is not considered blank contamination. The apparent interference peak did contribute to difficulties during dual column comparison when aldrin was present in environmental samples. See the compound identification section of this report.

Field or Rinse Blank Contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

No field rinsate blank appears to have been collected in association with the samples comprising this sample delivery group. Without field blank data we cannot assess the potential for sample cross contamination during field sampling operations.

CALIBRATION

Percent Relative Standard Deviation (%RSD) and Percent Difference (%D)

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

All calibrations related to data reported for this SDG met the criteria described above, with the exception of the initial calibration performed on 8/6/96. During the calibration mentioned 4,4-DDT failed to meet validation criteria (24.2% RSD) on the RTX 1701 column. The following sample analyses were associated with the non-compliant calibration :

SBERM-34A	SBERM-34ADL

The 4,4'-DDT result reported for sample SBERM-34A has been qualified as estimated due to the anomalies during the calibration discussed above.

SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC)

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

Surrogate standards observed in all samples fell within the established retention time windows and acceptable recovery ranges with the exception of samples diluted to a point where surrogate standards were considered "diluted out".

COMPOUND IDENTIFICATION

Pesticide Fraction

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be $\leq$25%.

Retention Time

Upon examination of positively identified contaminants, all instrument responses fell well within the retention time windows established during the appropriate initial calibration for both analytical columns.

Please note results for aldrin, dieldrin, and 4,4' -DDT only were evaluated for all samples.

Percent Difference

Several samples associated with this SDG had several pesticide results that required one of the following data qualifiers due to percent deviations between results on the two analytical columns exceeding 25.

J	=	Estimated
JN	=	Presumptive evidence of presence at an estimated concentration.
R	=	Unusable

When possible, rather than qualifying data as unusable the validator utilized the elevated CRQL from the sample analysis at a secondary dilution for the effected compound.

Dieldrin	%D	Qualifier added
SBERM -41A	37.5	J

Aldrin	%D	Qualifier added
SBERM -33A	999	Reported at an elevated CRQL
SBERM -37A	999	Reported at an elevated CRQL
SBERM -39A	999	Reported at an elevated CRQL
SBERM -40A	999	Reported at an elevated CRQL
SBERM -38A	999	R

High percent deviation values for aldrin are likely due to an interference peak present at the aldrin retention time on the RTX-5 column only. Nearly all sample extract chromatograms were effected including the method blank. Data qualification was necessary based on USEPA Region II guidelines, however the source of the data quality difficulties appears to be laboratory contamination rather than sample matrix.

MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data.

Matrix spike and matrix spike duplicate analyses were performed on sample SBERM-33A. All MS/MSD recoveries were within acceptable limits with the following exceptions :

	4,4' -DDT %R
MS	1683%
MSD	1927%

Extremely high DDT matrix spike recoveries were likely due to the relatively high concentration of DDT inherent to the sample itself rather than matrix interference.

No significant matrix interferences are apparent.

SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

Overall the laboratory did a satisfactory job in meeting the requirements of the CLP 3/90 SOW for Pest/PCB's.

The following observations are noteworthy:

Sample Extract Cleanup - Sample extracts were not cleaned via GPC or florisil as required by protocol. The laboratory did not want to risk gross contamination (carryover) of samples. The data was not adversely impacted.

This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used:

SBERM-33A	SBERM-34A	SBERM-35A
SBERM-36A	SBERM-37A	SBERM-38A
SBERM-39A	SBERM-40A	SBERM-41A

Validated Data Tables

VALIDATED DATA TABLES
FOR
PPG MOORESTOWN

ANALYTE	UNITS	SBERM-33A	LQ	VQ	SBERM-34A	LQ	VQ	SBERM-35A	LQ	VQ
Aldrin	ug/kg	220	UD		9.9	U		3.8	U	
Dieldrin	ug/kg	51			83			12		
4,4' -DDT	ug/kg	4600	DC		1300	DC	J	780	DC	

ANALYTE	UNITS	SBERM-36A	LQ	VQ	SBERM-37A	LQ	VQ	SBERM-38A	LQ	VQ
Aldrin	ug/kg	1.9	U		98	UD		0.41	JP	R
Dieldrin	ug/kg	17			26			4.8		
4,4' -DDT	ug/kg	570	DC		1200	DC		210	D	

ANALYTE	UNITS	SBERM-39A	LQ	VQ	SBERM-40A	LQ	VQ	SBERM-41A	LQ	VQ
Aldrin	ug/kg	100	U		100	U		3.8	U	
Dieldrin	ug/kg	49			60			16	P	J
4,4' -DDT	ug/kg	1200	DC		710	DC		780	DC	

LQ = Laboratory Qualifier
VQ = Validation Qualifier

Laboratory Data with Qualifiers Added

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-ERM 33A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 995.68.00 SAS No.: SDG No.: SB-ERM33A

Matrix: (soil/water) SOIL Lab Sample ID: C52XW102

Sample wt/vol: 29.9 (g/mL) G Lab File ID: 023F0101

% Moisture: 23 decanted: (Y/N) N Date Received: 08/01/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/01/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/02/96

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: 6.3 Sulfur Cleanup: (Y/N) N

8/15/96 DMJ

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
309-00-2	Aldrin	220	~~1.6~~	~~JP~~ UD
60-57-1	Dieldrin		51	
50-29-3	4,4'-DDT	4600	~~4000~~	~~C~~ DC

200330

FORM I PEST 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-ERM 34A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 995.68.00 SAS No.: SDG No.: SB-ERM33A

Matrix: (soil/water) SOIL Lab Sample ID: C5300102

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 007F0101

% Moisture: 16 decanted: (Y/N) N Date Received: 08/01/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/01/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/06/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.5 Sulfur Cleanup: (Y/N) N

