N60200.AR.003887
NAS CECIL FIELD, FL
5090.3a

# ANNUAL GROUNDWATER MONITORING REPORT YEAR 1 FOR OPERABLE UNIT 10 (OU 10) SITE 21 NAS CECIL FIELD FL

6/1/2004

TETRA TECH NUS INC

# Annual Groundwater Monitoring Report - Year 1

for

# Operable Unit 10, Site 21

## Naval Air Station Cecil Field

Jacksonville, Florida

**Southern Division**
**Naval Facilities Engineering Command**

**Contract Number N62467-94-D-0888**

**Contract Task Order 0078**

June 2004

110309/P

# ANNUAL GROUNDWATER MONITORING REPORT – YEAR 1

FOR

## OPERABLE UNIT 10, SITE 21
## NAVAL AIR STATION CECIL FIELD
## JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0078

JUNE 2004


PREPARED UNDER THE SUPERVISION OF:

MARK SPERANZA, P.E.
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TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

APPROVED FOR SUBMITTAL BY:

DEBRA HUMBERT
PROGRAM MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

CERTIFICATION OF TECHNICAL
DATA CONFORMITY

The Contractor, Tetra Tech NUS, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-94-D-0888 are complete and accurate and comply with all requirements of this contract.

DATE: June 2, 2004

COMPANY CERTIFICATION AUTHORIZATION NUMBER: 7988
Tetra Tech NUS, Inc.
661 Andersen Drive
Pittsburgh, PA 15220

NAME AND TITLE OF CERTIFYING OFFICIAL: Mark Speranza, P.E.
Task Order Manager

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# ACRONYMS

| | |
|---|---|
| CLEAN | Comprehensive Long-Term Environmental Action Navy |
| COC | Contaminant of concern |
| CTO | Contract Task Order |
| FAC | Florida Administrative Code |
| FDEP | Florida Department of Environmental Protection |
| FS | Feasibility Study |
| GCTL | Groundwater Cleanup Target Level |
| IRA | Interim removal action |
| NAS | Naval Air Station |
| OU | Operable Unit |
| RAO | Remedial Action Objective |
| RI | Remedial Investigation |
| SCTL | Soil Cleanup Target Level |
| T.O.C. | Top of casing |
| TRPH | Total recoverable petroleum hydrocarbons |
| TtNUS | Tetra Tech NUS, Inc. |
| UCL | Upper Confidence Limit |

# 1.0 INTRODUCTION

This Annual Groundwater Monitoring Report presents a summary of the work performed for the first year of groundwater monitoring at Operable Unit (OU) 10, Site 21 at the Naval Air Station (NAS) Cecil Field located in Jacksonville, Florida (see Figures 1-1 and 1-2). This report has been prepared under Contract Task Order (CTO) 0078 as part of the Comprehensive Long-Term Environmental Action Navy (CLEAN) III Contract No. N62467-94-D-0888 for the Southern Division, Naval Facilities Engineering Command.

Site 21, the Golf Course Maintenance Area, is located at the northern end of the former I Avenue in the center of the golf course at NAS Cecil Field. Site activities included the storage and maintenance of golf course maintenance equipment. This involved the cleaning and rinsing of chemical-dispensing equipment and the preparation of chemical solutions. Chemicals included fungicides, nematocides, insecticides, and herbicides. The site is primarily unpaved and covers an area of approximately 1.5 acres. A drainage ditch forms part of the eastern border of the site. A fence and trees isolate the site from the golf course on the eastern, northeastern, and southern sides. A large wooded area isolates the site from the golf course on the northwestern and western sides.

An interim removal action (IRA) conducted in two phases at the site, in May and June 2001 and in August 2002, based on the results of soil sampling included the excavation and off-site disposal of approximately 3,077 cubic yards of soil contaminated with arsenic, pesticides, and total recoverable petroleum hydrocarbons (TRPH) to support an industrial reuse. Sample locations where contaminant concentrations exceeded leachability Soil Cleanup Target Levels (SCTLs) were also excavated (TtNUS, 2001a). The Site 21 Remedial Investigation (RI) delineated a chlordane groundwater plume defined by the Florida Department of Environmental Protection (FDEP) Groundwater Cleanup Target Level (GCTL) of 2 µg/L (FDEP, 1999) that was less than 30 feet in diameter and limited to the shallow zone of the surficial aquifer (TtNUS, 2001b). The selected remedy for Site 21, based on the results of the Feasibility Study (FS), was limited action including land use controls, natural attenuation, and semi-annual groundwater monitoring. Tetra Tech NUS, Inc. (TtNUS) collected and analyzed two groundwater samples for alpha- and gamma-chlordane and total chlordane in July 2002 and February 2003.

The site-wide post-excavation 95-percent upper confidence level (UCL) concentration of chlordane (alpha-chlordane and gamma-chlordane) in soil is 1,024 µg/kg, which is less than the leachability SCTL of 9,600 µg/kg. The maximum reported total concentration of alpha-chlordane and gamma-chlordane in the excavated soil was 108,200 µg/kg, but none of the locations where the chlordane concentration was greater than the leachability SCTL was near the plume (TtNUS, 2001a).

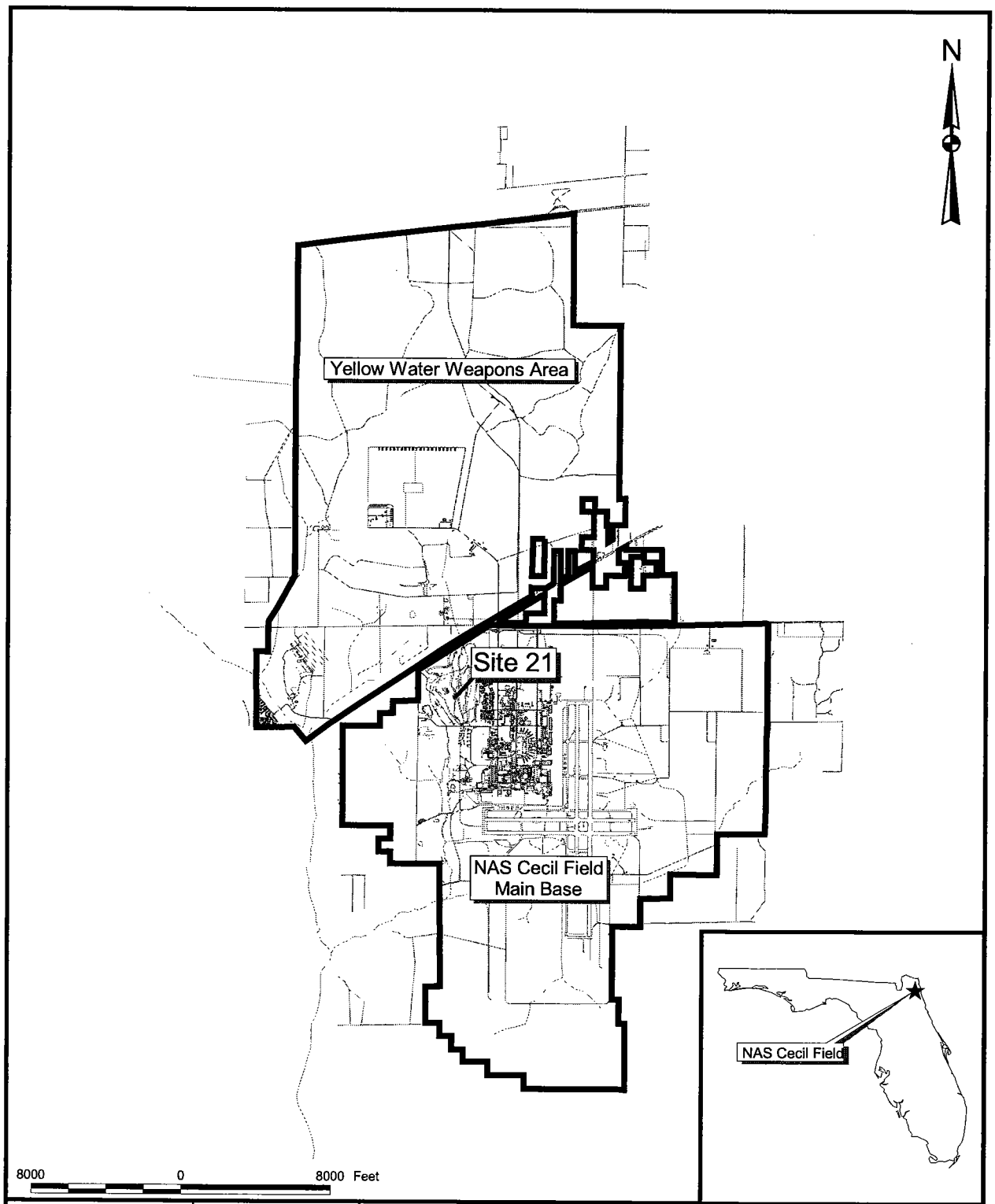
Water-level measurements and potentiometric surface elevations obtained during the semi-annual groundwater sampling events are presented in Table 1-1. Potentially anomalous groundwater elevations measured during the February 2003 sampling event resulted in a resurvey of site well elevations and another round of synoptic water level measurements in April 2003. Potentiometric surface elevation maps generated with water-level data from February and April 2003 are presented as Figures 1-3 and 1-4, respectively.

**TABLE 1-1**

**WATER LEVEL MEASUREMENTS AND POTENTIOMETRIC SURFACE ELEVATIONS**
**OPERABLE UNIT 10, SITE 21**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**

| Well Number | Top of Casing (T.O.C.) Elevation* | RI - April 2000 | | July 2002 | | February 2003 | | April 2003 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Depth to Groundwater (feet below T.O.C.) | Groundwater Elevation* | Depth to Groundwater (feet below T.O.C.) | Groundwater Elevation* | Depth to Groundwater (feet below T.O.C.) | Groundwater Elevation* | Depth to Groundwater (feet below T.O.C.) | Groundwater Elevation* |
| CEF-P21-01S | 73.81 | NM | - | 1.80 | 72.01 | 0.69 | 73.12 | 1.90 | 71.91 |
| CEF-P21-03S | 74.53 | 4.71 | 69.82 | 2.87 | 71.66 | 2.03 | 72.50 | 2.71 | 71.82 |
| CEF-P21-05S | 73.72 | 4.56 | 69.16 | 2.37 | 71.35 | 0.75 | 72.97 | 2.00 | 71.72 |
| CEF-P21-06S | 73.84 | 4.47 | 69.37 | 1.97 | 71.87 | 0.67 | 73.17 | 1.82 | 72.02 |
| CEF-P21-07S | 78.03 | 8.16 | 69.87 | 6.24 | 71.79 | 5.48 | 72.55 | 6.27 | 71.76 |
| CEF-P21-08S | 73.75 | NM | - | 2.31 | 71.44 | 0.83 | 72.92 | 2.03 | 71.72 |

All elevations are in feet above mean sea level.
NM = Not measured.
* Based on resurvey of well elevations conducted after the February 2003 sampling event. Elevations for previous events have been updated.




| | | | |
|---|---|---|---|
| DRAWN BY MJJ | DATE 26Aug03 | GENERAL LOCATION MAP<br>OU 10, SITE 21<br>NAVAL AIR STATION CECIL FIELD<br>JACKSONVILLE, FLORIDA | CONTRACT NUMBER 0039 |
| CHECKED BY | DATE | | APPROVED BY DATE 6/2/04 |
| COST/SCHEDULE-AREA | | | APPROVED BY DATE |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 1-1 / REV 0 |

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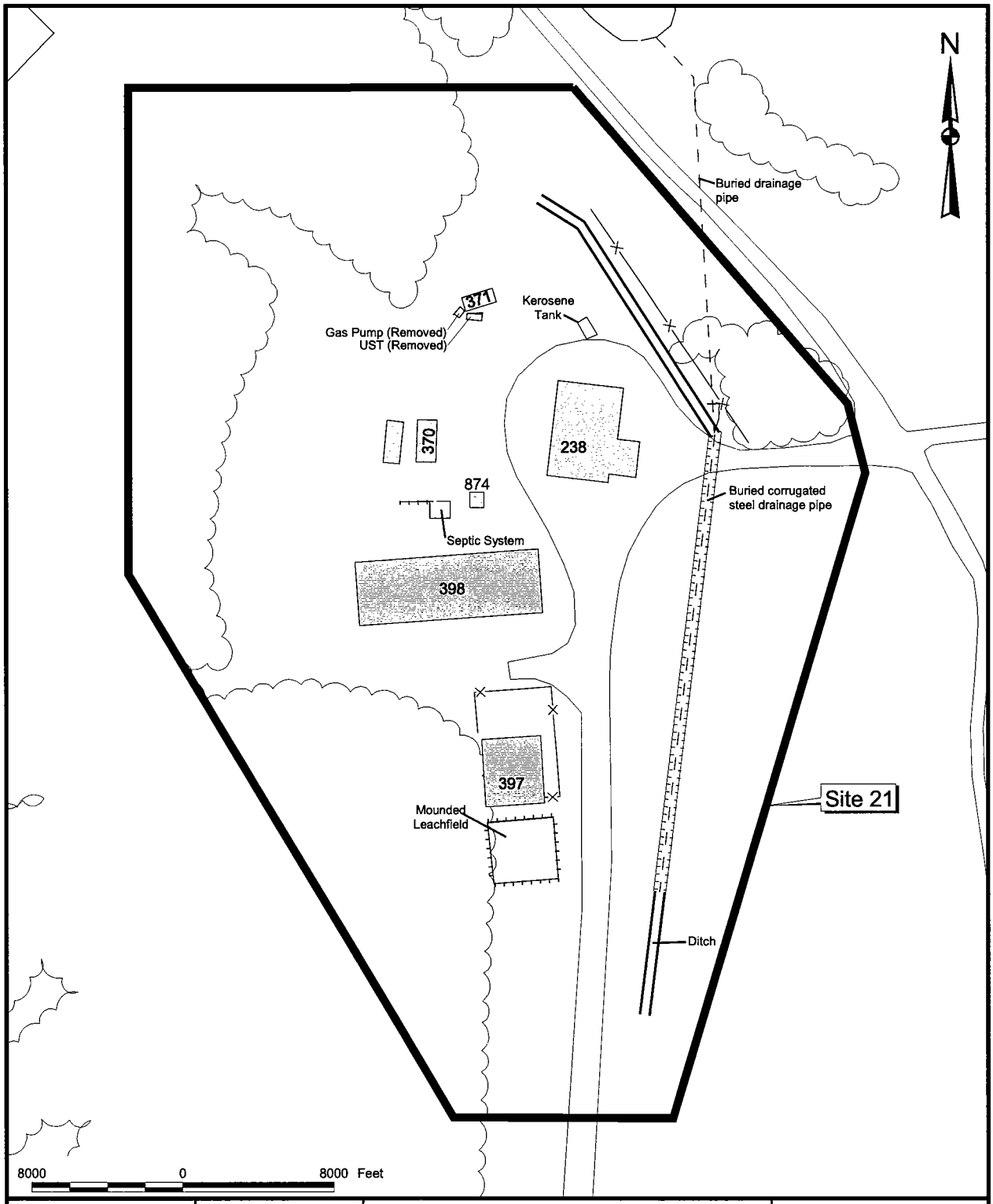


| | | | |
|---|---|---|---|
| DRAWN BY MJJ | DATE 26Aug03 | SITE LOCATION MAP<br>OU 10, SITE 21<br>NAVAL AIR STATION CECIL FIELD<br>JACKSONVILLE, FLORIDA | CONTRACT NUMBER 0039 |
| CHECKED BY | DATE | | APPROVED BY DATE 6/21/04 |
| COST/SCHEDULE-AREA | | | APPROVED BY DATE |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 1-2 / REV 0 |

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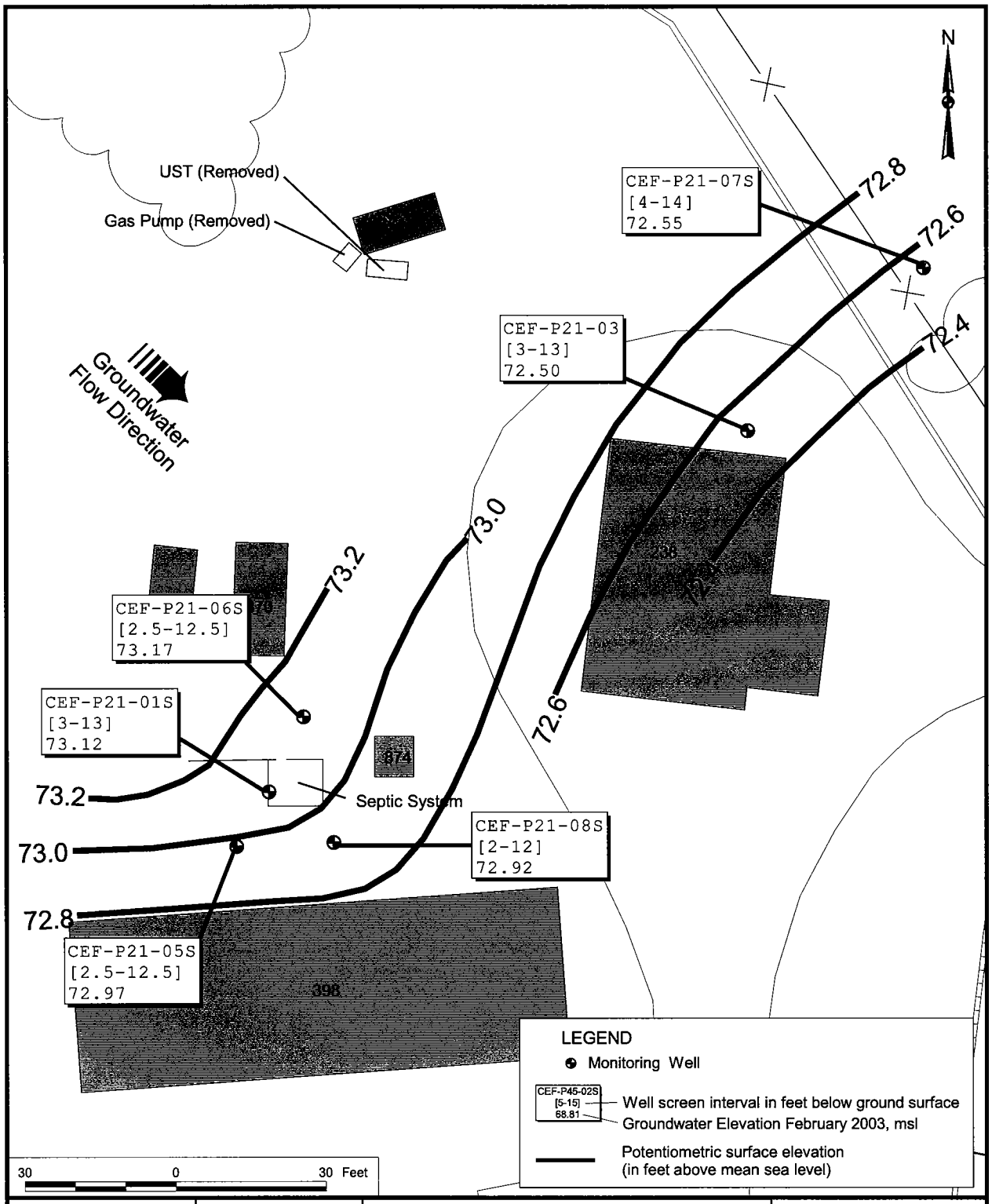


| | | | |
|---|---|---|---|
| DRAWN BY MJJ | DATE 24Mar03 | POTENTIOMETRIC SURFACE ELEVATION MAP<br>FEBRUARY 2003<br>OU 10, SITE 21<br>NAVAL AIR STATION CECIL FIELD<br>JACKSONVILLE, FLORIDA | CONTRACT NUMBER 0039 |
| CHECKED BY | DATE | | APPROVED BY 6/21/04 DATE |
| COST/SCHEDULE-AREA | | | APPROVED BY DATE |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 1-3 REV 1 |

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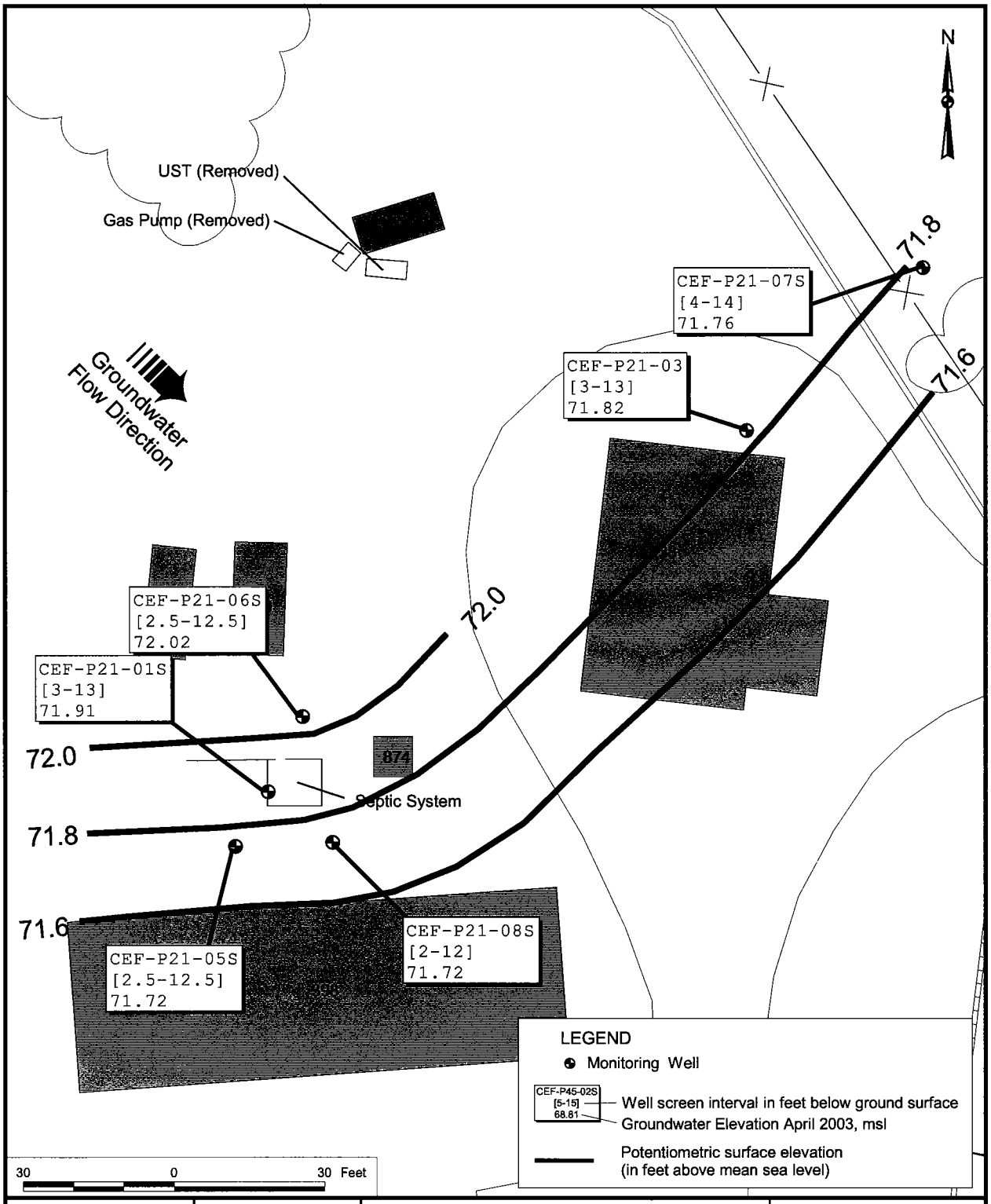


| | | | |
|---|---|---|---|
| DRAWN BY MJJ | DATE 22Nov03 | POTENTIOMETRIC SURFACE ELEVATION MAP<br>APRIL 2003<br>OU 10, SITE 21<br>NAVAL AIR STATION CECIL FIELD<br>JACKSONVILLE, FLORIDA | CONTRACT NUMBER 0039 |
| CHECKED BY | DATE | | APPROVED BY DATE 6/21/07 |
| COST/SCHEDULE-AREA | | | APPROVED BY DATE |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 1-4 / REV 1 |

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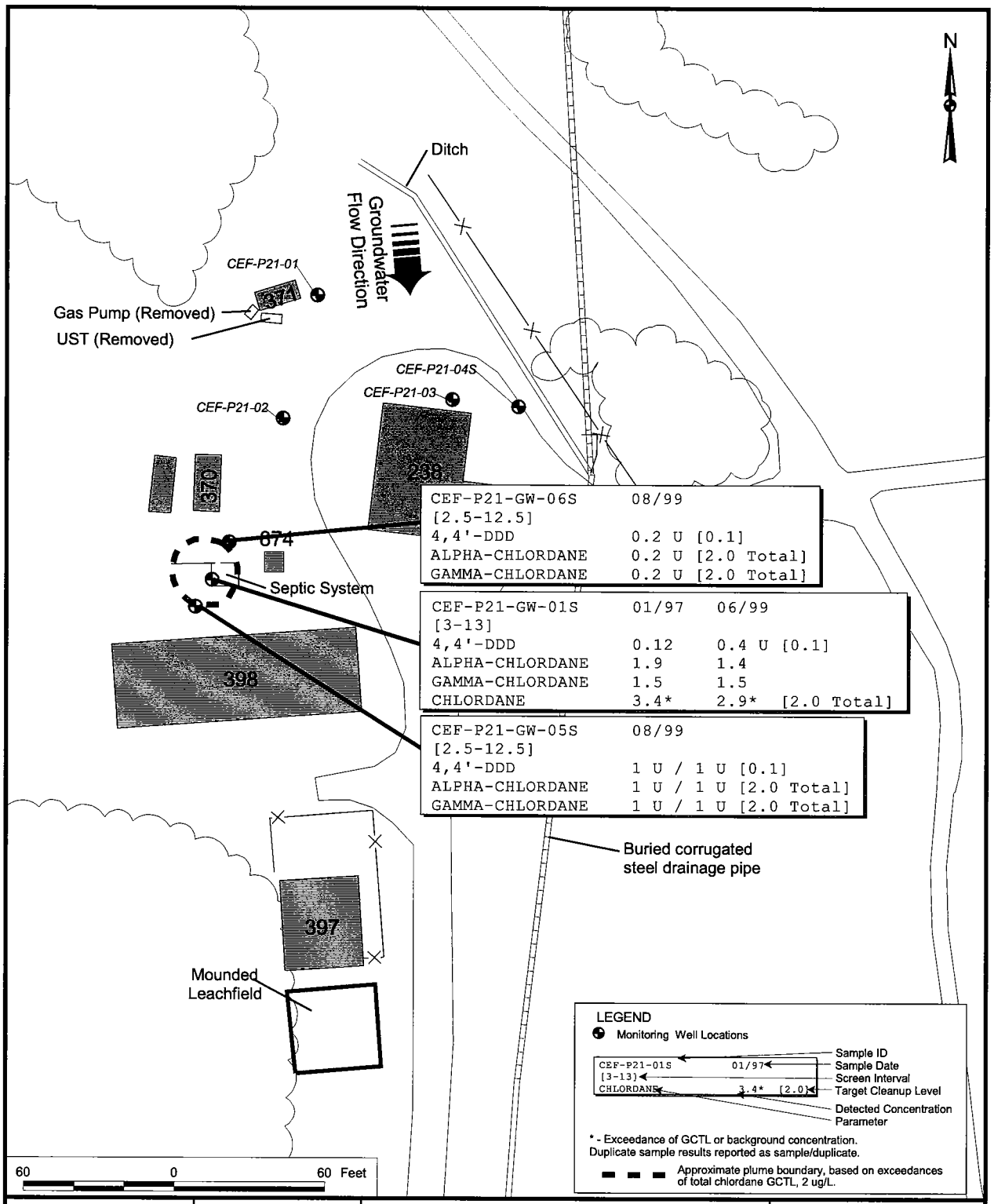
# 2.0 SITE CONTAMINANT OF CONCERN

Total chlordane was the groundwater contaminant of concern (COC) identified in the RI for OU 10, Site 21. Analytical results from the RI and the approximate extent of the contaminant plume based on these data are presented in Figure 2-1.




| | | | |
|---|---|---|---|
| DRAWN BY MJJ | DATE 02Oct00 | REMEDIAL INVESTIGATION GROUNDWATER DATA<br>OU 10, SITE 21<br>NAVAL AIR STATION CECIL FIELD<br>JACKSONVILLE, FLORIDA | CONTRACT NUMBER 0039 |
| CHECKED BY | DATE | | APPROVED BY DATE 6/21/04 |
| COST/SCHEDULE-AREA | | | APPROVED BY DATE |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 2-1 / REV 1 |

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# 3.0 ANALYTICAL RESULTS

Long-term groundwater monitoring at Site 21 was performed in accordance with the Long-Term Monitoring Plan for Sites 21, 25, and 45 (TtNUS, 2002). Table 3-1 and Figure 3-1 provide summaries of analytical results for the OU 10, Site 21 monitoring wells sampled as part of the long-term groundwater monitoring program. Complete analytical data for Year 1 are provided in Appendix A.

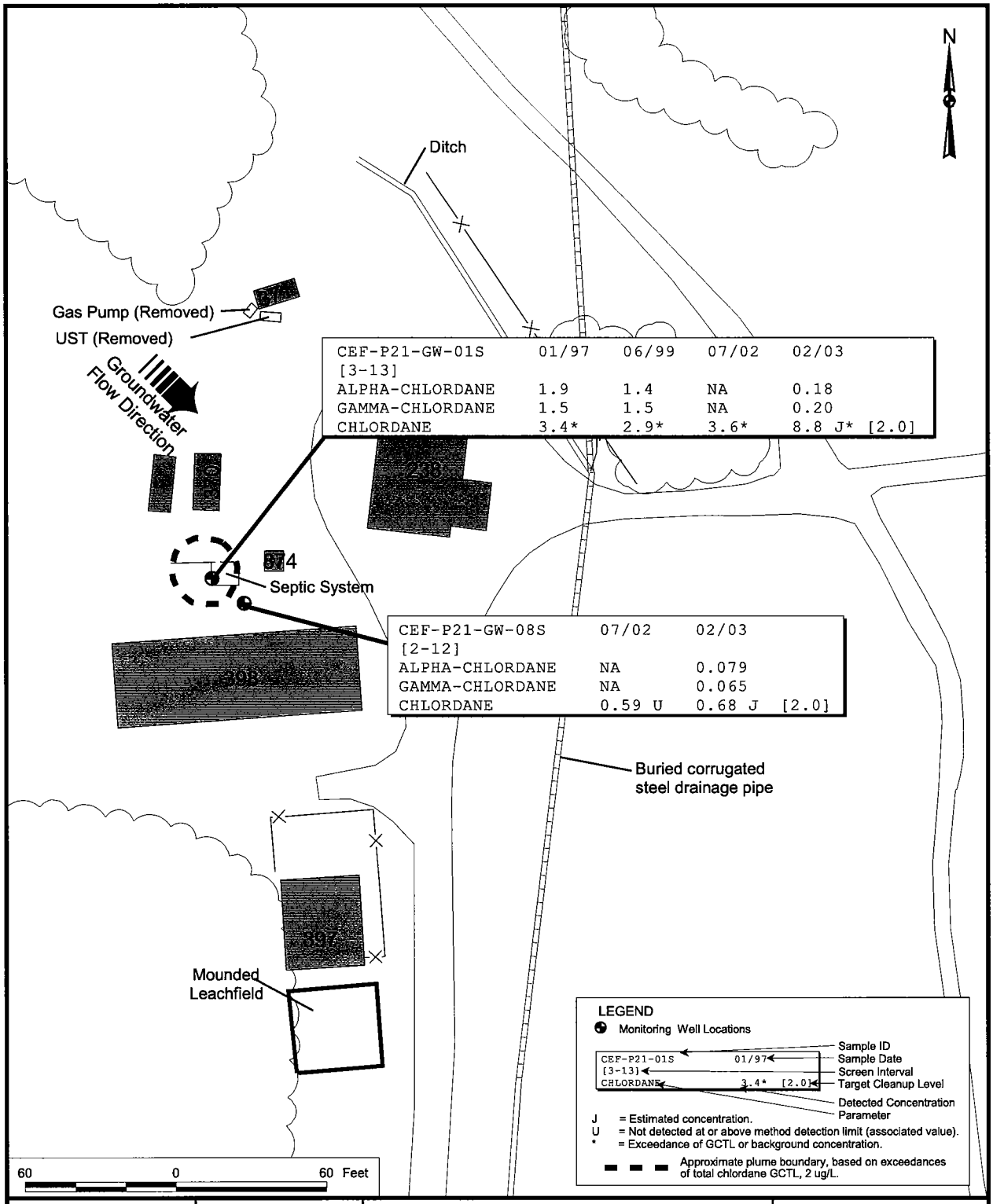
Groundwater samples from CEF-P21-01S collected in January 1997 and June 1999 were analyzed for alpha- and gamma-chlordane but not total chlordane. Downgradient well CEF-P21-08S was installed in September 2001. Both samples from the first semi-annual event in July 2002 were analyzed for total chlordane but not the alpha and gamma isomers. The second semi-annual sample was analyzed for total chlordane and the alpha and gamma isomers. During Year 1 sampling, the total chlordane concentration in the source area well, CEF-P21-01S, increased from 3.6 to an estimated 8.8 µg/L. Although total chlordane concentrations increased during Year 1 sampling, concentrations of alpha- and gamma-chlordane decreased significantly compared to previous results.

**TABLE 3-1**

**SUMMARY OF CHLORDANE CONCENTRATIONS IN GROUNDWATER**
**OPERABLE UNIT 10, SITE 21**
**NAVAL AIR STATION CECIL FIELD**
**JACKSONVILLE, FLORIDA**

| WELL ID | SAMPLING DATE | ALPHA-CHLORDANE (ug/L) | GAMMA-CHLORDANE (ug/L) | CHLORDANE (ug/L) |
|---|---|---|---|---|
| TARGET CLEANUP GOAL* | | NC | NC | 2 (Total) |
| CEF-P21-01S | Jan-97 | **1.9** | **1.5** | **3.4**[1] |
| | Jun-99 | **1.4** | **1.5** | **2.9**[1] |
| | Jul-02 | NA | NA | **3.6** |
| | Feb-03 | **0.18** | **0.2** | **8.8 J** |
| CEF-P21-08S | Jul-02 | NA | NA | 0.59 U |
| | Feb-03 | **0.079** | **0.065** | **0.68 J** |

NA = Not analyzed.
NC = No criterion. GCTL is for total chlordane only.
U = Not detected at or above detection limit (associated value).
J = Estimated concentration.
Bolded values exceed detection limit.
Shaded values exceed target cleanup goal.
* Florida Administrative Code (FAC) 62-777. (FDEP, 1999).
1 = Sum of alpha and gamma isomers.




| | | | |
|---|---|---|---|
| DRAWN BY MJJ | DATE 24Mar03 | CHLORDANE IN GROUNDWATER<br>OU 10, SITE 21<br>NAVAL AIR STATION CECIL FIELD<br>JACKSONVILLE, FLORIDA | CONTRACT NUMBER 0039 |
| CHECKED BY | DATE | | APPROVED BY DATE 6/21/04 |
| COST/SCHEDULE-AREA | | | APPROVED BY DATE |
| SCALE AS NOTED | | | DRAWING NO. FIGURE 3-1 / REV 1 |

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# 4.0 CONCLUSIONS AND RECOMMENDATIONS

## 4.1 CONCLUSIONS

The RI at OU 10, Site 21 indicated the presence of chlordane in groundwater at concentrations that could pose an unacceptable human health risk if groundwater is used as a potable water source. The Remedial Action Objectives (RAOs) for groundwater at the site are as follows:

- Prevent unacceptable risk from ingestion of groundwater with concentrations of chlordane greater than the FDEP GCTL.
- Return the surficial aquifer to future beneficial use.

The groundwater remedy selected to achieve these RAOs was natural attenuation, land use controls, and monitoring. Based on the results of Year 1 sampling at the site, this remedy continues to be protective of human health and achieves the site RAOs.

Based on the evaluation of groundwater elevation and contaminant concentration data, the current well network adequately monitors the contaminant plume and well CEF-P21-08S is properly placed as a downgradient compliance well within the monitoring network.

## 4.2 RECOMMENDATIONS

Based on the results obtained from Year 1 sampling, it is recommended that the current semi-annual groundwater monitoring program be continued.

# REFERENCES

Florida Department of Environmental Protection (FDEP), 1999. Contaminant Target Levels Rule, Groundwater Target Cleanup Levels, Division of Water Facilities, Bureau of Drinking Water and Groundwater Resources, Florida Administrative Code (FAC) Chapter 62-777.

Tetra Tech NUS, Inc. (TtNUS), 2001a. Action Memorandum for Site 21-Golf Course Maintenance Area, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina, April.

TtNUS, 2001b. Remedial Investigation Report for Operable Unit 10, Site 21 – Golf Course Maintenance Area, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for the Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina, October.

TtNUS, 2002. Long-Term Monitoring Plan for Operable Unit 10, Sites 21 and 25 and Operable Unit 11, Site 45, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for the Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina, June.

# APPENDIX A

## YEAR 1 ANALYTICAL LABORATORY RESULTS

**AVAILABLE IN ELECTRONIC VERSION OF FINAL REPORT**

# APPENDIX A

The data and data validation reports has been provided on a separate CD. The SDG numbers of the laboratory reports are listed below.

| Event | Laboratory | SDG number |
|---|---|---|
| July 2002 | Accutest | F14004 |
| Feb 2003 | Accutest | F16657 |

**Tetra Tech NUS** **INTERNAL CORRESPONDENCE**

| | | | |
|---|---|---|---|
| **TO:** | **M. SPERANZA** | **DATE:** | **AUGUST 22, 2002** |
| **FROM:** | **BERNARD F SPADA III** | **COPIES:** | **DV FILE** |
| **SUBJECT:** | **ORGANIC DATA VALIDATION- PEST<br>CTO 078, NAS CECIL FIELD<br>SDG F14004** | | |
| **SAMPLES:** | 2/Aqueous | | |

CEF-P21-GW-01S-L01 CEF-P21-GW-08S-L01

OVERVIEW

The sample set for CTO 078, NAS Cecil Field, SDG F14004 consists of two (2) environmental aqueous samples. Both samples were analyzed for the pesticide (PEST) chlordane by SW-846 Method 8081A.

The samples were collected by TetraTech NUS on July 25 and 26, 2002 and analyzed by Accutest Laboratories. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Methods 8081A analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
* • Initial and continuing calibration
* • Laboratory method and field quality control blank results
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A.

Pesticide

Sample CEF-P21-GW-08S-L01 exceeded the extraction holding time. The result for chlordane in the aforementioned sample was qualified as estimated (UJ).