8/15/96 DW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	9.9	U
60-57-1	Dieldrin	83	
50-29-3	4,4'-DDT	1300 ~~1300~~ ~~CP~~ DC	J

FORM I PEST 3/90

200331 000023

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-ERM 35A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 995.68.00 SAS No.: SDG No.: SB-ERM33A

Matrix: (soil/water) SOIL Lab Sample ID: C52XN102

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 027F0101

% Moisture: 12 decanted: (Y/N) N Date Received: 08/01/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/01/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/02/96

Injection Volume: 1.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: 5.0 Sulfur Cleanup: (Y/N) N

8/15/96 DKW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	3.8	U
60-57-1	Dieldrin	12	
50-29-3	4,4'-DDT	770 ~~630~~	~~C~~ DC

FORM I PEST 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-ERM 36A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 995.68.00 SAS No.: SDG No.: SB-ERM33A

Matrix: (soil/water) SOIL Lab Sample ID: C52XT102

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 029F0101

% Moisture: 12 decanted: (Y/N) N Date Received: 08/01/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/01/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/02/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.8 Sulfur Cleanup: (Y/N) N

8/15/96 DLH

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	1.9	U
60-57-1	Dieldrin	17	
50-29-3	4,4'-DDT	570 ~~540~~ ~~C~~ DC.	

FORM I PEST 3/90

200333 000049

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-ERM 37A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 995.68.00 SAS No.: SDG No.: SB-ERM33A

Matrix: (soil/water) SOIL Lab Sample ID: C52XV102

Sample wt/vol: 29.9 (g/mL) G Lab File ID: 037F0101

% Moisture: 15 decanted: (Y/N) N Date Received: 08/01/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/01/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/02/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 5.6 Sulfur Cleanup: (Y/N) N

8/15/96 DKK

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	~~0.68~~ 98	~~JP~~ UD
60-57-1	Dieldrin	26	
50-29-3	4,4'-DDT	~~1200~~ 1200	C DC

FORM I PEST 3/90

200334 000062

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-ERM 38A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 995.68.00 SAS No.: SDG No.: SB-ERM33A

Matrix: (soil/water) SOIL Lab Sample ID: C52XR102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 039F0101

% Moisture: 13 decanted: (Y/N) N Date Received: 08/01/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/01/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/03/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 5.4 Sulfur Cleanup: (Y/N) N

5/13/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	0.41 ~~0.41~~	JP ~~JP~~
60-57-1	Dieldrin	4.8	
50-29-3	4,4'-DDT	210 ~~210~~	D

R

FORM I PEST 3/90

200335 000077

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-ERM 39A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 995.68.00 SAS No.: SDG No.: SB-ERM33A

Matrix: (soil/water) SOIL Lab Sample ID: C52XQ102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 041F0101

% Moisture: 18 decanted: (Y/N) N Date Received: 08/01/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/01/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/03/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 5.6 Sulfur Cleanup: (Y/N) N

4/15/96 DLH!

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	100 U ~~0.66~~	~~JP~~
60-57-1	Dieldrin	49	
50-29-3	4,4'-DDT	1300 ~~1200~~	~~C~~ DC

FORM I PEST 3/90

200336

000090

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-ERM 40A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 995.68.00 SAS No.: SDG No.: SB-ERM33A

Matrix: (soil/water) SOIL Lab Sample ID: C52XJ102

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 043F0101

% Moisture: 19 decanted: (Y/N) N Date Received: 08/01/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/01/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/03/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 7.1 Sulfur Cleanup: (Y/N) N

8/15/96 DKW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	100 ~~1.2~~	~~JP~~ U
60-57-1	Dieldrin	60	
50-29-3	4,4'-DDT	710 ~~810~~	~~C~~ DC

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SB-ERM 41A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 995.68.00 SAS No.: SDG No.: SB-ERM33A

Matrix: (soil/water) SOIL Lab Sample ID: C52XM102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 051F0101

% Moisture: 14 decanted: (Y/N) N Date Received: 08/01/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/01/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/03/96

Injection Volume: 1.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: 5.4 Sulfur Cleanup: (Y/N) N

8/15/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	3.8	U
60-57-1	Dieldrin	16	P
50-29-3	4,4'-DDT	780 ~~770~~	~~CP~~ DC J

FORM I PEST 3/90

200338 000120

ENVIRONMENTAL DATA SERVICES

DATA VALIDATION · TECHNICAL WRITING · CONSULTING · DATA INTERPRETATION

DATA VALIDATION REPORT

Prepared By
Environmental Data Services

For
PPG Industries, Inc.
(MOORESTOWN PULVERIZING SITE)

October 7, 1996

1007 MOUNT ROYAL BOULEVARD • PITTSBURGH, PA 15223
412-486-9121 • FAX 412-486-3889

200339

Data Assessment Narratives

PESTICIDE DATA ASSESSMENT NARRATIVE

SITE: PPG - Moorestown, NJ

LABORATORY: Quanterra

SAMPLE DELIVERY GROUP: SBERM-42A

This sample delivery group consists of the following soil samples:

SBERM- 42A	SBERM- 43A	SBERM- 44A	SBERM- 45A	SBERM- 46A	SBERM- 47A
SBERM- 48A	SBERM- 49A	SBERM- 50A	SBERM- 51A	SBERM- 52A	SBERM- 53A

Samples described above were analyzed via CLP 3/90 Protocol to determine the concentrations of the following pesticides :

Aldrin
Dieldrin
4,4' -DDT

Project specific QA objectives, as well as the USEPA Region II data validation SOP specified in the project QAPP (SOP No. HW-6 Rev. 8, 1/92)have been considered during validation of this data and its usability. Please note, although data for analytes other than those listed above were reported by the laboratory, validation was performed for aldrin, dieldrin and 4,4' -DDT results only.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence of the presence of the material), "R" (unusable), or "JN" (presumptive evidence of the presence of a material at an estimated value). All data qualification related to this group of samples is detailed on the attached sheets.