EXECUTIVE SUMMARY

**Laboratory Performance Issues:** None.

**Other Factors Affecting Data Quality:** None

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the NFESC guidelines (September, 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

**TO: M. SPERANZA – PAGE 2**
**DATE: AUGUST 22, 2002**

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Bernard F Spada III
Chemist/Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C - Support Documentation

# APPENDIX A

## QUALIFIED ANALYTICAL RESULTS

**Qualifier Codes:**

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
N01 = Internal Standard Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

# PROJ_NO: 0039

SDG: F14004 MEDIA: WATER DATA FRACTION: PEST/PC

| | |
|---|---|
| nsample | CEF-P21-GW-01S-L01 |
| samp_date | 7/26/2002 |
| lab_id | F14004-1 |
| qc_type | NM |
| units | UG/L |
| Pct_Solids | 0 |
| DUP_OF: | |

| Parameter | Result | ValQual | QualCode |
|---|---|---|---|
| CHLORDANE (TECHNICAL) | 3.6 | | |

| | |
|---|---|
| nsample | CEF-P21-GW-08S-L01 |
| samp_date | 7/25/2002 |
| lab_id | F14004-2 |
| qc_type | NM |
| units | UG/L |
| Pct_Solids | 0 |
| DUP_OF: | |

| Parameter | Result | ValQual | QualCode |
|---|---|---|---|
| CHLORDANE (TECHNICAL) | 0.59 | UJ | H |

# APPENDIX B

## RESULTS AS REPORTED BY THE LABORATORY

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P21-GW-01S-L01 | | |
| **Lab Sample ID:** | F14004-1 | **Date Sampled:** | 07/26/02 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/27/02 |
| **Method:** | SW846 8081A SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | NAS Cecil Field-CTO0078/N0039 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | ST15764.D | 2 | 08/06/02 | NF | 08/01/02 | OP5605 | GST589 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 10.0 ml |
| Run #2 | | |

**Pesticide TCL List**

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 12789-03-6 | Chlordane | 3.6 | 1.1 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 96% | | 47-126% |
| 2051-24-3 | Decachlorobiphenyl | 74% | | 13-144% |

(a) All hits confirmed by dual column analysis.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P21-GW-08S-L01 | | |
| **Lab Sample ID:** | F14004-2 | **Date Sampled:** | 07/25/02 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 07/26/02 |
| **Method:** | SW846 8081A SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | NAS Cecil Field-CTO0078/N0039 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | ST15762.D | 1 | 08/06/02 | NF | 08/05/02 | OP5605 | GST589 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 1000 ml | 10.0 ml |
| Run #2 | | |

**Pesticide TCL List**

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 12789-03-6 | Chlordane | ND | 0.59 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 49% | | 47-126% |
| 2051-24-3 | Decachlorobiphenyl | 56% | | 13-144% |

(a) Sample extracted beyond hold time; reported results are considered minimum values.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# APPENDIX C

## SUPPORT DOCUMENTATION

**F14004**

HOLDING TIME
08/21/02

| Units | Nsample | Lab Id | Qc Type | Sdg | Sort | Samp Date | Extr Date | Anal Date | SAMP_DATE TO EXTR_DATE | EXTR_DATE TO ANAL_DATE | SAMP_DATE TO ANAL_DATE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| % | CEF-P21-GW-01S-L01 | F14004-1 | NORMAL | F14004 | PEST | 07/26/02 | 08/01/02 | 08/06/02 | 6 | 5 | 11 |
| % | CEF-P21-GW-08S-L01 | F14004-2 | NORMAL | F14004 | PEST | 07/25/02 | 08/05/02 | 08/06/02 | 11 | 1 | 12 |
| UG/L | PBL2 | OP5605-MB2 | M_BLANK | F14004 | PEST | 08/05/02 | 08/05/02 | 08/06/02 | 0 | 1 | 1 |
| UG/L | PBLK1 | OP5605-MB | M_BLANK | F14004 | PEST | 08/01/02 | 08/01/02 | 08/02/02 | 0 | 1 | 1 |

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER CF21-072502 | PAGE 1 OF 1

| PROJECT NO: | SITE NAME: | PROJECT MANAGER AND PHONE NUMBER | LABORATORY NAME AND CONTACT: |
|---|---|---|---|
| N0039 | STE 21 NAS CECIL FIELD | MARK SPERANZA 412921 8916 | ACCUTEST Sue Ball |
| SAMPLERS (SIGNATURE) | | FIELD OPERATIONS LEADER AND PHONE NUMBER | ADDRESS |
| Scott R. McGuire | | MERN DALE 904 281 0400 | 4405 Vineland Rd C-15 |
| | | CARRIER/WAYBILL NUMBER | CITY, STATE |
| | | Fedex 8311 6072 7715 | ORLANDO, FL 32811 |

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G

PRESERVATIVE USED: None

TYPE OF ANALYSIS: Select Pesticides SW846 8081A

| DATE YEAR 2002 | TIME | SAMPLE ID | MATRIX | GRAB (G) COMP (C) | No. OF CONTAINERS | | COMMENTS |
|---|---|---|---|---|---|---|---|
| 7/25 | 1535 | CEF-P21-GW-15-LQ1 | GW | G | 2 | 2 | Cool to 4°C |
| 7/25 | 1545 | CEF-P21-GW-85-LQ1 | GW | G | 6 | 6 | |
| | | | | | | | WR 31 |
| | | | | | | | * Total Chlordane |

| 1. RELINQUISHED BY | DATE | TIME | 1. RECEIVED BY | DATE | TIME |
|---|---|---|---|---|---|
| Melvin W. Dale | 7/25/02 | 1700 | Fedex | | |
| 2. RELINQUISHED BY | DATE | TIME | 2. RECEIVED BY | DATE | TIME |
| | | | Miranda Gamper | 7/26/02 | 900 |
| 3. RELINQUISHED BY | DATE | TIME | 3. RECEIVED BY | DATE | TIME |
| | | | | | |

COMMENTS: -8°

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

TETRA TECH NUS, INC. NAS CECIL FIELD — CHAIN OF CUSTODY | NUMBER CF 21-012602 | PAGE 1 OF ___

F14004

| | | | |
|---|---|---|---|
| PROJECT NO: N0039 | SITE NAME: SITE 21 | PROJECT MANAGER AND PHONE NUMBER: MARK SPERANZA 912 921 8916 | LABORATORY NAME AND CONTACT: Accutest Sue Bell |
| SAMPLERS (SIGNATURE): Charles Mott | | FIELD OPERATIONS LEADER AND PHONE NUMBER: MERV DAVIS 904 781-0400 | ADDRESS: 4405 Vineland Rd C-15 |
| | | CARRIER/WAYBILL NUMBER: Fedex 8311 6072 7704 | CITY, STATE: ORLANDO, FL 32811 |

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: None

| DATE YEAR 2002 | TIME | SAMPLE ID | MATRIX | GRAB (G) COMP (C) | No. OF CONTAINERS | TYPE OF ANALYSIS: SELECT PESTICIDES SW846 8081A * | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/26 | 1135 | CEF-P21-GW-01S-L01 | GW | G | 2 | 2 | | | | | | | Cool to 4°C |
| | | | | | | | | | | | | | WR31 |
| | | | | | | | | | | | | | * Total chlordane |

| | | | | | |
|---|---|---|---|---|---|
| 1. RELINQUISHED BY: Marie W. Dale | DATE 7/26/02 | TIME 1600 | 1. RECEIVED BY: Fedex | DATE 7/27/02 (meg 8/13/02) | TIME |
| 2. RELINQUISHED BY | DATE | TIME | 2. RECEIVED BY: Miranda Gangel | DATE 7/26/02 | TIME 1700 1750 |
| 3. RELINQUISHED BY | DATE | TIME | 3. RECEIVED BY | DATE | TIME |

COMMENTS: MPS 7/26/02

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

MPS 7/26/02 3.0 1.2

3/99 FORM NO. TtNUS-001

010

**Accutest Laboratories Southeast, Inc.**
**Analytical Narrative**

Client: Tetra Tech, NUS
Site: NAS Cecil Field, CTO 0078
Report Date: August 12, 2002
Job Number: F14004

**2 samples were collected on July 25, 2002, and received on July 26, 2002.**
**However, per Merv Dale, we were not to analyze sample CEF-P21-GW1S'-D01 taken on 7/25/02.**
**1 sample was collected on July 26, 2002 and received July 27, 2002. Per Merv Dale this sample was to be the replacement for sample CEF-P21-GW1S'-D01 taken on 7/25/02.**
Samples were properly cooled, preserved and intact. A listing of the Laboratory Sample ID, Client Sample ID, and dates of collection are presented in the Results Summary section of this report.

All method specified holding times, calibrations and quality control performance criteria were met., with the following notes:

Pests by SW846, 8081A:

- When sample CEF-P21-GW1S'-L01 taken on 7/26/02 arrived into the lab, the two bottles were inadvertently labeled as F14004-1 and F14004-2. Both bottles should have been labeled F14004-1. Because of the mislabeling, extractions actually prepped F14004-1(CEF-P21-GW1S'-L01 7/26) twice and did an MS/MSD on sample F14004-2(CEF-P21-GW18'-L01 7/25), but never did extract the native sample for F14004-2(CEF-P21-GW18'-L01 7/25) the first time. This was discovered when the MS/MSD did not match the native sample. Therefore sample F14004-2(CEF-P21-GW18'-L01 7/25) was extracted for the first time, outside of holding time by four days. Data has been footnoted accordingly.

Accutest Laboratories Southeast, Inc. certifies that this report meets the project requirements for analytical data produced for the samples as received at the Accutest Laboratories Southeast location as stated in the Analytical Task Order and the COC. In addition, Accutest Laboratories Southeast, Inc. certifies that data as reported meet the Data Quality Objectives for precision, accuracy and completeness as specified in the Accutest Laboratories Southeast, Inc. Quality Manual for other that conditions detailed above. ALSE routinely reports Organic target analytes down to 1/2 the Reporting Level. These positive results are flagged with a "J" qualifier. It is recommended by Accutest Laboratories Southeast, Inc. that this report is to be used in its entirety. Accutest Laboratories Southeast, Inc. is not responsible for any assumptions of data quality if partial data packages are used to interpret data. The Accutest Laboratories Southeast, Inc. Laboratory Director as verified by the signature on the front page has authorized release of this report.

Narrative prepared by:

Date: August 12, 2002

Sue O. Bell, Project Manager (signature on file)

# DDT/Endrin Breakdown Check



**Job Number:** F14004
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO0078/N0039

| | | | |
|---|---|---|---|
| **Sample:** | GST589-DDT | **Injection Date:** | 08/06/02 |
| **Lab File ID:** | ST15756.D | **Injection Time:** | 09:08 |
| **Instrument ID:** | GCST | | |

| Compound | Response Signal 1 | Response Signal 2 |
|---|---|---|
| 4,4'-DDD | 8138 | 27244 |
| 4,4'-DDE | 2370 | 6216 |
| 4,4'-DDT | 223579 | 467765 |
| DDT Breakdown [a] | 4.5 % | 6.7 % |
| Endrin aldehyde | 14054 | 22357 |
| Endrin ketone | 11506 | 28729 |
| Endrin | 276212 | 669895 |
| Endrin Breakdown [b] | 8.5 % | 7.1 % |

(a) Calculated as: (DDD + DDE) / (DDD + DDE + DDT) x 100
(b) Calculated as: (Endrin Aldehyde + Endrin Ketone) / (Endrin Aldehyde + Endrin Ketone + Endrin) x 100

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| GST589-CC586 | ST15757.D | 08/06/02 | 09:31 | 00:23 | Continuing cal 20 |
| OP5605-BS2 | ST15760.D | 08/06/02 | 10:40 | 01:32 | Blank Spike |
| OP5605-MB2 | ST15761.D | 08/06/02 | 11:02 | 01:54 | Method Blank |
| F14004-2 | ST15762.D | 08/06/02 | 11:23 | 02:15 | CEF-P21-GW-08S-L01 |
| OP5605-MB | ST15763.D | 08/06/02 | 11:45 | 02:37 | Method Blank |
| F14004-1 | ST15764.D | 08/06/02 | 12:06 | 02:58 | CEF-P21-GW-01S-L01 |
| GST589-CC586 | ST15766.D | 08/06/02 | 12:49 | 03:41 | Continuing cal 20 |
| OP5620-MB | ST15767.D | 08/06/02 | 14:21 | 05:13 | Method Blank |
| OP5620-BS | ST15768.D | 08/06/02 | 14:43 | 05:35 | Blank Spike |
| ZZZZZZ | ST15769.D | 08/06/02 | 15:05 | 05:57 | (unrelated sample) |
| ZZZZZZ | ST15770.D | 08/06/02 | 15:26 | 06:18 | (unrelated sample) |
| ZZZZZZ | ST15771.D | 08/06/02 | 15:48 | 06:40 | (unrelated sample) |
| ZZZZZZ | ST15772.D | 08/06/02 | 16:09 | 07:01 | (unrelated sample) |
| GST589-ECC586 | ST15773.D | 08/06/02 | 16:31 | 07:23 | Ending cal 40 |

# DDT/Endrin Breakdown Check



**Job Number:** F14004
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO0078/N0039

| | | | |
|---|---|---|---|
| **Sample:** | GST586-DDT | **Injection Date:** | 07/31/02 |
| **Lab File ID:** | ST15676.D | **Injection Time:** | 13:54 |
| **Instrument ID:** | GCST | | |

| Compound | Response Signal 1 | Response Signal 2 |
|---|---|---|
| 4,4'-DDD | 8694 | 31031 |
| 4,4'-DDE | 1483 | 3830 |
| 4,4'-DDT | 204609 | 410498 |
| DDT Breakdown [a] | 4.7 % | 7.8 % |
| Endrin aldehyde | 7293 | 10994 |
| Endrin ketone | 9610 | 20751 |
| Endrin | 254368 | 670014 |
| Endrin Breakdown [b] | 6.2 % | 4.5 % |

(a) Calculated as: (DDD + DDE) / (DDD + DDE + DDT) x 100
(b) Calculated as: (Endrin Aldehyde + Endrin Ketone) / (Endrin Aldehyde + Endrin Ketone + Endrin) x 100

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| GST586-IC586 | ST15677.D | 07/31/02 | 14:53 | 00:59 | Initial cal 5 |
| GST586-IC586 | ST15678.D | 07/31/02 | 15:15 | 01:21 | Initial cal 10 |
| GST586-IC586 | ST15679.D | 07/31/02 | 15:36 | 01:42 | Initial cal 20 |
| GST586-ICC586 | ST15680.D | 07/31/02 | 15:58 | 02:04 | Initial cal 40 |
| GST586-IC586 | ST15681.D | 07/31/02 | 16:19 | 02:25 | Initial cal 60 |
| GST586-IC586 | ST15682.D | 07/31/02 | 16:41 | 02:47 | Initial cal 80 |
| OP5582-MB | ST15686.D | 07/31/02 | 18:07 | 04:13 | Method Blank |
| OP5582-BS | ST15687.D | 07/31/02 | 18:28 | 04:34 | Blank Spike |
| ZZZZZZ | ST15688.D | 07/31/02 | 18:50 | 04:56 | (unrelated sample) |
| ZZZZZZ | ST15689.D | 07/31/02 | 19:11 | 05:17 | (unrelated sample) |
| ZZZZZZ | ST15690.D | 07/31/02 | 19:33 | 05:39 | (unrelated sample) |
| ZZZZZZ | ST15693.D | 07/31/02 | 20:37 | 06:43 | (unrelated sample) |
| GST586-CC586 | ST15694.D | 07/31/02 | 20:59 | 07:05 | Continuing cal 40 |
| ZZZZZZ | ST15695.D | 07/31/02 | 21:20 | 07:26 | (unrelated sample) |
| F13979-7 | ST15697.D | 07/31/02 | 22:03 | 08:09 | (used for QC only; not part of job F14004) |
| OP5582-MS | ST15698.D | 07/31/02 | 22:25 | 08:31 | Matrix Spike |
| OP5582-MSD | ST15699.D | 07/31/02 | 22:46 | 08:52 | Matrix Spike Duplicate |
| ZZZZZZ | ST15700.D | 07/31/02 | 23:08 | 09:14 | (unrelated sample) |
| GST586-ECC586 | ST15701.D | 07/31/02 | 23:29 | 09:35 | Ending cal 20 |

# DDT/Endrin Breakdown Check



**Job Number:** F14004
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO0078/N0039

| | | | |
|---|---|---|---|
| **Sample:** | GST588-DDT | **Injection Date:** | 08/02/02 |
| **Lab File ID:** | ST15726.D | **Injection Time:** | 11:47 |
| **Instrument ID:** | GCST | | |

| Compound | Response Signal 1 | Response Signal 2 |
|---|---|---|
| 4,4'-DDD | 10644 | 31496 |
| 4,4'-DDE | 2914 | 7501 |
| 4,4'-DDT | 234426 | 455348 |
| DDT Breakdown [a] | 5.5 % | 7.9 % |
| Endrin aldehyde | 8061 | 11854 |
| Endrin ketone | 8530 | 15465 |
| Endrin | 306863 | 742796 |
| Endrin Breakdown [b] | 5.1 % | 3.5 % |

(a) Calculated as: (DDD + DDE) / (DDD + DDE + DDT) x 100
(b) Calculated as: (Endrin Aldehyde + Endrin Ketone) / (Endrin Aldehyde + Endrin Ketone + Endrin) x 100

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| GST588-CC586 | ST15727.D | 08/02/02 | 12:08 | 00:21 | Continuing cal 40 |
| OP5582-MB | ST15730.D | 08/02/02 | 13:26 | 01:39 | Method Blank |
| ZZZZZZ | ST15731.D | 08/02/02 | 13:48 | 02:01 | (unrelated sample) |
| ZZZZZZ | ST15732.D | 08/02/02 | 14:09 | 02:22 | (unrelated sample) |
| ZZZZZZ | ST15734.D | 08/02/02 | 14:52 | 03:05 | (unrelated sample) |
| ZZZZZZ | ST15735.D | 08/02/02 | 15:14 | 03:27 | (unrelated sample) |
| ZZZZZZ | ST15736.D | 08/02/02 | 15:35 | 03:48 | (unrelated sample) |
| GST588-CC586 | ST15737.D | 08/02/02 | 15:57 | 04:10 | Continuing cal 40 |
| OP5605-BS | ST15738.D | 08/02/02 | 16:28 | 04:41 | Blank Spike |
| OP5605-MB | ST15739.D | 08/02/02 | 16:50 | 05:03 | Method Blank |
| OP5605-MS | ST15742.D | 08/02/02 | 17:54 | 06:07 | Matrix Spike |
| OP5605-MSD | ST15743.D | 08/02/02 | 18:16 | 06:29 | Matrix Spike Duplicate |
| ZZZZZZ | ST15744.D | 08/02/02 | 18:37 | 06:50 | (unrelated sample) |
| ZZZZZZ | ST15745.D | 08/02/02 | 18:59 | 07:12 | (unrelated sample) |
| ZZZZZZ | ST15746.D | 08/02/02 | 19:20 | 07:33 | (unrelated sample) |
| GST588-CC586 | ST15747.D | 08/02/02 | 19:42 | 07:55 | Continuing cal 40 |
| ZZZZZZ | ST15748.D | 08/02/02 | 20:03 | 08:16 | (unrelated sample) |
| ZZZZZZ | ST15749.D | 08/02/02 | 20:25 | 08:38 | (unrelated sample) |
| ZZZZZZ | ST15750.D | 08/02/02 | 20:46 | 08:59 | (unrelated sample) |
| GST588-CC586 | ST15751.D | 08/02/02 | 21:08 | 09:21 | Continuing cal 20 |
| OP5579-MB | ST15752.D | 08/02/02 | 21:29 | 09:42 | Method Blank |
| ZZZZZZ | ST15753.D | 08/02/02 | 21:51 | 10:04 | (unrelated sample) |
| GST588-ECC586 | ST15754.D | 08/02/02 | 22:12 | 10:25 | Ending cal 20 |

Response Factor Report ECD 3

Method : C:\HPCHEM\1\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Thu Aug 01 10:22:06 2002

Ny 8-2-02

Calibration Files
5 =ST15677.D 10 =ST15678.D 20 =ST15679.D
40 =ST15680.D 60 =ST15681.D 80 =ST15682.D

| | | Compound | 5 | 10 | 20 | 40 | 60 | 80 | Avg | | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | S | Tetrachloro-m-xylen | 3.806 | 3.680 | 3.869 | 4.083 | 4.264 | 4.311 | 4.002 | E3 | 6.42 |
| 2) | | alpha-BHC | 5.963 | 6.268 | 7.077 | 7.867 | 8.485 | 8.672 | 7.389 | E3 | 15.38 |
| 3) | | gamma-BHC (Lindane) | 5.814 | 5.662 | 6.346 | 7.187 | 7.506 | 7.666 | 6.697 | E3 | 13.03 |
| 4) | | beta-BHC | 2.356 | 2.044 | 2.193 | 2.392 | 2.513 | 2.585 | 2.347 | E3 | 8.56 |
| 5) | | Heptachlor | 5.202 | 5.039 | 5.463 | 6.076 | 6.346 | 6.708 | 5.806 | E3 | 11.55 |
| 6) | | delta-BHC | 4.635 | 4.058 | 4.543 | 5.218 | 5.844 | | 4.860 | E3 | 14.14 |
| 7) | | Aldrin | 4.882 | 4.874 | 5.272 | 5.803 | 6.239 | 6.636 | 5.618 | E3 | 13.01 |
| 8) | | Heptachlor Epoxide | 4.866 | 4.641 | 4.843 | 5.565 | 5.720 | 5.915 | 5.258 | E3 | 10.23 |
| 9) | | gamma-Chlordane | 4.654 | 4.592 | 4.913 | 5.280 | 5.633 | 5.939 | 5.168 | E3 | 10.54 |
| 10) | | alpha-Chlordane | 5.281 | 4.591 | 4.880 | 5.249 | 5.525 | 5.913 | 5.240 | E3 | 8.89 |
| 11) | | Endosulfan I | 4.517 | 4.215 | 4.498 | 4.827 | 5.273 | 5.275 | 4.768 | E3 | 9.18 |
| 12) | | 4,4'-DDE | 3.892 | 3.457 | 3.829 | 4.432 | 4.858 | 4.972 | 4.240 | E3 | 14.38 |
| 13) | | Dieldrin | 4.618 | 4.456 | 5.042 | 5.591 | 5.957 | 6.083 | 5.291 | E3 | 13.02 |
| 14) | | Endrin | 4.265 | 4.009 | 4.343 | 4.790 | 5.033 | 5.322 | 4.627 | E3 | 10.88 |
| 15) | | 4,4'-DDD | 3.795 | 3.315 | 3.548 | 4.035 | 4.138 | 4.534 | 3.894 | E3 | 11.22 |
| 16) | | Endosulfan II | 4.432 | 4.311 | 4.546 | 5.089 | 5.230 | 5.388 | 4.833 | E3 | 9.47 |
| 17) | | 4,4'-DDT | 3.703 | 3.156 | 3.615 | 4.275 | 4.416 | 4.840 | 4.001 | E3 | 15.42 |
| 18) | | Endrin Aldehyde | 3.901 | 3.633 | 3.917 | 4.080 | 4.348 | 4.467 | 4.058 | E3 | 7.61 |
| 19) | | Endosulfan Sulfate | 4.412 | 4.029 | 4.086 | 4.440 | 4.652 | 4.989 | 4.435 | E3 | 8.08 |
| 20) | | Methoxychlor | 1.902 | 1.589 | 1.693 | 1.846 | 1.847 | 1.919 | 1.800 | E3 | 7.23 |
| 21) | | Endrin Ketone | 4.396 | 4.327 | 4.663 | 4.778 | 4.921 | 5.096 | 4.697 | E3 | 6.35 |
| 22) | L1 | Chlordane-A | | | | | | | 1.687 | E2 | 0.00 |
| 23) | L1 | Chlordane-B | | | | | | | 2.938 | E2 | 0.00 |
| 24) | L1 | Chlordane-C | | | | | | | 4.918 | E2 | 0.00 |
| 25) | L1 | Chlordane-D | | | | | | | 2.790 | E2 | 0.00 |
| 26) | L1 | Chlordane-E | | | | | | | 3.612 | E2 | 0.00 |
| 27) | L1 | Chlordane-F | | | | | | | 2.102 | E2 | 0.00 |
| 28) | H | Toxaphene | | | | | | | 5.442 | E4 | 0.00 |
| 29) | SC | Decachlorobiphenyl | 2.574 | 2.320 | 2.176 | 2.205 | 2.148 | 2.153 | 2.263 | E3 | 7.28 |

Signal #2 Calibration Files
5 =ST15677.D 10 =ST15678.D 20 =ST15679.D
40 =ST15680.D 60 =ST15681.D 80 =ST15682.D

| | | Compound | 5 | 10 | 20 | 40 | 60 | 80 | Avg | | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1) | S | Tetrachloro-m-xylen | 0.951 | 0.896 | 0.953 | 0.992 | 1.053 | 1.050 | 0.983 | E4 | 6.29 |
| 2) | | alpha-BHC | 1.649 | 1.637 | 1.759 | 1.929 | 2.040 | 2.095 | 1.852 | E4 | 10.72 |
| 3) | | gamma-BHC (Lindane) | 1.506 | 1.477 | 1.597 | 1.710 | 1.819 | 1.870 | 1.663 | E4 | 9.80 |
| 4) | | beta-BHC | 6.712 | 5.953 | 6.088 | 6.412 | 6.541 | 6.722 | 6.405 | E3 | 5.03 |
| 5) | | Heptachlor | 1.468 | 1.383 | 1.518 | 1.581 | 1.676 | 1.711 | 1.556 | E4 | 8.03 |
| 6) | | delta-BHC | 1.289 | 1.155 | 1.254 | 1.421 | 1.553 | | 1.334 | E4 | 11.62 |
| 7) | | Aldrin | 1.385 | 1.336 | 1.470 | 1.580 | 1.583 | 1.647 | 1.500 | E4 | 8.22 |
| 8) | | Heptachlor Epoxide | 1.270 | 1.229 | 1.329 | 1.383 | 1.446 | 1.464 | 1.353 | E4 | 6.98 |
| 9) | | gamma-Chlordane | 1.306 | 1.211 | 1.292 | 1.423 | 1.430 | 1.460 | 1.354 | E4 | 7.25 |
| 10) | | alpha-Chlordane | 1.280 | 1.196 | 1.260 | 1.328 | 1.379 | 1.418 | 1.310 | E4 | 6.20 |
| 11) | | Endosulfan I | 1.162 | 1.115 | 1.155 | 1.231 | 1.262 | 1.314 | 1.206 | E4 | 6.22 |
| 12) | | 4,4'-DDE | 1.059 | 0.887 | 0.926 | 1.065 | 1.096 | 1.192 | 1.037 | E4 | 10.87 |
| 13) | | Dieldrin | 1.260 | 1.263 | 1.333 | 1.376 | 1.421 | 1.470 | 1.354 | E4 | 6.28 |
| 14) | | Endrin | 1.196 | 1.077 | 1.116 | 1.231 | 1.242 | 1.307 | 1.195 | E4 | 7.13 |
| 15) | | 4,4'-DDD | 1.117 | 0.929 | 0.953 | 1.084 | 1.132 | 1.158 | 1.062 | E4 | 9.16 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16) | | Endosulfan II | 1.232 | 1.179 | 1.217 | 1.299 | 1.355 | 1.345 | 1.271 | E4 | 5.69 |
| 17) | | 4,4'-DDT | 7.577 | 6.494 | 7.284 | 8.330 | 9.148 | 9.715 | 8.091 | E3 | 14.91 |
| 18) | | Endrin Aldehyde | 5.782 | 5.553 | 5.899 | 6.213 | 6.267 | 6.600 | 6.052 | E3 | 6.26 |
| 19) | | Endosulfan Sulfate | 9.331 | 8.671 | 8.801 | 9.240 | 9.659 | 9.960 | 9.277 | E3 | 5.31 |
| 20) | | Methoxychlor | 4.193 | 3.427 | 3.569 | 3.878 | 3.983 | 4.310 | 3.893 | E3 | 8.85 |
| 21) | | Endrin Ketone | 0.929 | 0.916 | 0.927 | 0.984 | 1.004 | 1.019 | 0.963 | E4 | 4.63 |
| 22) | L1 | Chlordane-A | | | | | | | 4.242 | E2 | 0.00 |
| 23) | L1 | Chlordane-B | | | | | | | 8.297 | E2 | 0.00 |
| 24) | L1 | Chlordane-C | | | | | | | 1.224 | E3 | 0.00 |
| 25) | L1 | Chlordane-D | | | | | | | 1.660 | E3 | 0.00 |
| 26) | L1 | Chlordane-E | | | | | | | 4.890 | E2 | 0.00 |
| 27) | L1 | Chlordane-F | | | | | | | 2.288 | E2 | 0.00 |
| 28) | H | Toxaphene | | | | | | | 1.312 | E5 | 0.00 |
| 29) | SC | Decachlorobiphenyl | 6.250 | 5.324 | 5.231 | 5.243 | 5.171 | 5.278 | 5.416 | E3 | 7.60 |

(#) = Out of Range ### Number of calibration levels exceeded format ###

8081A.M Thu Aug 01 10:22:42 2002 GCECD2

# Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\0802PEST\ST15747.D\ECD1B.CH Vial: 23
Signal #2 : C:\HPCHEM\1\DATA\0802PEST\ST15747.D\ECD2A.CH
Acq On : 02 Aug 2002 7:42 pm Operator: normf
Sample : CC586-40 Inst : ECD 3
Misc : op5605,gst588,1000,,,10,,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\HPCHEM\1\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Thu Aug 01 10:22:06 2002
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | | Compound | Amount | Calc. | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|---|
| 1 | S | Tetrachloro-m-xylene | 40.000 | 41.606 | -4.0 | 102 | 0.00 |
| 2 | | alpha-BHC | 40.000 | 42.883 | -7.2 | 101 | 0.00 |
| 3 | | gamma-BHC (Lindane) | 40.000 | 42.707 | -6.8 | 99 | 0.00 |
| 4 | | beta-BHC | 40.000 | 42.678 | -6.7 | 105 | 0.00 |
| 5 | | Heptachlor | 40.000 | 43.851 | -9.6 | 105 | 0.00 |
| 6 | | delta-BHC | 40.000 | 45.829 | -14.6 | 107 | 0.00 |
| 7 | | Aldrin | 40.000 | 42.355 | -5.9 | 103 | 0.00 |
| 8 | | Heptachlor Epoxide | 40.000 | 44.445 | -11.1 | 105 | 0.00 |
| 9 | | gamma-Chlordane | 40.000 | 44.782 | -12.0 | 110 | 0.00 |
| 10 | | alpha-Chlordane | 40.000 | 42.855 | -7.1 | 107 | 0.00 |
| 11 | | Endosulfan I | 40.000 | 43.567 | -8.9 | 108 | 0.00 |
| 12 | | 4,4'-DDE | 40.000 | 50.082 | -25.2# | 120 | 0.00 |
| 13 | | Dieldrin | 40.000 | 45.080 | -12.7 | 107 | 0.00 |
| 14 | | Endrin | 40.000 | 41.942 | -4.9 | 101 | 0.00 |
| 15 | | 4,4'-DDD | 40.000 | 48.572 | -21.4# | 117 | 0.00 |
| 16 | | Endosulfan II | 40.000 | 43.745 | -9.4 | 104 | 0.00 |
| 17 | | 4,4'-DDT | 40.000 | 45.215 | -13.0 | 106 | 0.00 |
| 18 | | Endrin Aldehyde | 40.000 | 40.338 | -0.8 | 100 | 0.00 |
| 19 | | Endosulfan Sulfate | 40.000 | 41.054 | -2.6 | 103 | 0.00 |
| 20 | | Methoxychlor | 40.000 | 41.737 | -4.3 | 102 | 0.00 |
| 21 | | Endrin Ketone | 40.000 | 40.245 | -0.6 | 99 | 0.00 |
| 29 | SC | Decachlorobiphenyl | 40.000 | 35.537 | 11.2 | 91 | 0.00 |

Signal #2

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | S | Tetrachloro-m-xylene | 40.000 | 42.681 | -6.7 | 106 | 0.00 |
| 2 | | alpha-BHC | 40.000 | 42.969 | -7.4 | 103 | 0.00 |
| 3 | | gamma-BHC (Lindane) | 40.000 | 42.700 | -6.8 | 104 | 0.00 |
| 4 | | beta-BHC | 40.000 | 42.061 | -5.2 | 105 | 0.00 |
| 5 | | Heptachlor | 40.000 | 44.544 | -11.4 | 110 | 0.00 |
| 6 | | delta-BHC | 40.000 | 44.950 | -12.4 | 106 | 0.00 |
| 7 | | Aldrin | 40.000 | 43.366 | -8.4 | 103 | 0.00 |
| 8 | | Heptachlor Epoxide | 40.000 | 41.396 | -3.5 | 101 | 0.00 |
| 9 | | gamma-Chlordane | 40.000 | 43.274 | -8.2 | 103 | 0.00 |
| 10 | | alpha-Chlordane | 40.000 | 43.732 | -9.3 | 108 | 0.00 |
| 11 | | Endosulfan I | 40.000 | 44.032 | -10.1 | 108 | 0.00 |
| 12 | | 4,4'-DDE | 40.000 | 49.263 | -23.2# | 120 | 0.00 |
| 13 | | Dieldrin | 40.000 | 45.095 | -12.7 | 111 | 0.00 |
| 14 | | Endrin | 40.000 | 42.907 | -7.3 | 104 | 0.00 |
| 15 | | 4,4'-DDD | 40.000 | 47.037 | -17.6# | 115 | 0.00 |
| 16 | | Endosulfan II | 40.000 | 41.437 | -3.6 | 101 | 0.00 |
| 17 | | 4,4'-DDT | 40.000 | 47.358 | -18.4# | 115 | 0.00 |
| 18 | | Endrin Aldehyde | 40.000 | 41.396 | -3.5 | 101 | 0.00 |
| 19 | | Endosulfan Sulfate | 40.000 | 40.128 | -0.3 | 101 | 0.00 |

082

| | | | | | | |
|---|---|---|---|---|---|---|
| 20 | Methoxychlor | 40.000 | 43.981 | -10.0 | 110 | 0.00 |
| 21 | Endrin Ketone | 40.000 | 39.339 | 1.7 | 96 | 0.00 |
| 29 SC | Decachlorobiphenyl | 40.000 | 35.215 | 12.0 | 91 | 0.00 |

Evaluate Continuing Calibration Report - Not Founds

Signal #1 : C:\HPCHEM\1\DATA\0802PEST\ST15747.D\ECD1B.CH Vial: 23
Signal #2 : C:\HPCHEM\1\DATA\0802PEST\ST15747.D\ECD2A.CH
Acq On : 02 Aug 2002 7:42 pm Operator: normf
Sample : CC586-40 Inst : ECD 3
Misc : op5605,gst588,1000,,,10,,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\HPCHEM\1\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Thu Aug 01 10:22:06 2002
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | Compound | Amount | Calc. | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 22 L1 | Chlordane-A | -1.000 | 0.000 | 0.0 | 0 | -7.84# |
| 23 L1 | Chlordane-B | -1.000 | 0.000 | 0.0 | 0 | -8.10# |
| 24 L1 | Chlordane-C | -1.000 | 0.000 | 0.0 | 0 | -9.75# |
| 25 L1 | Chlordane-D | -1.000 | 0.000 | 0.0 | 0 | -9.79# |
| 26 L1 | Chlordane-E | -1.000 | 0.000 | 0.0 | 0 | -10.00# |
| 27 L1 | Chlordane-F | -1.000 | 0.000 | 0.0 | 0 | -11.42# |
| 28 H | Toxaphene | -1.000 | 0.000 | 0.0 | 0 | -11.46# |

Signal #2

| | | | | | | |
|---|---|---|---|---|---|---|
| 22 L1 | Chlordane-A | -1.000 | 0.000 | 0.0 | 0 | -8.12# |
| 23 L1 | Chlordane-B | -1.000 | 0.000 | 0.0 | 0 | -8.36# |
| 24 L1 | Chlordane-C | -1.000 | 0.000 | 0.0 | 0 | -10.31# |
| 25 L1 | Chlordane-D | -1.000 | 0.000 | 0.0 | 0 | -10.39# |
| 26 L1 | Chlordane-E | -1.000 | 0.000 | 0.0 | 0 | -11.46# |
| 27 L1 | Chlordane-F | -1.000 | 0.000 | 0.0 | 0 | -11.62# |
| 28 H | Toxaphene | -1.000 | 0.000 | 0.0 | 0 | -12.11# |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
ST15680.D 8081A.M Mon Aug 05 09:42:03 2002 GCECD2

# Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\0802PEST\ST15737.D\ECD1B.CH Vial: 13
Signal #2 : C:\HPCHEM\1\DATA\0802PEST\ST15737.D\ECD2A.CH
Acq On : 02 Aug 2002 3:57 pm Operator: normf
Sample : CC586-40 Inst : ECD 3
Misc : op5582,gst588,990,,,10,,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\HPCHEM\1\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Thu Aug 01 10:22:06 2002
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | | Compound | Amount | Calc. | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|---|
| 1 | S | Tetrachloro-m-xylene | 40.000 | 41.804 | -4.5 | 102 | 0.00 |
| 2 | | alpha-BHC | 40.000 | 43.820 | -9.6 | 103 | 0.00 |
| 3 | | gamma-BHC (Lindane) | 40.000 | 42.563 | -6.4 | 99 | 0.00 |
| 4 | | beta-BHC | 40.000 | 41.985 | -5.0 | 103 | 0.00 |
| 5 | | Heptachlor | 40.000 | 45.121 | -12.8 | 108 | 0.00 |
| 6 | | delta-BHC | 40.000 | 43.638 | -9.1 | 102 | 0.00 |
| 7 | | Aldrin | 40.000 | 44.565 | -11.4 | 108 | 0.00 |
| 8 | | Heptachlor Epoxide | 40.000 | 43.874 | -9.7 | 104 | 0.00 |
| 9 | | gamma-Chlordane | 40.000 | 43.628 | -9.1 | 107 | 0.00 |
| 10 | | alpha-Chlordane | 40.000 | 42.561 | -6.4 | 106 | 0.00 |
| 11 | | Endosulfan I | 40.000 | 44.744 | -11.9 | 110 | 0.00 |
| 12 | | 4,4'-DDE | 40.000 | 48.889 | -22.2# | 117 | 0.00 |
| 13 | | Dieldrin | 40.000 | 44.441 | -11.1 | 105 | 0.00 |
| 14 | | Endrin | 40.000 | 42.049 | -5.1 | 102 | 0.00 |
| 15 | | 4,4'-DDD | 40.000 | 44.826 | -12.1 | 108 | 0.00 |
| 16 | | Endosulfan II | 40.000 | 43.729 | -9.3 | 104 | 0.00 |
| 17 | | 4,4'-DDT | 40.000 | 43.633 | -9.1 | 102 | 0.00 |
| 18 | | Endrin Aldehyde | 40.000 | 40.839 | -2.1 | 102 | 0.00 |
| 19 | | Endosulfan Sulfate | 40.000 | 41.524 | -3.8 | 104 | 0.00 |
| 20 | | Methoxychlor | 40.000 | 41.038 | -2.6 | 100 | 0.00 |
| 21 | | Endrin Ketone | 40.000 | 40.964 | -2.4 | 101 | 0.00 |
| 29 | SC | Decachlorobiphenyl | 40.000 | 36.189 | 9.5 | 93 | 0.00 |