Major Data Quality Issues

None.

Minor Data Quality Issues

Pesticide Identification - Several samples in SDG - SBERM -42A had various results qualified as J,JN or reported at a higher CRQL due to observed percent deviations between the results obtained on both analytical columns of greater than 25.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable due to significant QC problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort.

Lastly, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Diane Waldschmidt
Environmental Scientist/Director

Date: 10/7/96

HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

All samples associated with this SDG were extracted and analyzed within allowable holding time.

BLANK CONTAMINATION

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for the common contaminants), the analytes are qualified as non-detects, "U".

Method Blank Contamination

A method blank was prepared and analyzed by the laboratory at the proper frequency. Upon examination none of the three pesticides examined here were found to be present in the method blank at levels greater than the reporting limit.

Field or Rinse Blank Contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

No field rinsate blank appears to have been collected in association with the samples comprising this sample delivery group. Without field blank data we cannot assess the potential for sample cross contamination during field sampling operations.

CALIBRATION

Percent Relative Standard Deviation (%RSD) and Percent Difference (%D)

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated

positive results "J" and non-detects "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

All calibrations related to data reported for this SDG met the criteria described above. No data qualification was necessary.

SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC)

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

Surrogate standards observed in samples fell within the established retention time windows and acceptable recovery ranges with the exception of samples diluted to a point where no surrogate was detected.

COMPOUND IDENTIFICATION

Pesticide Fraction

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be $\leq 25\%$.

Retention Time

Upon examination of positively identified contaminants, all instrument responses fell well within the retention time windows established during the appropriate initial calibration for both analytical columns.

Please note results for aldrin, dieldrin, and 4,4' -DDT only were evaluated.

Percent Difference

Two samples associated with this SDG had dieldrin results that required one of the following data qualifiers due to percent deviations between results on the two analytical columns exceeding 25.

J	=	Estimated
JN	=	Presumptive evidence of presence at an estimated concentration.
R	=	Un-useable

When possible, rather than qualifying data as un-useable the validator utilized the elevated CRQL from the sample analysis at a secondary dilution for the effected compound.

Dieldrin	%D	Qualifier added
SBERM -46A	27.9	J
SBERM -49A	35.8	J
SBERM -50A	41.2	J

Aldrin	%D	Qualifier added
SBERM -45A	42.8	J
SBERM -50A	999	Reported at an elevated CRQL

4,4' -DDT	%D	Qualifier added
SBERM -48A	37.5	J
SBERM -49A	63.9	JN
SBERM -51A	42.8	J
SBERM -52A	28	J
SBERM -42A	41.3	J
SBERM -44A	29.8	J
SBERM -53A	33.1	J

MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data.

Matrix spike and matrix spike duplicate analyses were performed on sample SBERM-42A. All pesticides of interest were added to the sample in the matrix spike solution. Results of the MS/MSD determinations were not favorable. Observed recoveries are listed below :

Analyte	MS%R	MSD%R	%RPD
aldrin	149	149	0
dieldrin	89	184	70
4,4'-DDT	(-26)	253	246

Poor DDT matrix spike recoveries were likely due to the relatively high concentration of DDT inherent to the sample itself rather than matrix interference. Poor aldrin and dieldrin results may have been due to a non-homogeneous sample.

Generally, matrix related interferences appear to be present. It cannot be determined as to whether the interference is chemical in nature or physical (non-homogeneous matrix). No data qualification has been performed based on this observation.

SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

Overall the laboratory did a satisfactory job in meeting the requirements of the CLP 3/90 SOW for Pest/PCB's.

The following observations are noteworthy:

Sample Extract Cleanup - Sample extracts were not cleaned via GPC or florisil as required by protocol. The laboratory did not want to risk gross contamination (carryover) of samples. The data was not adversely impacted.

This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used:

SBERM- 42A	SBERM- 43A	SBERM- 44A	SBERM- 45A	SBERM- 46A	SBERM- 47A
SBERM- 48A	SBERM- 49A	SBERM- 50A	SBERM- 51A	SBERM- 52A	SBERM- 53A

Validated Data Tables

200347

VALIDATED DATA TABLES
FOR
PPG MOORESTOWN

ANALYTE	UNITS	SBERM-42A	LQ	VQ	SBERM-43A	LQ	VQ	SBERM-44A	LQ	VQ
Aldrin	ug/kg	9.4	U		9.0	U		3.6	U	
Dieldrin	ug/kg	28			22			90		
4,4' -DDT	ug/kg	92	P	J	190		J	570	DCP	J

ANALYTE	UNITS	SBERM-45A	LQ	VQ	SBERM-46A	LQ	VQ	SBERM-47A	LQ	VQ
Aldrin	ug/kg	9.8	JP	J	3.7	U		3.8	U	
Dieldrin	ug/kg	4700	DC		43	P	J	65		
4,4' -DDT	ug/kg	13000	DC		710	DX		570	DC	

ANALYTE	UNITS	SBERM-48A	LQ	VQ	SBERM-49A	LQ	VQ	SBERM-50A	LQ	VQ
Aldrin	ug/kg	9.3	U		3.6	U		91	UD	
Dieldrin	ug/kg	72			8.1	P	J	170	P	J
4,4' -DDT	ug/kg	1600	DCP	J	61	P	JN	1700	DC	