Signal #2

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | S | Tetrachloro-m-xylene | 40.000 | 42.109 | -5.3 | 104 | 0.00 |
| 2 | | alpha-BHC | 40.000 | 42.240 | -5.6 | 101 | 0.00 |
| 3 | | gamma-BHC (Lindane) | 40.000 | 42.190 | -5.5 | 103 | 0.00 |
| 4 | | beta-BHC | 40.000 | 42.416 | -6.0 | 106 | 0.00 |
| 5 | | Heptachlor | 40.000 | 43.494 | -8.7 | 107 | 0.00 |
| 6 | | delta-BHC | 40.000 | 41.936 | -4.8 | 98 | 0.00 |
| 7 | | Aldrin | 40.000 | 43.963 | -9.9 | 104 | 0.00 |
| 8 | | Heptachlor Epoxide | 40.000 | 43.293 | -8.2 | 106 | 0.00 |
| 9 | | gamma-Chlordane | 40.000 | 42.920 | -7.3 | 102 | 0.00 |
| 10 | | alpha-Chlordane | 40.000 | 43.043 | -7.6 | 106 | 0.00 |
| 11 | | Endosulfan I | 40.000 | 43.568 | -8.9 | 107 | 0.00 |
| 12 | | 4,4'-DDE | 40.000 | 46.752 | -16.9# | 114 | 0.00 |
| 13 | | Dieldrin | 40.000 | 43.477 | -8.7 | 107 | 0.00 |
| 14 | | Endrin | 40.000 | 41.333 | -3.3 | 100 | 0.00 |
| 15 | | 4,4'-DDD | 40.000 | 43.244 | -8.1 | 106 | 0.00 |
| 16 | | Endosulfan II | 40.000 | 41.609 | -4.0 | 102 | 0.00 |
| 17 | | 4,4'-DDT | 40.000 | 43.180 | -7.9 | 105 | 0.00 |
| 18 | | Endrin Aldehyde | 40.000 | 41.357 | -3.4 | 101 | 0.00 |
| 19 | | Endosulfan Sulfate | 40.000 | 40.596 | -1.5 | 102 | 0.00 |

086

| | | | | | | |
|---|---|---|---|---|---|---|
| 20 | Methoxychlor | 40.000 | 40.922 | -2.3 | 103 | 0.00 |
| 21 | Endrin Ketone | 40.000 | 38.799 | 3.0 | 95 | 0.00 |
| 29 SC | Decachlorobiphenyl | 40.000 | 34.804 | 13.0 | 90 | 0.00 |

Evaluate Continuing Calibration Report - Not Founds

Signal #1 : C:\HPCHEM\1\DATA\0802PEST\ST15737.D\ECD1B.CH Vial: 13
Signal #2 : C:\HPCHEM\1\DATA\0802PEST\ST15737.D\ECD2A.CH
Acq On : 02 Aug 2002 3:57 pm Operator: normf
Sample : CC586-40 Inst : ECD 3
Misc : op5582,gst588,990,,,10,,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\HPCHEM\1\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Thu Aug 01 10:22:06 2002
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | Compound | Amount | Calc. | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 22 L1 | Chlordane-A | -1.000 | 0.000 | 0.0 | 0 | -7.84# |
| 23 L1 | Chlordane-B | -1.000 | 0.000 | 0.0 | 0 | -8.10# |
| 24 L1 | Chlordane-C | -1.000 | 0.000 | 0.0 | 0 | -9.75# |
| 25 L1 | Chlordane-D | -1.000 | 0.000 | 0.0 | 0 | -9.79# |
| 26 L1 | Chlordane-E | -1.000 | 0.000 | 0.0 | 0 | -10.00# |
| 27 L1 | Chlordane-F | -1.000 | 0.000 | 0.0 | 0 | -11.42# |
| 28 H | Toxaphene | -1.000 | 0.000 | 0.0 | 0 | -11.46# |

Signal #2

| | | | | | | |
|---|---|---|---|---|---|---|
| 22 L1 | Chlordane-A | -1.000 | 0.000 | 0.0 | 0 | -8.12# |
| 23 L1 | Chlordane-B | -1.000 | 0.000 | 0.0 | 0 | -8.36# |
| 24 L1 | Chlordane-C | -1.000 | 0.000 | 0.0 | 0 | -10.31# |
| 25 L1 | Chlordane-D | -1.000 | 0.000 | 0.0 | 0 | -10.39# |
| 26 L1 | Chlordane-E | -1.000 | 0.000 | 0.0 | 0 | -11.46# |
| 27 L1 | Chlordane-F | -1.000 | 0.000 | 0.0 | 0 | -11.62# |
| 28 H | Toxaphene | -1.000 | 0.000 | 0.0 | 0 | -12.11# |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
ST15680.D 8081A.M Mon Aug 05 09:42:00 2002 GCECD2

# Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\0806PEST\ST15766.D\ECD1B.CH Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\0806PEST\ST15766.D\ECD2A.CH
Acq On : 06 Aug 2002 12:49 pm Operator: normf
Sample : CC586-20 Inst : ECD 3
Misc : op5605,gst589,1000,,,10,,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\HPCHEM\1\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Thu Aug 01 10:22:06 2002
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | | Compound | Amount | Calc. | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|---|
| 1 | S | Tetrachloro-m-xylene | 20.000 | 18.719 | 6.4 | 97 | 0.00 |
| 2 | | alpha-BHC | 20.000 | 18.477 | 7.6 | 96 | 0.00 |
| 3 | | gamma-BHC (Lindane) | 20.000 | 17.799 | 11.0 | 94 | 0.00 |
| 4 | | beta-BHC | 20.000 | 18.806 | 6.0 | 101 | 0.00 |
| 5 | | Heptachlor | 20.000 | 19.029 | 4.9 | 101 | 0.00 |
| 6 | | delta-BHC | 20.000 | 18.080 | 9.6 | 97 | 0.00 |
| 7 | | Aldrin | 20.000 | 18.450 | 7.8 | 98 | 0.00 |
| 8 | | Heptachlor Epoxide | 20.000 | 19.198 | 4.0 | 104 | 0.00 |
| 9 | | gamma-Chlordane | 20.000 | 19.017 | 4.9 | 100 | 0.00 |
| 10 | | alpha-Chlordane | 20.000 | 18.180 | 9.1 | 98 | 0.00 |
| 11 | | Endosulfan I | 20.000 | 18.837 | 5.8 | 100 | 0.00 |
| 12 | | 4,4'-DDE | 20.000 | 19.966 | 0.2 | 111 | 0.00 |
| 13 | | Dieldrin | 20.000 | 19.220 | 3.9 | 101 | 0.00 |
| 14 | | Endrin | 20.000 | 18.812 | 5.9 | 100 | 0.00 |
| 15 | | 4,4'-DDD | 20.000 | 19.219 | 3.9 | 105 | 0.00 |
| 16 | | Endosulfan II | 20.000 | 19.039 | 4.8 | 101 | 0.00 |
| 17 | | 4,4'-DDT | 20.000 | 19.704 | 1.5 | 109 | 0.00 |
| 18 | | Endrin Aldehyde | 20.000 | 16.994 | 15.0# | 88 | 0.00 |
| 19 | | Endosulfan Sulfate | 20.000 | 18.211 | 8.9 | 99 | 0.00 |
| 20 | | Methoxychlor | 20.000 | 19.376 | 3.1 | 103 | 0.00 |
| 21 | | Endrin Ketone | 20.000 | 17.843 | 10.8 | 90 | 0.00 |
| 29 | SC | Decachlorobiphenyl | 20.000 | 18.175 | 9.1 | 94 | 0.00 |

8/6/2

Signal #2

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | S | Tetrachloro-m-xylene | 20.000 | 19.072 | 4.6 | 98 | 0.00 |
| 2 | | alpha-BHC | 20.000 | 18.745 | 6.3 | 99 | 0.00 |
| 3 | | gamma-BHC (Lindane) | 20.000 | 19.409 | 3.0 | 101 | 0.00 |
| 4 | | beta-BHC | 20.000 | 19.255 | 3.7 | 101 | 0.00 |
| 5 | | Heptachlor | 20.000 | 19.391 | 3.0 | 99 | 0.00 |
| 6 | | delta-BHC | 20.000 | 18.887 | 5.6 | 101 | 0.00 |
| 7 | | Aldrin | 20.000 | 19.530 | 2.3 | 100 | 0.00 |
| 8 | | Heptachlor Epoxide | 20.000 | 19.610 | 2.0 | 100 | 0.00 |
| 9 | | gamma-Chlordane | 20.000 | 19.328 | 3.4 | 101 | 0.00 |
| 10 | | alpha-Chlordane | 20.000 | 19.428 | 2.9 | 101 | 0.00 |
| 11 | | Endosulfan I | 20.000 | 19.455 | 2.7 | 102 | 0.00 |
| 12 | | 4,4'-DDE | 20.000 | 19.998 | 0.0 | 112 | 0.00 |
| 13 | | Dieldrin | 20.000 | 19.482 | 2.6 | 99 | 0.00 |
| 14 | | Endrin | 20.000 | 19.859 | 0.7 | 106 | 0.00 |
| 15 | | 4,4'-DDD | 20.000 | 19.179 | 4.1 | 107 | 0.00 |
| 16 | | Endosulfan II | 20.000 | 19.102 | 4.5 | 100 | 0.00 |
| 17 | | 4,4'-DDT | 20.000 | 20.443 | -2.2 | 114 | 0.00 |
| 18 | | Endrin Aldehyde | 20.000 | 18.489 | 7.6 | 95 | 0.00 |
| 19 | | Endosulfan Sulfate | 20.000 | 18.262 | 8.7 | 96 | 0.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 20 | Methoxychlor | 20.000 | 18.916 | 5.4 | 103 | 0.00 |
| 21 | Endrin Ketone | 20.000 | 18.572 | 7.1 | 96 | 0.00 |
| 29 SC | Decachlorobiphenyl | 20.000 | 18.212 | 8.9 | 94 | -0.01 |

Evaluate Continuing Calibration Report - Not Founds

Signal #1 : C:\HPCHEM\1\DATA\0806PEST\ST15766.D\ECD1B.CH Vial: 12
Signal #2 : C:\HPCHEM\1\DATA\0806PEST\ST15766.D\ECD2A.CH
Acq On : 06 Aug 2002 12:49 pm Operator: normf
Sample : CC586-20 Inst : ECD 3
Misc : op5605,gst589,1000,,,10,,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\HPCHEM\1\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Thu Aug 01 10:22:06 2002
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | Compound | Amount | Calc. | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 22 L1 | Chlordane-A | -1.000 | 0.000 | 0.0 | 0 | -7.84# |
| 23 L1 | Chlordane-B | -1.000 | 0.000 | 0.0 | 0 | -8.10# |
| 24 L1 | Chlordane-C | -1.000 | 0.000 | 0.0 | 0 | -9.75# |
| 25 L1 | Chlordane-D | -1.000 | 0.000 | 0.0 | 0 | -9.79# |
| 26 L1 | Chlordane-E | -1.000 | 0.000 | 0.0 | 0 | -10.00# |
| 27 L1 | Chlordane-F | -1.000 | 0.000 | 0.0 | 0 | -11.42# |
| 28 H | Toxaphene | -1.000 | 0.000 | 0.0 | 0 | -11.46# |

Signal #2

| | | | | | | |
|---|---|---|---|---|---|---|
| 22 L1 | Chlordane-A | -1.000 | 0.000 | 0.0 | 0 | -8.12# |
| 23 L1 | Chlordane-B | -1.000 | 0.000 | 0.0 | 0 | -8.36# |
| 24 L1 | Chlordane-C | -1.000 | 0.000 | 0.0 | 0 | -10.31# |
| 25 L1 | Chlordane-D | -1.000 | 0.000 | 0.0 | 0 | -10.39# |
| 26 L1 | Chlordane-E | -1.000 | 0.000 | 0.0 | 0 | -11.46# |
| 27 L1 | Chlordane-F | -1.000 | 0.000 | 0.0 | 0 | -11.62# |
| 28 H | Toxaphene | -1.000 | 0.000 | 0.0 | 0 | -12.11# |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
ST15679.D 8081A.M Tue Aug 06 14:20:19 2002 GCECD2

# Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\1\DATA\0806PEST\ST15757.D\ECD1B.CH Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\0806PEST\ST15757.D\ECD2A.CH
Acq On : 06 Aug 2002 9:31 am Operator: normf
Sample : CC586-20 Inst : ECD 3
Misc : op5605,gst589,1000,,,10,,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\HPCHEM\1\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Thu Aug 01 10:22:06 2002
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | | Compound | Amount | Calc. | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|---|
| 1 | S | Tetrachloro-m-xylene | 20.000 | 19.186 | 4.1 | 99 | 0.00 |
| 2 | | alpha-BHC | 20.000 | 18.139 | 9.3 | 95 | 0.00 |
| 3 | | gamma-BHC (Lindane) | 20.000 | 17.874 | 10.6 | 94 | 0.00 |
| 4 | | beta-BHC | 20.000 | 18.614 | 6.9 | 100 | 0.00 |
| 5 | | Heptachlor | 20.000 | 18.262 | 8.7 | 97 | 0.00 |
| 6 | | delta-BHC | 20.000 | 18.726 | 6.4 | 100 | 0.00 |
| 7 | | Aldrin | 20.000 | 18.517 | 7.4 | 99 | 0.00 |
| 8 | | Heptachlor Epoxide | 20.000 | 18.821 | 5.9 | 102 | 0.00 |
| 9 | | gamma-Chlordane | 20.000 | 18.308 | 8.5 | 96 | 0.00 |
| 10 | | alpha-Chlordane | 20.000 | 18.370 | 8.1 | 99 | 0.00 |
| 11 | | Endosulfan I | 20.000 | 18.380 | 8.1 | 97 | 0.00 |
| 12 | | 4,4'-DDE | 20.000 | 18.107 | 9.5 | 100 | 0.00 |
| 13 | | Dieldrin | 20.000 | 18.583 | 7.1 | 98 | 0.00 |
| 14 | | Endrin | 20.000 | 18.006 | 10.0 | 96 | 0.00 |
| 15 | | 4,4'-DDD | 20.000 | 18.552 | 7.2 | 102 | 0.00 |
| 16 | | Endosulfan II | 20.000 | 18.303 | 8.5 | 97 | 0.00 |
| 17 | | 4,4'-DDT | 20.000 | 18.354 | 8.2 | 102 | 0.00 |
| 18 | | Endrin Aldehyde | 20.000 | 17.186 | 14.1 | 89 | 0.00 |
| 19 | | Endosulfan Sulfate | 20.000 | 17.373 | 13.1 | 94 | 0.00 |
| 20 | | Methoxychlor | 20.000 | 17.729 | 11.4 | 94 | 0.00 |
| 21 | | Endrin Ketone | 20.000 | 17.491 | 12.5 | 88 | 0.00 |
| 29 | SC | Decachlorobiphenyl | 20.000 | 17.279 | 13.6 | 90 | 0.00 |

Signal #2

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | S | Tetrachloro-m-xylene | 20.000 | 19.457 | 2.7 | 100 | 0.00 |
| 2 | | alpha-BHC | 20.000 | 18.548 | 7.3 | 98 | 0.00 |
| 3 | | gamma-BHC (Lindane) | 20.000 | 18.589 | 7.1 | 97 | 0.00 |
| 4 | | beta-BHC | 20.000 | 18.745 | 6.3 | 99 | 0.00 |
| 5 | | Heptachlor | 20.000 | 18.995 | 5.0 | 97 | 0.00 |
| 6 | | delta-BHC | 20.000 | 18.128 | 9.4 | 96 | 0.00 |
| 7 | | Aldrin | 20.000 | 19.527 | 2.4 | 100 | 0.00 |
| 8 | | Heptachlor Epoxide | 20.000 | 18.879 | 5.6 | 96 | 0.00 |
| 9 | | gamma-Chlordane | 20.000 | 18.565 | 7.2 | 97 | 0.00 |
| 10 | | alpha-Chlordane | 20.000 | 19.383 | 3.1 | 101 | 0.00 |
| 11 | | Endosulfan I | 20.000 | 18.954 | 5.2 | 99 | 0.00 |
| 12 | | 4,4'-DDE | 20.000 | 18.239 | 8.8 | 102 | 0.00 |
| 13 | | Dieldrin | 20.000 | 18.792 | 6.0 | 95 | 0.00 |
| 14 | | Endrin | 20.000 | 18.803 | 6.0 | 101 | 0.00 |
| 15 | | 4,4'-DDD | 20.000 | 17.743 | 11.3 | 99 | 0.00 |
| 16 | | Endosulfan II | 20.000 | 17.493 | 12.5 | 91 | 0.00 |
| 17 | | 4,4'-DDT | 20.000 | 17.536 | 12.3 | 97 | 0.00 |
| 18 | | Endrin Aldehyde | 20.000 | 17.370 | 13.1 | 89 | 0.00 |
| 19 | | Endosulfan Sulfate | 20.000 | 17.020 | 14.9 | 90 | 0.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 20 | Methoxychlor | 20.000 | 17.349 | 13.3 | 95 | 0.00 |
| 21 | Endrin Ketone | 20.000 | 17.917 | 10.4 | 93 | 0.00 |
| 29 SC | Decachlorobiphenyl | 20.000 | 17.409 | 13.0 | 90 | 0.00 |

Evaluate Continuing Calibration Report - Not Founds

Signal #1 : C:\HPCHEM\1\DATA\0806PEST\ST15757.D\ECD1B.CH Vial: 3
Signal #2 : C:\HPCHEM\1\DATA\0806PEST\ST15757.D\ECD2A.CH
Acq On : 06 Aug 2002 9:31 am Operator: normf
Sample : CC586-20 Inst : ECD 3
Misc : op5605,gst589,1000,,,10,,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\HPCHEM\1\METHODS\8081A.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Thu Aug 01 10:22:06 2002
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | Compound | Amount | Calc. | %Dev | Area% | Dev(Min) |
|---|---|---|---|---|---|---|
| 22 L1 | Chlordane-A | -1.000 | 0.000 | 0.0 | 0 | -7.84# |
| 23 L1 | Chlordane-B | -1.000 | 0.000 | 0.0 | 0 | -8.10# |
| 24 L1 | Chlordane-C | -1.000 | 0.000 | 0.0 | 0 | -9.75# |
| 25 L1 | Chlordane-D | -1.000 | 0.000 | 0.0 | 0 | -9.79# |
| 26 L1 | Chlordane-E | -1.000 | 0.000 | 0.0 | 0 | -10.00# |
| 27 L1 | Chlordane-F | -1.000 | 0.000 | 0.0 | 0 | -11.42# |
| 28 H | Toxaphene | -1.000 | 0.000 | 0.0 | 0 | -11.46# |

Signal #2

| | | | | | | |
|---|---|---|---|---|---|---|
| 22 L1 | Chlordane-A | -1.000 | 0.000 | 0.0 | 0 | -8.12# |
| 23 L1 | Chlordane-B | -1.000 | 0.000 | 0.0 | 0 | -8.36# |
| 24 L1 | Chlordane-C | -1.000 | 0.000 | 0.0 | 0 | -10.31# |
| 25 L1 | Chlordane-D | -1.000 | 0.000 | 0.0 | 0 | -10.39# |
| 26 L1 | Chlordane-E | -1.000 | 0.000 | 0.0 | 0 | -11.46# |
| 27 L1 | Chlordane-F | -1.000 | 0.000 | 0.0 | 0 | -11.62# |
| 28 H | Toxaphene | -1.000 | 0.000 | 0.0 | 0 | -12.11# |

(#) = Out of Range SPCC's out = 0 CCC's out = 0
ST15679.D 8081A.M Tue Aug 06 14:21:32 2002 GCECD2

# Method Blank Summary



**Job Number:** F14004
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO0078/N0039

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP5605-MB | ST15739.D | 1 | 08/02/02 | NF | 08/01/02 | OP5605 | GST588 |

**The QC reported here applies to the following samples:** **Method:** SW846 8081A

F14004-1

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 12789-03-6 | Chlordane | ND | 0.50 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 98% | 47-126% |
| 2051-24-3 | Decachlorobiphenyl | 73% | 13-144% |

# Method Blank Summary



**Job Number:** F14004
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO0078/N0039

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP5605-MB | ST15763.D | 1 | 08/06/02 | NF | 08/01/02 | OP5605 | GST589 |

**The QC reported here applies to the following samples:** **Method:** SW846 8081A

F14004-1

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 99% | 47-126% |
| 2051-24-3 | Decachlorobiphenyl | 74% | 13-144% |

# Method Blank Summary



**Job Number:** F14004
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO0078/N0039

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP5605-MB2 | ST15761.D | 1 | 08/06/02 | NF | 08/05/02 | OP5605 | GST589 |

**The QC reported here applies to the following samples:** **Method:** SW846 8081A

F14004-2

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 12789-03-6 | Chlordane | ND | 0.50 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 93% | 47-126% |
| 2051-24-3 | Decachlorobiphenyl | 83% | 13-144% |