LQ = Laboratory Qualifier
VQ = Validation Qualifier

200348

VALIDATED DATA TABLES
FOR
PPG MOORESTOWN

ANALYTE	UNITS	SBERM-51A	LQ	VQ	SBERM-52A	LQ	VQ	SBERM-53A	LQ	VQ
Aldrin	ug/kg	920	U		1.8	U		9.2	U	
Dieldrin	ug/kg	9000	C		7.0			3.9	J	
4,4' -DDT	ug/kg	77000	DCP	J	250	DP	J	150	P	J

LQ = Laboratory Qualifier
VQ = Validation Qualifier

Laboratory Data with Qualifiers Added

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM45A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 99568 SAS No.: SDG No.: SB-ERM42A

Matrix: (soil/water) SOIL Lab Sample ID: C5PQ8102

Sample wt/vol: 29.9 (g/mL) G Lab File ID: 042F0101

% Moisture: 11 decanted: (Y/N) N Date Received: 09/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/15/96

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 09/17/96

Injection Volume: 1.0 (uL) Dilution Factor: 50.0

GPC Cleanup: (Y/N) N pH: 7.3 Sulfur Cleanup: (Y/N) N

10/2/96 DHM

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
309-00-2	Aldrin		9.8	JP
60-57-1	Dieldrin	4700	~~5000~~	~~C~~ DC
50-29-3	4,4'-DDT	13000	~~12000~~	~~CP~~ DC

J

FORM I PEST 3/90

200351 0008

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM46A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 99568 SAS No.: SDG No.: SB-ERM42A

Matrix: (soil/water) SOIL Lab Sample ID: C5PQ9102

Sample wt/vol: 29.9 (g/mL) G Lab File ID: 033F0101

% Moisture: 9 decanted: (Y/N) N Date Received: 09/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/15/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 09/21/96

Injection Volume: 1.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: 6.8 Sulfur Cleanup: (Y/N) N

10/2/96 DLC

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	3.7	U
60-57-1	Dieldrin	43	P
50-29-3	4,4'-DDT	7/0 ~~700~~	~~X~~ DX

J

FORM I PEST 3/90

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM47A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 99568 SAS No.: SDG No.: SB-ERM42A

Matrix: (soil/water) SOIL Lab Sample ID: C5PQA102

Sample wt/vol: 29.8 (g/mL) G Lab File ID: 024F0101

% Moisture: 12 decanted: (Y/N) N Date Received: 09/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/15/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 09/17/96

Injection Volume: 1.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

10/2/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	3.8	U
60-57-1	Dieldrin	65	
50-29-3	4,4'-DDT	570 ~~530~~	~~C~~ DC

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM48A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 99568 SAS No.: SDG No.: SB-ERM42A

Matrix: (soil/water) SOIL Lab Sample ID: C5PQC102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 051F0101

% Moisture: 11 decanted: (Y/N) N Date Received: 09/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/15/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 09/18/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.7 Sulfur Cleanup: (Y/N) N

10/2/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	9.3	U
60-57-1	Dieldrin	72	
50-29-3	4,4'-DDT	1600 ~~1500~~	~~CP~~ DKP J

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM49A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 99568 SAS No.: SDG No.: SB-ERM42A

Matrix: (soil/water) SOIL Lab Sample ID: C5PQD102

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 052F0101

% Moisture: 8 decanted: (Y/N) N Date Received: 09/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/15/96

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 09/18/96

Injection Volume: 1.0 (uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: 8.1 Sulfur Cleanup: (Y/N) N

10/2/96 DAW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
309-00-2	Aldrin	3.6	U	
60-57-1	Dieldrin	8.1	P	J
50-29-3	4,4'-DDT	61	P	JN

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM50A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 99568 SAS No.: SDG No.: SB-ERM42A

Matrix: (soil/water) SOIL Lab Sample ID: C5PQE102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 036F0101

% Moisture: 9 decanted: (Y/N) N Date Received: 09/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/15/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 09/17/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 7.6 Sulfur Cleanup: (Y/N) N

10/2/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	91 ~~0.97~~	~~JP~~ UD
60-57-1	Dieldrin	170	P
50-29-3	4,4'-DDT	1700 ~~1700~~	~~C~~ DC

J

FORM I PEST 3/90

200356 0060

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM51A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 99568 SAS No.: SDG No.: SB-ERM42A

Matrix: (soil/water) SOIL Lab Sample ID: C5PQF102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 068F0101

% Moisture: 9 decanted: (Y/N) N Date Received: 09/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/15/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 09/18/96

Injection Volume: 1.0(uL) Dilution Factor: 500.0

GPC Cleanup: (Y/N) N pH: 6.6 Sulfur Cleanup: (Y/N) N

10/2/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	920	U
60-57-1	Dieldrin	9000	C.
50-29-3	4,4'-DDT	77000 ~~84000~~	~~CP~~ DLP J

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM52A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 99568 SAS No.: SDG No.: SB-ERM42A

Matrix: (soil/water) SOIL Lab Sample ID: C5PQG102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 056F0101

% Moisture: 9 decanted: (Y/N) N Date Received: 09/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/15/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 09/18/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 6.5 Sulfur Cleanup: (Y/N) N

10/2/96 DRW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
309-00-2	Aldrin		1.8	U
60-57-1	Dieldrin		7.0	
50-29-3	4,4'-DDT	250	~~250~~	~~P~~ DP J

FORM I PEST 3/90

200358 0096

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM53A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 99568 SAS No.: SDG No.: SB-ERM42A

Matrix: (soil/water) SOIL Lab Sample ID: C5PR2102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 063F0101

% Moisture: 10 decanted: (Y/N) N Date Received: 09/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/15/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 09/18/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.3 Sulfur Cleanup: (Y/N) N

10/2/96 DHW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
309-00-2	Aldrin	9.2	U	
60-57-1	Dieldrin	3.9	J	
50-29-3	4,4'-DDT	150	P	J

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM42A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 99568 SAS No.: SDG No.: SB-ERM42A

Matrix: (soil/water) SOIL Lab Sample ID: C5PQ4102

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 064F0101

% Moisture: 11 decanted: (Y/N) N Date Received: 09/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/15/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 09/18/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 5.9 Sulfur Cleanup: (Y/N) N

10/2/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	9.4	U
60-57-1	Dieldrin	28	
50-29-3	4,4'-DDT	92	P

J

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM43A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 99568 SAS No.: SDG No.: SB-ERM42A

Matrix: (soil/water) SOIL Lab Sample ID: C5PQ5102

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 038F0101

% Moisture: 8 decanted: (Y/N) N Date Received: 09/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/15/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 09/17/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.5 Sulfur Cleanup: (Y/N) N

10/2/96 DKW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	9.0	U
60-57-1	Dieldrin	22	
50-29-3	4,4'-DDT	190	

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

SBERM44A

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: 99568 SAS No.: SDG No.: SB-ERM42A

Matrix: (soil/water) SOIL Lab Sample ID: C5PQ6102

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 040F0101

% Moisture: 8 decanted: (Y/N) N Date Received: 09/13/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/15/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 09/17/96

Injection Volume: 1.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: 7.1 Sulfur Cleanup: (Y/N) N

10/2/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
309-00-2	Aldrin	3.6	U
60-57-1	Dieldrin	90	
50-29-3	4,4'-DDT	570 ~~530~~	~~CP~~ DCP J

ATTACHMENT B

COMPLIANCE AVERAGING (newsletter article on pg. 6)

By: Brian J. Sogorka, Bureau of Environmental Evaluation and Risk Assessment

The average contaminant concentration in an area of concern may be used to determine compliance with remediation standards or the Soil Cleanup Criteria rather than the contaminant concentration of individual samples. This approach is called "compliance averaging." An article describing the department's policies on compliance averaging appeared in the November 1993 Site Remediation News. The department's policy on the use of the multiplication factors has been modified (see item 4d below) and new policies have been added (see items 5, 6 and 7 below). The department's current requirements for using compliance averaging are described below.

To minimize the impact of the new guidance described in 4d below on sites currently undergoing remediation, this policy will not be effective until July 1, 1995, except as follows. Remedial action workplans approved before the effective date need not comply with the new guidance, subject to case by case review by the department. However, remediation, including sampling or cleanup activities, conducted prior to the effective date of the guidance without remedial action workplan approval will be evaluated by the department for substantial compliance with the new guidance. Any questions regarding implementation of the department's guidance should be directed to your Case Manager.

1. Compliance averaging can only be used after a remedial investigation has been completed which fully delineates the nature and extent of the contamination present. See N.J.A.C. 7:26E, the Technical Requirements for Site Remediation (Technical Rules), Subchapter 4 for the requirements of a remedial investigation.

   It is not appropriate to use compliance averaging based upon the information obtained in a site investigation. The objective of a site investigation is to determine if contamination is present above any applicable remediation standards or Soil Cleanup Criteria. Sample locations used during the site investigation must be biased to the suspected location of greatest contamination and therefore, results cannot be averaged. If such biased samples are contaminated above any applicable remediation standards or Soil Cleanup Criteria, then contaminant delineation in a remedial investigation is required.

2. The Technical Rules, at N.J.A.C. 7:26E-4.9(c)3i, specify certain requirements for averaging data:

   a. The arithmetic mean must be used to calculate the average contaminant concentration;

   b. One-half of the method detection limit for non-detectable results from samples which have not been diluted must be used to calculate the average contaminant concentration. Any estimated values (also known as "J" values) must be used "as reported" to calculate the average contaminant concentration;

   c. Non-detectable results for samples which have been diluted may not be used to calculate the average contaminant concentration;

   d. The requirement at 4.9(c)3i(5) excludes from compliance averaging any samples from a "clean" buffer zone identified around a contaminated area. A suspected area of concern is often reduced or expanded based on remedial investigation delineation sampling and only samples which lie within the modified area of concern (excluding clean zones) can be utilized for compliance averaging (see Figure 1);

e. The requirement at 4.9(c)3i(5) also specifies that samples from different depth intervals may not be averaged together to determine compliance. However, under certain circumstances it may be appropriate to average data for two or more vertical sample increments. For example, if only the "Impact to Ground Water" Soil Cleanup Criteria are driving the cleanup, it may be appropriate, based on site specific conditions, to average data for two or more vertical sample increments. If a "direct contact" Soil Cleanup Criterion is driving the cleanup but the soil is unlikely to be disturbed (for example, beneath a building or greater than ten feet deep), it may also be appropriate to average data for two or more vertical sample increments. Such requests require a variance decision pursuant to N.J.A.C. 7:26E-1.6(d).

3. Samples exceeding the 10,000 ppm total organic limit or the 1,000 ppm total volatile organic limit cannot be averaged for compliance because these samples represent "gross" contaminant levels and, therefore, no samples may exceed these limits.