# Semivolatile Surrogate Recovery Summary



**Job Number:** F14004
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO0078/N0039

**Method:** SW846 8081A **Matrix:** AQ

**Samples and QC shown here apply to the above method**

| Lab Sample ID | Lab File ID | S1 [a] | S2 [a] |
|---|---|---|---|
| F14004-1 | ST15764.D | 96.0 | 74.0 |
| F14004-2 | ST15762.D | 49.0 | 56.0 |
| OP5605-BS | ST15738.D | 107.0 | 83.0 |
| OP5605-BS2 | ST15760.D | 94.0 | 93.0 |
| OP5605-MB | ST15739.D | 98.0 | 73.0 |
| OP5605-MB | ST15763.D | 99.0 | 74.0 |
| OP5605-MB2 | ST15761.D | 93.0 | 83.0 |
| OP5605-MS | ST15742.D | 94.0 | 64.0 |
| OP5605-MSD | ST15743.D | 99.0 | 64.0 |

| Surrogate Compounds | Recovery Limits |
|---|---|
| **S1** = Tetrachloro-m-xylene | 47-126% |
| **S2** = Decachlorobiphenyl | 13-144% |

(a) Recovery from GC signal #1

# GC Surrogate Retention Time Summary



**Job Number:** F14004
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO0078/N0039

| | | | |
|---|---|---|---|
| **Check Std:** | GST589-CC586 | **Injection Date:** | 08/06/02 |
| **Lab File ID:** | ST15757.D | **Injection Time:** | 09:31 |
| **Instrument ID:** | GCST | **Method:** | SW846 8081A |

| | S1 [a] RT | S2 [a] RT |
|---|---|---|
| Check Std | 5.75 | 15.42 |

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | S1 [a] RT | S2 [a] RT |
|---|---|---|---|---|---|
| OP5605-BS2 | ST15760.D | 08/06/02 | 10:40 | 5.74 | 15.42 |
| OP5605-MB2 | ST15761.D | 08/06/02 | 11:02 | 5.75 | 15.42 |
| F14004-2 | ST15762.D | 08/06/02 | 11:23 | 5.75 | 15.42 |
| OP5605-MB | ST15763.D | 08/06/02 | 11:45 | 5.75 | 15.42 |
| F14004-1 | ST15764.D | 08/06/02 | 12:06 | 5.75 | 15.42 |

**Surrogate Compounds**

**S1** = Tetrachloro-m-xylene
**S2** = Decachlorobiphenyl

(a) Retention time from GC signal #1

# GC Surrogate Retention Time Summary



**Job Number:** F14004
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO0078/N0039

| | | | |
|---|---|---|---|
| **Check Std:** | GST588-CC586 | **Injection Date:** | 08/02/02 |
| **Lab File ID:** | ST15737.D | **Injection Time:** | 15:57 |
| **Instrument ID:** | GCST | **Method:** | SW846 8081A |

| | S1 [a] RT | S2 [a] RT |
|---|---|---|
| Check Std | 5.75 | 15.43 |

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | S1 [a] RT | S2 [a] RT |
|---|---|---|---|---|---|
| OP5605-BS | ST15738.D | 08/02/02 | 16:28 | 5.75 | 15.43 |
| OP5605-MB | ST15739.D | 08/02/02 | 16:50 | 5.75 | 15.43 |
| OP5605-MS | ST15742.D | 08/02/02 | 17:54 | 5.75 | 15.43 |
| OP5605-MSD | ST15743.D | 08/02/02 | 18:16 | 5.75 | 15.43 |
| ZZZZZZ | ST15744.D | 08/02/02 | 18:37 | 5.75 | 15.43 |
| ZZZZZZ | ST15745.D | 08/02/02 | 18:59 | 5.75 | 15.43 |
| ZZZZZZ | ST15746.D | 08/02/02 | 19:20 | 5.75 | 15.43 |

**Surrogate Compounds**

**S1** = Tetrachloro-m-xylene
**S2** = Decachlorobiphenyl

(a) Retention time from GC signal #1

# Blank Spike Summary



**Job Number:** F14004
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO0078/N0039

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP5605-BS | ST15738.D | 1 | 08/02/02 | NF | 08/01/02 | OP5605 | GST588 |

**The QC reported here applies to the following samples:** **Method:** SW846 8081A

F14004-1

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 107% | 47-126% |
| 2051-24-3 | Decachlorobiphenyl | 83% | 13-144% |

# Blank Spike Summary



**Job Number:** F14004
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO0078/N0039

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP5605-BS2 | ST15760.D | 1 | 08/06/02 | NF | 08/05/02 | OP5605 | GST589 |

**The QC reported here applies to the following samples:** **Method:** SW846 8081A

F14004-2

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 94% | 47-126% |
| 2051-24-3 | Decachlorobiphenyl | 93% | 13-144% |

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** F14004
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO0078/N0039

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP5605-MS | ST15742.D | 1 | 08/02/02 | NF | 08/01/02 | OP5605 | GST588 |
| OP5605-MSD | ST15743.D | 1 | 08/02/02 | NF | 08/01/02 | OP5605 | GST588 |
| F14004-2 [a] | ST15762.D | 1 | 08/06/02 | NF | 08/05/02 | OP5605 | GST589 |

**The QC reported here applies to the following samples:** **Method:** SW846 8081A

F14004-1, F14004-2

| CAS No. | Compound | F14004-2 ug/l | Q | Spike ug/l | MS ug/l | MS % | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|

| CAS No. | Surrogate Recoveries | MS | MSD | F14004-2 | Limits |
|---|---|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 94% | 99% | 49% | 47-126% |
| 2051-24-3 | Decachlorobiphenyl | 64% | 64% | 56% | 13-144% |

(a) Sample extracted beyond hold time; reported results are considered minimum values.

**Tetra Tech NUS** **INTERNAL CORRESPONDENCE**

| | | | |
|---|---|---|---|
| **TO:** | **M. SPERANZA** | **DATE:** | **APRIL 15, 2003** |
| **FROM:** | **EDWARD SEDLMYER** | **COPIES:** | **DV FILE** |
| **SUBJECT:** | **ORGANIC DATA VALIDATION- /PEST<br>CTO 078, NAS CECIL FIELD<br>SDG F16657** | | |
| **SAMPLES:** | 2/Aqueous | | |
| | CEF-P21-GW-01S-L02 | CEF-P21-GW-08S-L02 | |

OVERVIEW

The sample set for CTO 078 NAS Cecil Field, SDG F16657 consists of two (2) aqueous environmental samples.

The samples were collected by TetraTech NUS on February 18, 2003 and analyzed by Accutest Laboratories. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Methods 8081A analysis and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
• Initial/continuing calibrations
* • Laboratory method blank results
* • Detection Limits

The symbol (*) indicates that quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A.

Pesticide

The chlordane results for sample CEF-P21-GW-01S-L02 and CEF-P21-GW-08S-L02 had a poor pattern match with the standard and the chlordane results have been qualified as estimated, J.

Sample ID's were not correctly transcribed from the Chain-of-custodies to the database and to Form I's. The reviewer amended the database and Form I's.

EXECUTIVE SUMMARY

**Laboratory Performance Issues:** None.

**Other Factors Affecting Data Quality:** Poor pattern match between the sample and standard.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99), and the NFESC guidelines IRCDQM (Sept., 1999). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS

Edward Sedlmyer
Chemist/Data Validator

TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

**Qualifier Codes:**

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

# APPENDIX A

## QUALIFIED ANALYTICAL RESULTS

# PROJ_NO: 0039

SDG: F16657 MEDIA: WATER DATA FRACTION: PEST/PCB

| | | | |
|---|---|---|---|
| nsample | CEF-P21-GW-01S-L02 | nsample | CEF-P21-GW-08S-L02 |
| samp_date | 2/18/2003 | samp_date | 2/18/2003 |
| lab_id | F16657-1 | lab_id | F16657-2 |
| qc_type | NM | qc_type | NM |
| units | UG/L | units | UG/L |
| Pct_Solids | 0 | Pct_Solids | 0 |
| DUP_OF: | | DUP_OF: | |

| Parameter | Result | Val Qual | Qual Code |
|---|---|---|---|
| ALPHA-CHLORDANE | 0.18 | | |
| CHLORDANE (TECHNICAL) | 8.8 | J | Q |
| GAMMA-CHLORDANE | 0.20 | | |

| Parameter | Result | Val Qual | Qual Code |
|---|---|---|---|
| ALPHA-CHLORDANE | 0.079 | | |
| CHLORDANE (TECHNICAL) | 0.68 | J | Q |
| GAMMA-CHLORDANE | 0.065 | | |

# APPENDIX B

## RESULTS AS REPORTED BY THE LABORATORY

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P21-GW-01S-L02 D 4-14-03 JAJ | | |
| **Lab Sample ID:** | F16657-1 | **Date Sampled:** | 02/18/03 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 02/20/03 |
| **Method:** | SW846 8081A SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | NAS Cecil Field-CTO 78 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | DD08578.D | 1 | 03/04/03 | SKW | 02/24/03 | OP6996 | GDD326 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 960 ml | 10.0 ml |
| Run #2 | | |

**Pesticide TCL List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 12789-03-6 | Chlordane [b] | 8.8 | 0.52 | 0.26 | ug/l | J |
| 5103-71-9 | alpha-Chlordane | 0.18 | 0.052 | 0.010 | ug/l | |
| 5103-74-2 | gamma-Chlordane | 0.20 | 0.052 | 0.010 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 107% | | 52-131% |
| 2051-24-3 | Decachlorobiphenyl | 84% | | 16-153% |

(a) All hits confirmed by dual column analysis.
(b) Estimated value due to poor pattern match between sample and standard.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

# Report of Analysis



| | | | |
|---|---|---|---|
| **Client Sample ID:** | CEF-P21-GW-08S-L~~02~~ 04-19-03 JAJ | | |
| **Lab Sample ID:** | F16657-2 | **Date Sampled:** | 02/18/03 |
| **Matrix:** | AQ - Ground Water | **Date Received:** | 02/20/03 |
| **Method:** | SW846 8081A SW846 3510C | **Percent Solids:** | n/a |
| **Project:** | NAS Cecil Field-CTO 78 | | |

| | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| Run #1 [a] | DD08579.D | 1 | 03/04/03 | SKW | 02/24/03 | OP6996 | GDD326 |
| Run #2 | | | | | | | |

| | Initial Volume | Final Volume |
|---|---|---|
| Run #1 | 980 ml | 10.0 ml |
| Run #2 | | |

**Pesticide TCL List**

| CAS No. | Compound | Result | RL | MDL | Units | Q |
|---|---|---|---|---|---|---|
| 12789-03-6 | Chlordane [b] | 0.68 | 0.51 | 0.26 | ug/l | J |
| 5103-71-9 | alpha-Chlordane | 0.079 | 0.051 | 0.010 | ug/l | |
| 5103-74-2 | gamma-Chlordane | 0.065 | 0.051 | 0.010 | ug/l | |

| CAS No. | Surrogate Recoveries | Run# 1 | Run# 2 | Limits |
|---|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 102% | | 52-131% |
| 2051-24-3 | Decachlorobiphenyl | 87% | | 16-153% |

(a) All hits confirmed by dual column analysis.
(b) Estimated value due to poor pattern match between sample and standard.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

# APPENDIX C

## SUPPORT DOCUMENTATION

**F16657**

HOLDING TIME
03/18/03

| Units | Nsample | Lab Id | Qc Type | Sdg | Sort | Samp Date | Extr Date | Anal Date | SAMP_DATE TO EXTR_DATE | EXTR_DATE TO ANAL_DATE | SAMP_DATE TO ANAL_DATE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| % | CEF-P21-GW-01S-LO2 | F16657-1 | NORMAL | F16657 | PEST | 02/18/03 | 02/24/03 | 03/04/03 | 6 | 8 | 14 |
| % | CEF-P21-GW-08S-LO2 | OP6996-MSD | MS | F16657 | PEST | 02/18/03 | 02/24/03 | 03/04/03 | 6 | 8 | 14 |
| % | OP6996-BS | OP6996-BS | BSP | F16657 | PEST | 02/24/03 | 02/24/03 | 03/04/03 | 0 | 8 | 8 |
| UG/L | PBLK1 | OP6996-MB | M_BLANK | F16657 | PEST | 02/24/03 | 02/24/03 | 03/04/03 | 0 | 8 | 8 |

Southeast
ACCUTEST
Laboratories

03/10/03

# Technical Report for

Tetra Tech, NUS

NAS Cecil Field-CTO 78

Site 21 WORK RELEASE# 309 N0039 CTO78

Accutest Job Number: F16657

---

Report to:

Tetra Tech NUS, Inc.
Foster Plaza 7
661 Andersen Drive
Pittsburgh, PA 15220

ATTN: Amy Thomson

Total number of pages in report: 93

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Harry Behzadi, Ph.D.
Laboratory Director

Certifications: FL (DOH E83510), NC (573), NJ (FL002), MA (FL946), IA (366), LA (03051), KS (E-10327), SC, AK

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**Accutest Laboratories Southeast, Inc.**
**Analytical Narrative**

Client: Tetra Tech, NUS
Site: Cecil Field-CTO-078
Report Date: March 10, 2003
Job Number: F16657

2 samples were collected on February 18, 2003 and received on February 20, 2003.
Samples were properly cooled, preserved and intact. A listing of the Laboratory Sample ID, Client Sample ID, and dates of collection are presented in the Results Summary section of this report.

All method specified holding times, calibrations and quality control performance criteria were met, with the following notes:

VOCs, SW846, 8260B:

- Sample CEF-P21-GW-01S-LO2 (F16657-1) has Chlordane flagged as an estimated value due to poor pattern match between sample and standard. Data has been footnoted accordingly.
- Sample CEF-P21-GW-08S-LO2 (F16657-1) has Chlordane flagged as an estimated value due to poor pattern match between sample and standard. Data has been footnoted accordingly.

Accutest Laboratories Southeast, Inc. certifies that this report meets the project requirements for analytical data produced for the samples as received at the Accutest Laboratories Southeast location as stated in the Analytical Task Order and the COC. In addition, Accutest Laboratories Southeast, Inc. certifies that data as reported meet the Data Quality Objectives for precision, accuracy and completeness as specified in the Accutest Laboratories Southeast, Inc. Quality Manual for other that conditions detailed above. ALSE routinely reports Organic target analytes down to 1/2 the Reporting Level. These positive results are flagged with a "J" qualifier. It is recommended by Accutest Laboratories Southeast, Inc. that this report is to be used in its entirety. Accutest Laboratories Southeast, Inc. is not responsible for any assumptions of data quality if partial data packages are used to interpret data. The Accutest Laboratories Southeast, Inc. Laboratory Director as verified by the signature on the front page has authorized release of this report.

Narrative prepared by:

Date: March 10, 2003

Sue O. Bell, Project Manager (signature on file)

ACCUTEST LABORATORIES SOUTHEAST
SAMPLE RECEIPT CONFIRMATION

Accutest's Job Number: F16657

Client/Project: Tetra Tech NUS | Site 21, NASCF

Date/Time Received: 2/20/03/0820 Total Number of Coolers 3

Method of Delivery: FedEx Greyhound UPS Pickup Delivery Other

Air Bill Number:

Cooler Temperatures: 2.0, 2.6, 2.2

| | | | |
|---|---|---|---|
| Custody Seals Intact ? | YES | NO | |
| Trip Blank Provided ? | YES | NO | |
| Trip Blank on COC ? | YES | NO | |
| Trip Blank Intact ? | YES | NO | N/A |
| Chain Of Custody Provided? | YES | NO | |
| Chain Of Custody Match Bottles? | YES | NO | |
| Sample Labels Present? | YES | NO | |
| Are All Bottles Unbroken? | YES | NO | |
| Are All Appropriate Samples Preserved? | YES | NO | |
| Correct Containers Used? | YES | NO | |
| Sufficient Sample Volume? | YES | NO | |

Number of Encores: Ø

COMMENTS:

Signature: Muna Mohammed Date: 2/20/03

Revised 04/24/02 ASBD

TETRA TECH NUS, INC.

CHAIN OF CUSTODY | NUMBER 2247 | PAGE 1 OF 1

| | | | | |
|---|---|---|---|---|
| PROJECT NO: N0039 CTO 78 | FACILITY: SITE 21, NASCF | PROJECT MANAGER: MARK SPERANZA | PHONE NUMBER: 412 921 8916 | LABORATORY NAME AND CONTACT: ACCUTEST SUE BEE |
| SAMPLERS (SIGNATURE): Charles C. Delasta | | FIELD OPERATIONS LEADER: MERV DALE | PHONE NUMBER: 904 636 6125 | ADDRESS: 4405 Vineland Rd., C-100 |
| | | CARRIER/WAYBILL NUMBER: Lab Courier | | CITY, STATE: ORLANDO, FL 32811 |

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: None

| | DATE YEAR 2003 | TIME | SAMPLE ID: F16657 | ~~LOCATION ID~~ MD | TOP DEPTH (FT) | BOTTOM DEPTH (FT) | MATRIX (GW, SO, SW, SD, QC, ETC.) | COLLECTION METHOD GRAP (G) COMP (C) | No. OF CONTAINERS | TYPE OF ANALYSIS: TOTAL CHLORDANE SW846 8081A | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2/18 | 1605 | CEF-P21-GW-015-LQ2 | | | | GW | G | 2 | 2 | | | | | | | | Cool to 4°C |
| 2 | 2/18 | 1620 | CEF-P21-GW-085-LQ2 | | | | GW | G | 2 | 2 | | | | | | | | |
| | | | | | | | | | | | | | | | | | | WR 309 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. RELINQUISHED BY: Mervin W. Dale | DATE 2/19/03 | TIME 1644 | 1. RECEIVED BY: [signature] | DATE 2/19/03 | TIME 16:44 |
| 2. RELINQUISHED BY: [signature] | DATE 2/20/03 | TIME 8:30 | 2. RECEIVED BY: Muna Mohammed | DATE 2/20/03 | TIME 0820. |
| 3. RELINQUISHED BY | DATE | TIME | 3. RECEIVED BY | DATE | TIME |

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TINUS-001

Accutest Laboratories

# Sample Summary

Tetra Tech, NUS

**Job No:** F16657

NAS Cecil Field-CTO 78
Project No: Site 21 WORK RELEASE# 309 N0039 CTO78

| Sample Number | Collected Date | Time By | Received | Matrix Code | Type | Client Sample ID |
|---|---|---|---|---|---|---|
| F16657-1 | 02/18/03 | 16:05 CM | 02/20/03 | AQ | Ground Water | CEF-P21-GW-01S-LO2 |
| F16657-2 | 02/18/03 | 16:20 CM | 02/20/03 | AQ | Ground Water | CEF-P21-GW-08S-LO2 |

# DDT/Endrin Breakdown Check



**Job Number:** F16657
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO 78

| | | | |
|---|---|---|---|
| **Sample:** | GDD326-DDT | **Injection Date:** | 03/04/03 |
| **Lab File ID:** | DD08572.D | **Injection Time:** | 11:00 |
| **Instrument ID:** | GCDD | | |

| Compound | Response Signal 1 | Response Signal 2 |
|---|---|---|
| 4,4'-DDD | 5268 | 32323 |
| 4,4'-DDE | 422 | 2016 |
| 4,4'-DDT | 149155 | 548262 |
| DDT Breakdown [a] | 3.7 % | 5.9 % |
| Endrin aldehyde | 1995 | 3901 |
| Endrin ketone | 1870 | 6771 |
| Endrin | 167946 | 730758 |
| Endrin Breakdown [b] | 2.2 % | 1.4 % |

(a) Calculated as: (DDD + DDE) / (DDD + DDE + DDT) x 100
(b) Calculated as: (Endrin Aldehyde + Endrin Ketone) / (Endrin Aldehyde + Endrin Ketone + Endrin) x 100