4. There is a limit on the maximum allowable concentration for individual samples when compliance averaging through the application of a multiplication factor which is applied to the Soil Cleanup Criterion or health based criterion, whichever is lower (see item 4d below for more details). The multiplication factors vary depending on the specific Soil Cleanup Criterion. No single sample can exceed the applicable Soil Cleanup Criteria for a specific contaminant as follows:

   a. If the Soil Cleanup Criterion is 10 ppm or less, then individual soil samples cannot exceed the Soil Cleanup Criterion by more than a factor of 10 or 50 ppm (ceiling level), whichever is less;

   b. If the applicable Soil Cleanup Criterion is greater than 10 ppm but less than or equal to 100 ppm, then individual soil samples cannot exceed the Soil Cleanup Criterion by more than a factor of 5 or 200 ppm (ceiling level), whichever is less;

   c. If the applicable Soil Cleanup Criterion is greater than 100 ppm, then individual soil samples cannot exceed the Soil Cleanup Criterion by more than a factor of 2.

   d. The department's guidance, as described in the November 1993 Site Remediation News, was to apply the multiplication factors to the Soil Cleanup Criteria. However, the department's current guidance is to apply the factors to health based criteria, not Soil Cleanup Criteria which are based on natural background or practical quantitation levels (PQLs). The department believes that applying the multiplication factors to health-based criteria is more consistent with the intent of the factors, that is, to limit exposure to high concentrations of the contaminant. This change in guidance has the following implications:

      1) Elimination of the option to average for arsenic and thallium:

Please see the original Site Remediation Newsletter to view the "Compliance Averaging" diagram.

The 20 ppm Soil Cleanup Criterion for arsenic is based on natural background which is already 50 times higher than the health based number for arsenic (0.4 ppm). Therefore, allowing individual samples to exceed the Soil Cleanup Criterion would not be appropriate unless a site specific remediation standard was developed.

Exceedances of the 20 ppm arsenic criterion due to natural background conditions would not require cleanup but would require a site

specific remediation standard to document that local natural background was greater than 20 ppm.

The 2 ppm Soil Cleanup Criterion for thallium is based on a PQL but the health based number is zero. Therefore, averaging is not appropriate. Exceedances of the 2 ppm thallium criterion would require a site specific remediation standard.

2) More stringent compliance criteria for benzo(a)pyrene and dibenz(a,h)anthracene:

The 0.66 ppm Soil Cleanup Criteria for these compounds are based on a PQL which is approximately 7 times higher than the health based number (0.09 ppm). Applying the 10x factor to 0.09 ppm means that, when averaging is applied, no sample may exceed 0.9 ppm.

3) More stringent compliance criteria for beryllium:

The 1 ppm Soil Cleanup Criterion for beryllium is based on a PQL which is 5 times higher than the health based number (0.2 ppm). Applying the 10x factor to 0.2 ppm means that, when averaging is applied, no sample may exceed 2 ppm.

4) Other contaminants affected by this policy are bis(2-chloroethyl)ether, hexachlorobenzene, and N-nitrosodi-n-propylamine. As these contaminants are not commonly encountered in site remediation, the department should be contacted on a case specific basis to address any compliance averaging issues.

5. The Soil Cleanup Criteria for PCBs are based on the total PCB concentration of the sample. As there is no standard laboratory protocol for reporting and averaging total PCBs, the department uses the following approach:

   To calculate total PCBs for an individual sample, add together any "hits" for the individual Arochlors. If there are no "hits", report the highest method detection limit as the total PCB method detection limit. When averaging total PCB data for two or more samples, first calculate total PCBs for each sample as above, then apply the applicable averaging requirements described in this article.

6. The department has found that strict adherence to the Soil Cleanup Criteria is sometimes overly conservative for small areas of moderately contaminated soil. In general, the smaller the area of contamination, the less likely it is that there will be significant exposure to the contaminants. In addition, if the contamination is at depth in the soil column (two feet below ground surface or deeper), the potential for exposure is even further reduced. It is usually not possible to use compliance averaging for such isolated areas of contamination because it is not permissible to average clean zone samples with the contaminated area samples.

   Therefore, the following approach may be used if, after completion of a remedial investigation, contaminated soils at an area of concern are not in compliance with a Soil Cleanup Criterion after averaging, but the data indicate that there is only a de minimis amount of contaminated soil. The department will consider "no further action" proposals without environmental restrictions if all the following criteria are met:

   a. Contaminant levels are "moderate"; that is, below the multiplication factor limits or ceiling levels, and below the 10,000 ppm total organic limit and the 1,000 ppm total volatile organic limit;

   b. Since the multiplication factor limits are applied to health-based numbers, the restrictions applicable to averaging also apply to de minimis exemptions. Therefore, the de minimis exemption cannot be

applied to arsenic or thallium contamination;

c. Sample data document that there is only a de minimis amount of contaminated soil remaining in the area of concern. In general, a de minimis area of contaminated soil is considered to be a six inch layer of soil over a ten foot radius. In addition, only contaminated soil at two or more feet below ground surface will be considered for this exemption. Considering the depth and the limited areal extent of the contaminants, direct soil exposure is expected to be relatively infrequent.

   It may sometimes be acceptable to apply the de minimis exemption to larger areas as well, but this should be reviewed on a site specific basis. Exception decisions should consider such factors as contaminant concentration, the volume of contaminated soil, and the size of the area where exposure to the contaminants may occur. For example, assume that the Soil Cleanup Criterion is 5 ppm, the isolated "hit" is 6 ppm, and the "clean zone" is 20 feet away. In this situation, although the de minimis criteria above have not been met, the de minimis exemption might still be appropriate because the contamination is present at a concentration only slightly above the Soil Cleanup Criterion.

d. An evaluation of the contaminant mass, persistence and location indicates limited potential for significant human health or environmental impacts, including ground water impacts; and

e. There can be only one de minimis exemption per area of concern.

7. Sample results for contaminated soil remaining in an area of concern may be averaged after remedial actions when soils have been excavated or otherwise permanently remediated if the following conditions are met:

   a. Data from clean fill used to replace contaminated soil in the area of concern cannot be included to calculate the average;

   b. Sidewall sample data from excavated areas may be used in the average if sample data from the same six-inch depth increment are averaged; and

   c. Post remediation bottom sample data may be averaged with other sample data from the same six-inch depth increment.