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| GDD326-CC325 | DD08573.D | 03/04/03 | 11:22 | 00:22 | Continuing cal 40 |
| OP6996-BS | DD08576.D | 03/04/03 | 12:42 | 01:42 | Blank Spike |
| OP6996-MB | DD08577.D | 03/04/03 | 13:04 | 02:04 | Method Blank |
| F16657-1 | DD08578.D | 03/04/03 | 13:25 | 02:25 | CEF-P21-GW-01S-LO2 |
| F16657-2 | DD08579.D | 03/04/03 | 13:46 | 02:46 | CEF-P21-GW-08S-LO2 |
| OP6996-MS | DD08580.D | 03/04/03 | 14:08 | 03:08 | Matrix Spike |
| OP6996-MSD | DD08581.D | 03/04/03 | 14:29 | 03:29 | Matrix Spike Duplicate |
| GDD326-CC325 | DD08582.D | 03/04/03 | 15:54 | 04:54 | Continuing cal 20 |
| OP7058-BS | DD08584.D | 03/04/03 | 16:47 | 05:47 | Blank Spike |
| OP7058-MB | DD08585.D | 03/04/03 | 17:08 | 06:08 | Method Blank |
| ZZZZZZ | DD08586.D | 03/04/03 | 17:30 | 06:30 | (unrelated sample) |
| ZZZZZZ | DD08587.D | 03/04/03 | 17:51 | 06:51 | (unrelated sample) |
| ZZZZZZ | DD08588.D | 03/04/03 | 18:12 | 07:12 | (unrelated sample) |
| F16779-12 | DD08589.D | 03/04/03 | 18:34 | 07:34 | (used for QC only; not part of job F16657) |
| OP7058-MS | DD08590.D | 03/04/03 | 18:55 | 07:55 | Matrix Spike |
| OP7058-MSD | DD08591.D | 03/04/03 | 19:16 | 08:16 | Matrix Spike Duplicate |
| ZZZZZZ | DD08592.D | 03/04/03 | 19:37 | 08:37 | (unrelated sample) |
| GDD326-ECC625 | DD08593.D | 03/04/03 | 19:58 | 08:58 | Ending cal 20 |

# DDT/Endrin Breakdown Check



**Job Number:** F16657
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO 78

| | | | |
|---|---|---|---|
| **Sample:** | GDD325-DDT | **Injection Date:** | 03/03/03 |
| **Lab File ID:** | DD08545.D | **Injection Time:** | 10:48 |
| **Instrument ID:** | GCDD | | |

| Compound | Response Signal 1 | Response Signal 2 |
|---|---|---|
| 4,4'-DDD | 3325 | 25642 |
| 4,4'-DDE | 225 | 1112 |
| 4,4'-DDT | 136320 | 497487 |
| DDT Breakdown [a] | 2.5 % | 5.1 % |
| Endrin aldehyde | 455 | 1441 |
| Endrin ketone | 804 | 3562 |
| Endrin | 162628 | 688145 |
| Endrin Breakdown [b] | 0.8 % | 0.7 % |

(a) Calculated as: (DDD + DDE) / (DDD + DDE + DDT) x 100
(b) Calculated as: (Endrin Aldehyde + Endrin Ketone) / (Endrin Aldehyde + Endrin Ketone + Endrin) x 100

**This check applies to the following Samples, MS, MSD, Blanks, and Standards:**

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | Hours Lapsed | Client Sample ID |
|---|---|---|---|---|---|
| GDD325-IC325 | DD08546.D | 03/03/03 | 11:09 | 00:21 | Initial cal 5 |
| GDD325-IC325 | DD08547.D | 03/03/03 | 11:30 | 00:42 | Initial cal 10 |
| GDD325-IC325 | DD08548.D | 03/03/03 | 11:52 | 01:04 | Initial cal 20 |
| GDD325-ICC325 | DD08549.D | 03/03/03 | 12:13 | 01:25 | Initial cal 40 |
| GDD325-IC325 | DD08550.D | 03/03/03 | 12:34 | 01:46 | Initial cal 60 |
| GDD325-IC325 | DD08551.D | 03/03/03 | 12:55 | 02:07 | Initial cal 80 |
| OP7028-LBS | DD08555.D | 03/03/03 | 15:08 | 04:20 | Blank Spike |
| OP7028-LB | DD08556.D | 03/03/03 | 15:29 | 04:41 | Leachate Blank |
| ZZZZZZ | DD08557.D | 03/03/03 | 15:50 | 05:02 | (unrelated sample) |
| ZZZZZZ | DD08558.D | 03/03/03 | 16:12 | 05:24 | (unrelated sample) |
| OP7028-LS | DD08559.D | 03/03/03 | 16:33 | 05:45 | Leachate Spike |
| F16715-1 | DD08560.D | 03/03/03 | 16:54 | 06:06 | (used for QC only; not part of job F16657) |
| OP7028-MS | DD08561.D | 03/03/03 | 17:15 | 06:27 | Matrix Spike |
| OP7028-MSD | DD08562.D | 03/03/03 | 17:37 | 06:49 | Matrix Spike Duplicate |
| ZZZZZZ | DD08563.D | 03/03/03 | 17:58 | 07:10 | (unrelated sample) |
| GDD325-CC325 | DD08564.D | 03/03/03 | 18:19 | 07:31 | Continuing cal 40 |
| OP7041-LBS | DD08565.D | 03/03/03 | 18:40 | 07:52 | Blank Spike |
| OP7041-LB | DD08566.D | 03/03/03 | 19:02 | 08:14 | Leachate Blank |
| F16748-1 | DD08567.D | 03/03/03 | 19:23 | 08:35 | (used for QC only; not part of job F16657) |
| OP7041-MS | DD08568.D | 03/03/03 | 19:44 | 08:56 | Matrix Spike |
| OP7041-MSD | DD08569.D | 03/03/03 | 20:05 | 09:17 | Matrix Spike Duplicate |
| GDD325-ECC325 | DD08570.D | 03/03/03 | 20:26 | 09:38 | Ending cal 20 |

# Semivolatile Surrogate Recovery Summary



**Job Number:** F16657
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO 78

**Method:** SW846 8081A **Matrix:** AQ

**Samples and QC shown here apply to the above method**

| Lab Sample ID | Lab File ID | S1 [a] | S2 [a] |
|---|---|---|---|
| F16657-1 | DD08578.D | 107.0 | 84.0 |
| F16657-2 | DD08579.D | 102.0 | 87.0 |
| OP6996-BS | DD08576.D | 108.0 | 95.0 |
| OP6996-MB | DD08577.D | 101.0 | 89.0 |
| OP6996-MS | DD08580.D | 96.0 | 99.0 |
| OP6996-MSD | DD08581.D | 106.0 | 107.0 |

| Surrogate Compounds | Recovery Limits |
|---|---|
| S1 = Tetrachloro-m-xylene | 52-131% |
| S2 = Decachlorobiphenyl | 16-153% |

(a) Recovery from GC signal #1

# GC Surrogate Retention Time Summary



**Job Number:** F16657
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO 78

| | | | |
|---|---|---|---|
| **Check Std:** | GDD326-CC325 | **Injection Date:** | 03/04/03 |
| **Lab File ID:** | DD08573.D | **Injection Time:** | 11:22 |
| **Instrument ID:** | GCDD | **Method:** | SW846 8081A |

| | S1 [a] RT | S2 [a] RT |
|---|---|---|
| Check Std | 5.65 | 14.81 |

| Lab Sample ID | Lab File ID | Date Analyzed | Time Analyzed | S1 [a] RT | S2 [a] RT |
|---|---|---|---|---|---|
| OP6996-BS | DD08576.D | 03/04/03 | 12:42 | 5.64 | 14.81 |
| OP6996-MB | DD08577.D | 03/04/03 | 13:04 | 5.65 | 14.81 |
| F16657-1 | DD08578.D | 03/04/03 | 13:25 | 5.65 | 14.81 |
| F16657-2 | DD08579.D | 03/04/03 | 13:46 | 5.65 | 14.81 |
| OP6996-MS | DD08580.D | 03/04/03 | 14:08 | 5.65 | 14.81 |
| OP6996-MSD | DD08581.D | 03/04/03 | 14:29 | 5.65 | 14.81 |

**Surrogate Compounds**

**S1** = Tetrachloro-m-xylene
**S2** = Decachlorobiphenyl

(a) Retention time from GC signal #1

# Method Blank Summary



**Job Number:** F16657
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO 78

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP6996-MB | DD08577.D | 1 | 03/04/03 | SKW | 02/24/03 | OP6996 | GDD326 |

**The QC reported here applies to the following samples:** **Method:** SW846 8081A

F16657-1, F16657-2

| CAS No. | Compound | Result | RL | Units | Q |
|---|---|---|---|---|---|
| 12789-03-6 | Chlordane | ND | 0.50 | ug/l | |
| 5103-71-9 | alpha-Chlordane | ND | 0.050 | ug/l | |
| 5103-74-2 | gamma-Chlordane | ND | 0.050 | ug/l | |

| CAS No. | Surrogate Recoveries | | Limits |
|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 101% | 52-131% |
| 2051-24-3 | Decachlorobiphenyl | 89% | 16-153% |

# Blank Spike Summary



**Job Number:** F16657
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO 78

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP6996-BS | DD08576.D | 1 | 03/04/03 | SKW | 02/24/03 | OP6996 | GDD326 |

**The QC reported here applies to the following samples:** **Method:** SW846 8081A

F16657-1, F16657-2

| CAS No. | Compound | Spike ug/l | BSP ug/l | BSP % | Limits |
|---|---|---|---|---|---|
| 5103-71-9 | alpha-Chlordane | 0.5 | 0.46 | 92 | 73-129 |
| 5103-74-2 | gamma-Chlordane | 0.5 | 0.49 | 98 | 71-132 |

| CAS No. | Surrogate Recoveries | BSP | Limits |
|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 108% | 52-131% |
| 2051-24-3 | Decachlorobiphenyl | 95% | 16-153% |

# Matrix Spike/Matrix Spike Duplicate Summary



**Job Number:** F16657
**Account:** TETRPAPT Tetra Tech, NUS
**Project:** NAS Cecil Field-CTO 78

| Sample | File ID | DF | Analyzed | By | Prep Date | Prep Batch | Analytical Batch |
|---|---|---|---|---|---|---|---|
| OP6996-MS | DD08580.D | 1 | 03/04/03 | SKW | 02/24/03 | OP6996 | GDD326 |
| OP6996-MSD | DD08581.D | 1 | 03/04/03 | SKW | 02/24/03 | OP6996 | GDD326 |
| F16657-2 [a] | DD08579.D | 1 | 03/04/03 | SKW | 02/24/03 | OP6996 | GDD326 |

**The QC reported here applies to the following samples:** **Method:** SW846 8081A

F16657-1, F16657-2

| CAS No. | Compound | F16657-2 ug/l | Q | Spike ug/l | MS ug/l | MS % | MSD ug/l | MSD % | RPD | Limits Rec/RPD |
|---|---|---|---|---|---|---|---|---|---|---|
| 5103-71-9 | alpha-Chlordane | 0.079 | | 1.04 | 0.98 | 86 | 1.1 | 98 | 12 | 63-132/19 |
| 5103-74-2 | gamma-Chlordane | 0.065 | | 1.04 | 1.0 | 90 | 1.2 | 109 | 18 | 60-135/21 |

| CAS No. | Surrogate Recoveries | MS | MSD | F16657-2 | Limits |
|---|---|---|---|---|---|
| 877-09-8 | Tetrachloro-m-xylene | 96% | 106% | 102% | 52-131% |
| 2051-24-3 | Decachlorobiphenyl | 99% | 107% | 87% | 16-153% |

(a) All hits confirmed by dual column analysis.

Response Factor Report ECD 4

Method : C:\HPCHEM\2\METHODS\8081A_P.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Mon Mar 03 14:03:17 2003
Response via : Initial Calibration

RSD<20% SW 3-3-03

Calibration Files
5 =DD08546.D 10 =DD08547.D 20 =DD08548.D
40 =DD08549.D 60 =DD08550.D 80 =DD08551.D c200 =DD08553.D

| | Compound | 5 | 10 | 20 | 40 | 60 | 80 | c200 | Avg | | %RSD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1)S | Tetrachloro-m-xyl | 2.729 | 2.659 | 2.648 | 2.634 | 2.831 | 3.026 | | 2.754 | E3 | 5.5 |
| 2) | alpha-BHC | 4.022 | 3.969 | 4.365 | 4.874 | 5.400 | 5.791 | | 4.737 | E3 | 15.8 |
| 3) | gamma-BHC (Lindan | 4.003 | 3.894 | 4.290 | 4.522 | 5.209 | 5.447 | | 4.561 | E3 | 13.9 |
| 4) | beta-BHC | 2.157 | 2.025 | 2.186 | 1.998 | 2.185 | 2.153 | | 2.117 | E3 | 3.9 |
| 5) | Heptachlor | 3.845 | 3.812 | 3.852 | 4.004 | 4.485 | 4.687 | | 4.114 | E3 | 9.1 |
| 6) | delta-BHC | 3.899 | 3.878 | 4.758 | 4.657 | 5.353 | 5.659 | | 4.701 | E3 | 15.5 |
| 7) | Aldrin | 3.181 | 3.099 | 3.406 | 3.568 | 4.002 | 4.157 | | 3.569 | E3 | 12.0 |
| 8) | Heptachlor Epoxid | 3.481 | 3.352 | 3.744 | 3.514 | 3.886 | 3.908 | | 3.648 | E3 | 6.3 |
| 9) | gamma-Chlordane | 3.327 | 3.154 | 3.748 | 3.424 | 3.896 | 3.952 | | 3.583 | E3 | 9.1 |
| 10) | alpha-Chlordane | 4.511 | 3.703 | 3.958 | 3.505 | 3.923 | 3.819 | | 3.903 | E3 | 8.7 |
| 11) | Endosulfan I | 3.523 | 3.174 | 3.554 | 3.156 | 3.695 | 3.594 | | 3.449 | E3 | 6.6 |
| 12) | 4,4'-DDE | 2.683 | 2.631 | 3.486 | 2.962 | 3.604 | 3.560 | | 3.154 | E3 | 14.2 |
| 13) | Dieldrin | 3.145 | 3.087 | 3.795 | 3.436 | 3.949 | 4.007 | | 3.570 | E3 | 11.3 |
| 14) | Endrin | 3.035 | 2.900 | 3.578 | 3.164 | 3.766 | 3.585 | | 3.338 | E3 | 10.5 |
| 15) | 4,4'-DDD | 2.373 | 2.411 | 3.130 | 2.709 | 3.233 | 2.965 | | 2.803 | E3 | 13.0 |
| 16) | Endosulfan II | 3.234 | 3.114 | 3.911 | 3.293 | 3.771 | 3.545 | | 3.478 | E3 | 9.1 |
| 17) | 4,4'-DDT | 2.538 | 2.402 | 2.911 | 2.790 | 3.255 | 3.084 | | 2.830 | E3 | 11.4 |
| 18) | Endrin Aldehyde | 2.636 | 2.574 | 3.018 | 2.666 | 3.060 | 2.813 | | 2.794 | E3 | 7.3 |
| 19) | Endosulfan Sulfat | 3.374 | 3.201 | 3.760 | 3.332 | 3.846 | 3.596 | | 3.518 | E3 | 7.2 |
| 20) | Methoxychlor | 1.401 | 1.408 | 1.570 | 1.419 | 1.564 | 1.411 | | 1.462 | E3 | 5.5 |
| 21) | Endrin Ketone | 3.082 | 2.872 | 3.467 | 3.128 | 3.722 | 3.239 | | 3.251 | E3 | 9.3 |
| 22)L1 | Chlordane-A | | | | | | | 1.208 | 1.208 | E2 | 0.0 |
| 23)L1 | Chlordane-B | | | | | | | 1.582 | 1.582 | E2 | 0.0 |
| 24)L1 | Chlordane-C | | | | | | | 3.630 | 3.630 | E2 | 0.0 |
| 25)L1 | Chlordane-D | | | | | | | 2.165 | 2.165 | E2 | 0.0 |
| 26)L1 | Chlordane-E | | | | | | | 7.031 | 7.031 | E1 | 0.0 |
| 27)L1 | Chlordane-F | | | | | | | 1.322 | 1.322 | E2 | 0.0 |
| 28)H | Toxaphene | | | | | | | | 3.287 | E4 | 0.0 |
| 29)SC | Decachlorobipheny | 1.976 | 1.821 | 1.902 | 1.775 | 1.825 | 1.649 | | 1.825 | E3 | 6.1 |

Signal #2

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1)S | Tetrachloro-m-xyl | 1.193 | 1.047 | 1.011 | 0.983 | 1.043 | 1.070 | | 1.058 | E4 | 6.9 |
| 2) | alpha-BHC | 1.834 | 1.738 | 1.758 | 1.763 | 1.900 | 1.969 | | 1.827 | E4 | 5.0 |
| 3) | gamma-BHC (Lindan | 1.803 | 1.632 | 1.680 | 1.640 | 1.794 | 1.853 | | 1.734 | E4 | 5.4 |
| 4) | beta-BHC | 9.033 | 8.138 | 8.265 | 7.306 | 7.822 | 7.854 | | 8.070 | E3 | 7.1 |
| 5) | Heptachlor | 1.865 | 1.688 | 1.705 | 1.685 | 1.788 | 1.820 | | 1.758 | E4 | 4.3 |
| 6) | delta-BHC | 1.766 | 1.616 | 1.799 | 1.647 | 1.884 | 1.862 | | 1.762 | E4 | 6.2 |
| 7) | Aldrin | 1.670 | 1.546 | 1.596 | 1.529 | 1.665 | 1.708 | | 1.619 | E4 | 4.5 |
| 8) | Heptachlor Epoxid | 1.608 | 1.480 | 1.609 | 1.422 | 1.547 | 1.550 | | 1.536 | E4 | 4.7 |
| 9) | gamma-Chlordane | 1.631 | 1.466 | 1.640 | 1.443 | 1.600 | 1.569 | | 1.558 | E4 | 5.4 |
| 10) | alpha-Chlordane | 1.613 | 1.417 | 1.573 | 1.418 | 1.556 | 1.508 | | 1.514 | E4 | 5.4 |
| 11) | Endosulfan I | 1.512 | 1.361 | 1.514 | 1.314 | 1.457 | 1.418 | | 1.429 | E4 | 5.6 |
| 12) | 4,4'-DDE | 1.311 | 1.216 | 1.415 | 1.220 | 1.407 | 1.344 | | 1.319 | E4 | 6.6 |
| 13) | Dieldrin | 1.539 | 1.428 | 1.671 | 1.469 | 1.615 | 1.574 | | 1.549 | E4 | 5.8 |
| 14) | Endrin | 1.465 | 1.328 | 1.604 | 1.381 | 1.555 | 1.463 | | 1.466 | E4 | 7.0 |
| 15) | 4,4'-DDD | 1.218 | 1.160 | 1.425 | 1.168 | 1.347 | 1.211 | | 1.255 | E4 | 8.5 |
| 16) | Endosulfan II | 1.518 | 1.400 | 1.623 | 1.406 | 1.540 | 1.458 | | 1.491 | E4 | 5.7 |
| 17) | 4,4'-DDT | 1.061 | 0.969 | 1.163 | 1.063 | 1.196 | 1.177 | | 1.105 | E4 | 8.0 |
| 18) | Endrin Aldehyde | 5.512 | 5.387 | 6.100 | 5.111 | 5.713 | 5.150 | | [illegible] | E3 | 6.7 |
| 19) | Endosulfan Sulfat | 1.232 | 1.131 | 1.279 | 1.133 | 1.251 | 1.144 | | 1.195 | E4 | 5.5 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 20) | Methoxychlor | 5.886 | 5.437 | 6.111 | 5.454 | 6.035 | 5.461 | | 5.731 | E5 | 5.5 |
| 21) | Endrin Ketone | 1.118 | 1.046 | 1.218 | 1.079 | 1.205 | 1.052 | | 1.120 | E4 | 6.7 |
| 22) | L1Chlordane-A | | | | | | | 5.165 | 5.165 | E2 | 0.0 |
| 23) | L1Chlordane-B | | | | | | | 7.229 | 7.229 | E2 | 0.0 |
| 24) | L1Chlordane-C | | | | | | | 1.465 | 1.465 | E3 | 0.0 |
| 25) | L1Chlordane-D | | | | | | | 1.945 | 1.945 | E3 | 0.0 |
| 26) | L1Chlordane-E | | | | | | | 3.756 | 3.756 | E2 | 0.0 |
| 27) | L1Chlordane-F | | | | | | | 5.643 | 5.643 | E2 | 0.0 |
| 28) | H Toxaphene | | | | | | | | 1.366 | E5 | 0.0 |
| 29) | SCDecachlorobipheny | 7.955 | 7.614 | 7.621 | 7.080 | 7.698 | 6.661 | | 7.438 | E3 | 6.3 |