ATTACHMENT C

ERM-EnviroClean, Inc

Princeton Crossroads
Corporate Center
300 Phillips Blvd.
Suite 200
Ewing, New Jersey 0861

(609) 895-0050
(609) 895-0111 (Telefax)

ERM

Facsimile

To:	Dan Bonk
Company:	Baker Environmental
Fax Number:	(412) 269-2002
From:	Stuart Bills
File Number:	99568.00
Date:	23 October 1996
Number of Pages: (Including this cover page)	3

Dan,

Here is the letter regarding the clean fill imported to the site as backfill. This letter conforms to NJDEP requirements for certification of clean fill. If you have any question please call.

Best Regards,

Stu

VINELAND
Member of the Scancem Group

October 23, 1996

ERM Enviroclean
855 Springdale Drive
Exton, PA 19341
Attn: Mr. Stuart Bills

RE: Topsoil

PROJECT: Former Pulverizing Services Site
Moorestown, New Jersey

Dear Mr. Bills,

Mays Landing Sand & Gravel Co., hereby certifies that the Top Soil, that is being supplied to your project site has been tested and is free of any hazardous waste and/or contaminants. This material is shipped from our mining operation in Dorchester, New Jersey. This is a virgin source and the top soil is natural and contains no added materials.

Information Requested:

Section 6.

a.) Name of Supplier and Source;
Mays Landing Sand & Gravel Co., Inc.
Dorchester Plant

b.) Street, town, lot and block, county, state;
Old Stage Road, Alternate State Highway 47
Maurice River Township,
Block 58, Lot 14
Cumberland County
New Jersey

c.) Brief history of site of fill source;
The Mays Landing Sand & Gravel Dorchester Plant is a sand and gravel plant opened in the late 1960,s and operated continuously to present. The operation has maintained all State and Local permit requirements.

d.) Bills of lading;
Bills of Lading indicating the source of the fill is attached.

VINELAND GROUP INC.
Postal Address
P.O. Box 857
Marlton, NJ 08053
Telephone
609 768-6800
Fax
609 768-6592

200370

e.) Statement by Supplier;
See above.

f.) Fill material characteristics;
Natural Top Soil.

Should there be any questions or need the additional information concerning this material please contact me.

Yours truly,

MAYS LANDING SAND
& GRAVEL CO.

David Hergert
General Manager

DEH/dh

ATTACHMENT D

ENVIRONMENTAL DATA SERVICES

DATA VALIDATION · TECHNICAL WRITING · CONSULTING · DATA INTERPRETATION

DATA VALIDATION REPORT

Prepared By
Environmental Data Services

For
PPG Industries
(Moorestown Site)

December 31, 1996

1007 MOUNT ROYAL BOULEVARD • PITTSBURGH, PA 15223
412-486-9121 • FAX 412-486-3889

200373

Data Assessment Narratives

200374

PESTICIDE DATA ASSESSMENT NARRATIVE

SITE: PPG - Moorestown, NJ

LABORATORY: Quanterra

SAMPLE DELIVERY GROUP: COMPF1

This sample delivery group consists of the following soil samples:

COMPF1	COMPF2	COMPF3

Samples described above were analyzed via CLP 3/90 Protocol to determine the concentrations of the following pesticides :

Aldrin
Dieldrin
4,4' -DDT

Project specific QA objectives, as well as the USEPA Region II data validation SOP specified in the project QAPP (SOP No. HW-6 Rev. 8, 1/92)have been considered during validation of this data and its usability. Please note, although data for analytes other than those listed above were reported by the laboratory, validation was performed for aldrin, dieldrin and 4,4' -DDT results only.

All data are valid and acceptable except those analytes which have been qualified with a "J" (estimated), "N" (presumptive evidence of the presence of the material), "R" (unusable), or "JN" (presumptive evidence of the presence of a material at an estimated value). All data qualification related to this group of samples is detailed on the attached sheets.

Major Data Quality Issues

None.

Minor Data Quality Issues

Pesticide Identification - Several samples in SDG - COMPF1 had various results qualified as J,JN or reported at a higher CRQL due to observed percent deviations between the results obtained on both analytical columns of greater than 25.

Holding Time - All pesticide results for samples in this delivery group were qualified as estimated due to holding time excursion.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable due to significant QC problems, the data is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on any data tables even as a last resort.

Lastly, no analyte concentration, even if it passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

Diane Waldschmidt

Date: 12/31/96

Diane Waldschmidt
Environmental Scientist/Director

HOLDING TIME

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

All samples associated with this SDG were extracted four days past the allowable technical holding time. Pesticide results in all cases have been qualified as estimated according to the USEPA region II validation SOP.

BLANK CONTAMINATION

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for the common contaminants), the analytes are qualified as non-detects, "U".

Method Blank Contamination

A method blank was prepared and analyzed by the laboratory at the proper frequency. Upon examination none of the three pesticides examined here were found to be present in the method blank at levels greater than the reporting limit.

Field or Rinse Blank Contamination ("water blanks" or "distilled water blanks" are validated like any other sample)

No field rinsate blank appears to have been collected in association with the samples comprising this sample delivery group. Without field blank data we cannot assess the potential for sample cross contamination during field sampling operations.

CALIBRATION

Percent Relative Standard Deviation (%RSD) and Percent Difference (%D)

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. For the PCB/PESTICIDE fraction, if %RSD exceeds 20% for all analytes except for the 2 surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ". If %RSD and %D grossly exceed QC criteria, non-detect data may be qualified "R".

All calibrations related to data reported for this SDG met the criteria described above. No data qualification was necessary.

SURROGATES/SYSTEM MONITORING COMPOUNDS (SMC)

All samples are spiked with surrogate/SMC compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate/SMC concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

Surrogate standards observed in samples fell within the established retention time windows and acceptable recovery ranges.

COMPOUND IDENTIFICATION

Pesticide Fraction

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns. The percent difference (%D) of the positive results obtained on the two GC columns should be ≤25%.

Retention Time

Upon examination of positively identified contaminants, all instrument responses fell well within the retention time windows established during the appropriate initial calibration for both analytical columns.

Please note results for aldrin, dieldrin, and 4,4' -DDT only were evaluated.

Percent Difference

Two samples associated with this SDG had dieldrin results that required one of the following data qualifiers due to percent deviations between results on the two analytical columns exceeding 25.

J	=	Estimated
JN	=	Presumptive evidence of presence at an estimated concentration.
R	=	Un-useable

When possible, rather than qualifying data as un-useable the validator utilized the elevated CRQL from the sample analysis at a secondary dilution for the effected compound.

Dieldrin	%D	Qualifier added
COMPF2	52	JN

Aldrin	%D	Qualifier added
COMPF2	999	Reported at an elevated CRQL

MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD

The MS/MSD data are generated to determine the long-term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for some additional qualification of data.

Matrix spike and matrix spike duplicate analyses were performed on sample COMPF1. All pesticides of interest were added to the sample in the matrix spike solution.. Results of the MS/MSD determinations were favorable with the exception of 4,4'DDT in the MSD. Observed recoveries are listed below :

Analyte	MS%R	MSD%R	%RPD
aldrin	95	95	0
dieldrin	85	85	0
4,4'-DDT	102	154	41

Poor DDT matrix spike recoveries were likely due to the relatively high concentration of DDT inherent to the sample itself rather than matrix interference.

No significant matrix related interferences appear to be present. No data qualification has been performed based on this observation.

SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

Overall the laboratory did a satisfactory job in meeting the requirements of the CLP 3/90 SOW for Pest/PCB's.

The following observations are noteworthy:

Sample Extract Cleanup - Sample extracts were not cleaned via GPC or florisil as required by protocol. The laboratory did not want to risk gross contamination (carryover) of samples. The data was not adversely impacted.

This package contains re-extraction, re-analysis or dilution. Upon reviewing the QA results, the following form I(s) are identified to be used:

COMPF1	COMPF2	COMPF3

Validated Data Tables

200380

VALIDATED DATA TABLES
FOR
PPG MOORESTOWN

ANALYTE	UNITS	**COMPF1**	LQ	VQ	**COMPF2**	LQ	VQ	**COMPF3**	LQ	VQ
Aldrin	ug/kg	9.8	U	UJ	18	U	UJ	9.5	U	UJ
Dieldrin	ug/kg	31		J	6.0	P	JN	4.2	J	J
4,4' -DDT	ug/kg	170		J	170	D	J	92		J

200381

LQ = Laboratory Qualifier
VQ = Validation Qualifier

Laboratory Data with Qualifiers Added

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

COMPF#1

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: COMPF1

Matrix: (soil/water) SOIL Lab Sample ID: C6X3P101

Sample wt/vol: 29.9 (g/mL) G Lab File ID: 004F0101

% Moisture: 15 decanted: (Y/N) N Date Received: 11/15/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/25/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 12/06/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.5 Sulfur Cleanup: (Y/N) N

12/30/96 Dil

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
309-00-2	Aldrin	9.8	U	UJ
60-57-1	Dieldrin	31		J
50-29-3	4,4'-DDT	170		J

FORM I PEST 200383 3/90

0008

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

COMPF 2

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: COMPF1

Matrix: (soil/water) SOIL Lab Sample ID: C6X3Q101

Sample wt/vol: 30.1 (g/mL) G Lab File ID: 034F0101

% Moisture: 8 decanted: (Y/N) N Date Received: 11/15/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/25/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 12/05/96

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 6.5 Sulfur Cleanup: (Y/N) N

DKW 12/30/96

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
309-00-2	Aldrin	18 ~~6.061~~	~~JP~~ U	UJ
60-57-1	Dieldrin	6.0	P	JN
50-29-3	4,4'-DDT	170 ~~170~~	D	J

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

COMPF 3

Lab Name: QUANTERRA, INC. Contract:

Lab Code: QESOH Case No.: SAS No.: SDG No.: COMPF1

Matrix: (soil/water) SOIL Lab Sample ID: C6X3R101

Sample wt/vol: 29.9 (g/mL) G Lab File ID: 035F0101

% Moisture: 12 decanted: (Y/N) N Date Received: 11/15/96

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/25/96

Concentrated Extract Volume: 10000(uL) Date Analyzed: 12/05/96

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: 6.0 Sulfur Cleanup: (Y/N) N

12/30/96 DLW

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
309-00-2	Aldrin	9.5	U	UJ
60-57-1	Dieldrin	4.2	J	J
50-29-3	4,4'-DDT	92		J

ATTACHMENT E

ENVIRONMENTAL DATA SERVICES
DATA VALIDATION · TECHNICAL WRITING · CONSULTING · DATA INTERPRETATION

January 28, 1997

Mr. Thomas Ebbert
PPG Industries Inc.
Post Office Box 2009
4325 Rosanna Drive
Allison Park, PA 15101

REF : PPG Pulverizing Site, Moorestown, NJ

Dear Mr. Ebbert :

Validation findings related to 4,4' -DDT, dieldrin, and aldrin analyses of samples contained in SDG# COMPF-1 indicated that the samples were extracted four days past the technical holding time.

Per the USEPA Region II validation SOP (No. HW-6 Rev. 8, 1/92) specified for use on the Moorestown project, the sample results reported have been qualified as estimated.

The holding time excursion in this case was minimal . Based on the chemical stability of the analytes of interest and the relatively small departure from the established technical holding time, it is my opinion that in all likelihood the impact of this anomaly on the reported analyses is not significant.

Sincerely,

Diane Waldschmidt
Director

DLW:dcb

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