(#) = Out of Range ### Number of calibration levels exceeded format ###

8081A_P.M Mon Mar 03 16:17:09 2003 GCECD2

# Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\0304PEST\DD08573.D\ECD1B.CH Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\0304PEST\DD08573.D\ECD2A.CH
Acq On : 04 Mar 2003 11:22 am Operator: stephw
Sample : CC325-40 Inst : ECD 4
Misc : op6996,gdd326,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\HPCHEM\2\METHODS\8081A_P.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Mon Mar 03 14:03:17 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | | Compound | Amount | Calc. | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|---|
| 1 | S | Tetrachloro-m-xylene | 40.000 | 37.948 | 5.1 | 99 | 0.00 |
| 2 | | alpha-BHC | 40.000 | 40.358 | -0.9 | 98 | 0.00 |
| 3 | | gamma-BHC (Lindane) | 40.000 | 40.784 | -2.0 | 103 | 0.00 |
| 4 | | beta-BHC | 40.000 | 37.514 | 6.2 | 99 | 0.00 |
| 5 | | Heptachlor | 40.000 | 41.040 | -2.6 | 105 | 0.00 |
| 6 | | delta-BHC | 40.000 | 40.964 | -2.4 | 103 | 0.00 |
| 7 | | Aldrin | 40.000 | 41.975 | -4.9 | 105 | 0.00 |
| 8 | | Heptachlor Epoxide | 40.000 | 41.669 | -4.2 | 108 | 0.00 |
| 9 | | gamma-Chlordane | 40.000 | 43.862 | -9.7 | 115 | 0.00 |
| 10 | | alpha-Chlordane | 40.000 | 40.052 | -0.1 | 111 | 0.00 |
| 11 | | Endosulfan I | 40.000 | 43.083 | -7.7 | 118 | 0.00 |
| 12 | | 4,4'-DDE | 40.000 | 46.186 | -15.5# | 123 | 0.00 |
| 13 | | Dieldrin | 40.000 | 45.081 | -12.7 | 117 | 0.00 |
| 14 | | Endrin | 40.000 | 44.698 | -11.7 | 118 | 0.00 |
| 15 | | 4,4'-DDD | 40.000 | 47.625 | -19.1# | 123 | 0.00 |
| 16 | | Endosulfan II | 40.000 | 45.346 | -13.4 | 120 | 0.00 |
| 17 | | 4,4'-DDT | 40.000 | 47.430 | -18.6# | 120 | 0.00 |
| 18 | | Endrin Aldehyde | 40.000 | 44.927 | -12.3 | 118 | 0.00 |
| 19 | | Endosulfan Sulfate | 40.000 | 45.126 | -12.8 | 119 | 0.00 |
| 20 | | Methoxychlor | 40.000 | 43.617 | -9.0 | 112 | 0.00 |
| 21 | | Endrin Ketone | 40.000 | 45.935 | -14.8 | 119 | 0.00 |
| 29 | SC | Decachlorobiphenyl | 40.000 | 41.453 | -3.6 | 107 | 0.00 |

SAN 3-5-03

Signal #2

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | S | Tetrachloro-m-xylene | 40.000 | 36.775 | 8.1 | 99 | 0.00 |
| 2 | | alpha-BHC | 40.000 | 38.387 | 4.0 | 99 | 0.00 |
| 3 | | gamma-BHC (Lindane) | 40.000 | 39.760 | 0.6 | 105 | 0.00 |
| 4 | | beta-BHC | 40.000 | 38.499 | 3.8 | 106 | 0.00 |
| 5 | | Heptachlor | 40.000 | 39.329 | 1.7 | 103 | 0.00 |
| 6 | | delta-BHC | 40.000 | 39.284 | 1.8 | 105 | 0.00 |
| 7 | | Aldrin | 40.000 | 40.312 | -0.8 | 107 | 0.00 |
| 8 | | Heptachlor Epoxide | 40.000 | 40.973 | -2.4 | 111 | 0.00 |
| 9 | | gamma-Chlordane | 40.000 | 41.824 | -4.6 | 113 | 0.00 |
| 10 | | alpha-Chlordane | 40.000 | 41.920 | -4.8 | 112 | 0.00 |
| 11 | | Endosulfan I | 40.000 | 41.778 | -4.4 | 114 | 0.00 |
| 12 | | 4,4'-DDE | 40.000 | 42.853 | -7.1 | 116 | 0.00 |
| 13 | | Dieldrin | 40.000 | 44.584 | -11.5 | 118 | 0.00 |
| 14 | | Endrin | 40.000 | 43.399 | -8.5 | 115 | 0.00 |
| 15 | | 4,4'-DDD | 40.000 | 45.293 | -13.2 | 122 | 0.00 |

(#) = Out of Range

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\0304PEST\DD08573.D\ECD1B.CH Vial: 3
Signal #2 : C:\HPCHEM\2\DATA\0304PEST\DD08573.D\ECD2A.CH
Acq On : 04 Mar 2003 11:22 am Operator: stephw
Sample : CC325-40 Inst : ECD 4
Misc : op6996,gdd326,1000,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\HPCHEM\2\METHODS\8081A_P.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Mon Mar 03 14:03:17 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | Compound | Amount | Calc. | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|
| 16 | Endosulfan II | 40.000 | 43.817 | -9.5 | 116 | 0.00 |
| 17 | 4,4'-DDT | 40.000 | 44.757 | -11.9 | 116 | 0.00 |
| 18 | Endrin Aldehyde | 40.000 | 39.147 | 2.1 | 105 | 0.00 |
| 19 | Endosulfan Sulfate | 40.000 | 43.912 | -9.8 | 116 | 0.00 |
| 20 | Methoxychlor | 40.000 | 43.647 | -9.1 | 115 | 0.00 |
| 21 | Endrin Ketone | 40.000 | 44.116 | -10.3 | 114 | 0.00 |
| 29 SC | Decachlorobiphenyl | 40.000 | 41.536 | -3.8 | 109 | 0.00 |

# Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\0303PEST\DD08554.D\ECD1B.CH Vial: 11
Signal #2 : C:\HPCHEM\2\DATA\0303PEST\DD08554.D\ECD2A.CH
Acq On : 03 Mar 2003 2:45 pm Operator: stephw
Sample : 40ppb ICV p678 Inst : ECD 4
Misc : op7028,gdd325,100,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\HPCHEM\2\METHODS\8081A_P.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Mon Mar 03 14:03:17 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | Compound | Amount | Calc. | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|
| 2 | alpha-BHC | 40.000 | 37.835 | 5.4 | 92 | 0.00 |
| 3 | gamma-BHC (Lindane) | 40.000 | 37.271 | 6.8 | 94 | 0.00 |
| 4 | beta-BHC | 40.000 | 35.877 | 10.3 | 95 | 0.00 |
| 5 | Heptachlor | 40.000 | 36.222 | 9.4 | 93 | 0.00 |
| 6 | delta-BHC | 40.000 | 38.114 | 4.7 | 96 | 0.00 |
| 7 | Aldrin | 40.000 | 37.491 | 6.3 | 94 | 0.00 |
| 8 | Heptachlor Epoxide | 40.000 | 36.468 | 8.8 | 95 | 0.00 |
| 9 | gamma-Chlordane | 40.000 | 37.285 | 6.8 | 98 | 0.00 |
| 10 | alpha-Chlordane | 40.000 | 34.077 | 14.8 | 95 | 0.00 |
| 11 | Endosulfan I | 40.000 | 36.264 | 9.3 | 99 | 0.00 |
| 12 | 4,4'-DDE | 40.000 | 37.302 | 6.7 | 99 | 0.00 |
| 13 | Dieldrin | 40.000 | 37.844 | 5.4 | 98 | 0.00 |
| 14 | Endrin | 40.000 | 39.086 | 2.3 | 103 | 0.00 |
| 15 | 4,4'-DDD | 40.000 | 39.665 | 0.8 | 103 | 0.00 |
| 16 | Endosulfan II | 40.000 | 37.302 | 6.7 | 99 | 0.00 |
| 17 | 4,4'-DDT | 40.000 | 40.744 | -1.9 | 103 | 0.00 |
| 18 | Endrin Aldehyde | 40.000 | 37.570 | 6.1 | 98 | 0.00 |
| 19 | Endosulfan Sulfate | 40.000 | 38.903 | 2.7 | 103 | 0.00 |
| 20 | Methoxychlor | 40.000 | 38.584 | 3.5 | 99 | 0.00 |
| 21 | Endrin Ketone | 40.000 | 38.435 | 3.9 | 100 | 0.00 |
| Signal #2 | | | | | | |
| 2 | alpha-BHC | 40.000 | 35.904 | 10.2 | 93 | 0.00 |
| 3 | gamma-BHC (Lindane) | 40.000 | 36.229 | 9.4 | 96 | 0.00 |
| 4 | beta-BHC | 40.000 | 35.487 | 11.3 | 98 | 0.00 |
| 5 | Heptachlor | 40.000 | 36.011 | 10.0 | 94 | 0.00 |
| 6 | delta-BHC | 40.000 | 36.361 | 9.1 | 97 | 0.00 |
| 7 | Aldrin | 40.000 | 35.736 | 10.7 | 95 | 0.00 |
| 8 | Heptachlor Epoxide | 40.000 | 36.020 | 9.9 | 97 | 0.00 |
| 9 | gamma-Chlordane | 40.000 | 36.111 | 9.7 | 98 | 0.00 |
| 10 | alpha-Chlordane | 40.000 | 36.098 | 9.8 | 96 | 0.00 |
| 11 | Endosulfan I | 40.000 | 35.494 | 11.3 | 96 | 0.00 |
| 12 | 4,4'-DDE | 40.000 | 36.566 | 8.6 | 99 | 0.00 |
| 13 | Dieldrin | 40.000 | 36.918 | 7.7 | 97 | 0.00 |
| 14 | Endrin | 40.000 | 36.482 | 8.8 | 97 | 0.00 |
| 15 | 4,4'-DDD | 40.000 | 36.550 | 8.6 | 98 | 0.00 |
| 16 | Endosulfan II | 40.000 | 37.174 | 7.1 | 99 | 0.00 |
| 17 | 4,4'-DDT | 40.000 | 38.720 | 3.2 | 101 | 0.00 |
| 18 | Endrin Aldehyde | 40.000 | 34.228 | 14.4 | 92 | 0.00 |

(#) = Out of Range

3-3-03

Evaluate Continuing Calibration Report

Signal #1 : C:\HPCHEM\2\DATA\0303PEST\DD08554.D\ECD1B.CH Vial: 11
Signal #2 : C:\HPCHEM\2\DATA\0303PEST\DD08554.D\ECD2A.CH
Acq On : 03 Mar 2003 2:45 pm Operator: stephw
Sample : 40ppb ICV p678 Inst : ECD 4
Misc : op7028,gdd325,100,,,10,1,water Multiplr: 1.00
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\HPCHEM\2\METHODS\8081A_P.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Mon Mar 03 14:03:17 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | Compound | Amount | Calc. | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|
| 19 | Endosulfan Sulfate | 40.000 | 36.672 | 8.3 | 97 | 0.00 |
| 20 | Methoxychlor | 40.000 | 38.922 | 2.7 | 102 | 0.00 |
| 21 | Endrin Ketone | 40.000 | 38.360 | 4.1 | 100 | 0.00 |

# Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\0304PEST\DD08582.D\ECD1B.CH Vial: 12
Acq On : 04 Mar 2003 3:54 pm Operator: stephw
Sample : CC325-20 Inst : ECD 4
Misc : op6996,gdd326,480,,,10,1,water Multiplr: 1.00
IntFile : EVENTS.E

Data File : C:\HPCHEM\2\DATA\0304PEST\DD08582.D\ECD2A.CH Vial: 12
Acq On : 04 Mar 2003 3:54 pm Operator: stephw
Sample : CC325-20 Inst : ECD 4
Misc : op6996,gdd326,480,,,10,1,water Multiplr: 1.00
IntFile : EVENTS2.E

Method : C:\HPCHEM\2\METHODS\8081A_P.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Mon Mar 03 14:03:17 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | | Compound | Amount | Calc. | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|---|
| 1 | S | Tetrachloro-m-xylene | 20.000 | 18.688 | 6.6 | 97 | 0.00 |
| 2 | | alpha-BHC | 20.000 | 18.579 | 7.1 | 101 | 0.00 |
| 3 | | gamma-BHC (Lindane) | 20.000 | 19.071 | 4.6 | 101 | 0.00 |
| 4 | | beta-BHC | 20.000 | 20.472 | -2.4 | 99 | 0.00 |
| 5 | | Heptachlor | 20.000 | 18.930 | 5.4 | 101 | 0.00 |
| 6 | | delta-BHC | 20.000 | 19.608 | 2.0 | 97 | 0.00 |
| 7 | | Aldrin | 20.000 | 20.193 | -1.0 | 106 | 0.00 |
| 8 | | Heptachlor Epoxide | 20.000 | 21.101 | -5.5 | 103 | 0.00 |
| 9 | | gamma-Chlordane | 20.000 | 21.852 | -9.3 | 104 | 0.00 |
| 10 | | alpha-Chlordane | 20.000 | 20.931 | -4.7 | 103 | 0.00 |
| 11 | | Endosulfan I | 20.000 | 21.529 | -7.6 | 104 | 0.00 |
| 12 | | 4,4'-DDE | 20.000 | 22.557 | -12.8 | 102 | 0.00 |
| 13 | | Dieldrin | 20.000 | 22.034 | -10.2 | 104 | 0.00 |
| 14 | | Endrin | 20.000 | 22.907 | -14.5 | 107 | 0.00 |
| 15 | | 4,4'-DDD | 20.000 | 23.631 | -18.2# | 106 | 0.00 |
| 16 | | Endosulfan II | 20.000 | 23.037 | -15.2# | 102 | 0.00 |
| 17 | | 4,4'-DDT | 20.000 | 23.658 | -18.3# | 115 | 0.00 |
| 18 | | Endrin Aldehyde | 20.000 | 23.181 | -15.9# | 107 | 0.00 |
| 19 | | Endosulfan Sulfate | 20.000 | 23.292 | -16.5# | 109 | 0.00 |
| 20 | | Methoxychlor | 20.000 | 22.996 | -15.0 | 107 | 0.00 |
| 21 | | Endrin Ketone | 20.000 | 22.809 | -14.0 | 107 | 0.00 |
| 29 | SC | Decachlorobiphenyl | 20.000 | 19.945 | 0.3 | 96 | 0.00 |

GW 3/5/03

Signal #2

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | S | Tetrachloro-m-xylene | 20.000 | 18.714 | 6.4 | 98 | 0.00 |
| 2 | | alpha-BHC | 20.000 | 18.994 | 5.0 | 99 | 0.00 |
| 3 | | gamma-BHC (Lindane) | 20.000 | 19.726 | 1.4 | 102 | 0.00 |
| 4 | | beta-BHC | 20.000 | 20.190 | -1.0 | 99 | 0.00 |
| 5 | | Heptachlor | 20.000 | 20.579 | -2.9 | 106 | 0.00 |
| 6 | | delta-BHC | 20.000 | 20.247 | -1.2 | 99 | 0.00 |
| 7 | | Aldrin | 20.000 | 20.467 | -2.3 | 104 | 0.00 |
| 8 | | Heptachlor Epoxide | 20.000 | 21.766 | -8.8 | 104 | 0.00 |
| 9 | | gamma-Chlordane | 20.000 | 21.298 | -6.5 | 101 | 0.00 |
| 10 | | alpha-Chlordane | 20.000 | 21.680 | -8.4 | 104 | 0.00 |

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\0304PEST\DD08582.D\ECD1B.CH Vial: 12
Acq On : 04 Mar 2003 3:54 pm Operator: stephw
Sample : CC325-20 Inst : ECD 4
Misc : op6996,gdd326,480,,,10,1,water Multiplr: 1.00
IntFile : EVENTS.E

Data File : C:\HPCHEM\2\DATA\0304PEST\DD08582.D\ECD2A.CH Vial: 12
Acq On : 04 Mar 2003 3:54 pm Operator: stephw
Sample : CC325-20 Inst : ECD 4
Misc : op6996,gdd326,480,,,10,1,water Multiplr: 1.00
IntFile : EVENTS2.E

Method : C:\HPCHEM\2\METHODS\8081A_P.M (Chemstation Integrator)
Title : Pesticides by 608 or 8081
Last Update : Mon Mar 03 14:03:17 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min
Max. RRF Dev : 15% Max. Rel. Area : 150%

| | | Compound | Amount | Calc. | %Dev | Area% | Dev(min) |
|---|---|---|---|---|---|---|---|
| 11 | | Endosulfan I | 20.000 | 21.883 | -9.4 | 103 | 0.00 |
| 12 | | 4,4'-DDE | 20.000 | 21.866 | -9.3 | 102 | 0.00 |
| 13 | | Dieldrin | 20.000 | 22.212 | -11.1 | 103 | 0.00 |
| 14 | | Endrin | 20.000 | 22.654 | -13.3 | 104 | 0.00 |
| 15 | | 4,4'-DDD | 20.000 | 22.886 | -14.4 | 101 | 0.00 |
| 16 | | Endosulfan II | 20.000 | 22.602 | -13.0 | 104 | 0.00 |
| 17 | | 4,4'-DDT | 20.000 | 23.462 | -17.3# | 111 | 0.00 |
| 18 | | Endrin Aldehyde | 20.000 | 20.946 | -4.7 | 94 | 0.00 |
| 19 | | Endosulfan Sulfate | 20.000 | 22.987 | -14.9 | 107 | 0.00 |
| 20 | | Methoxychlor | 20.000 | 22.530 | -12.7 | 106 | 0.00 |
| 21 | | Endrin Ketone | 20.000 | 22.839 | -14.2 | 105 | 0.00 |
| 29 | SC | Decachlorobiphenyl | 20.000 | 19.897 | 0.5 | 97 | 0.00 |

(#) = Out of Range SPCC's out = 0 CCC's out = 0

LIQUID SAMPLE PREP REPORT

Date: 2/24/03

Method*: 8081

Batch#: OP 6996

Batch Started On: 2/24/03

Prior Number Of Samples in Batch : Ø

Analyst: AA/ACA

| Sample ID | Bottle Number | Amount Extracted (ml) | Initial pH | Adjusted pH | Surrogate Amount | Spike Amount | Final Volume (ml) | Comments |
|---|---|---|---|---|---|---|---|---|
| OP 6996 MB | X | 1000 | 6 | NA | 0.5ml | | 10.0ml | |
| OP 6996 BS | X | ↓ | ↓ | ↓ | | 0.5ml | | |
| F16657-1 | 2 | 960 | 6 | NA | | | | |
| -2 | 1 | 980 | ↓ | ↓ | ↓ | | ↓ | MS/MSD |
| OP 6996 MS | 2 | 480 | 6 | NA | 0.5ml | 0.5ml | 10.0ml | F16657-2 |
| OP 6996 MSD | 2 | 480 | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| OP DUP | | | | | | | | |

2/24/03

DY

Surrogate ID: E1227 AA Conc: 1000ppb Exp. Date: 8/4/03 Bath Temp.: 40°

Spike ID: E1236 NA Conc: 1000ppb Exp. Date: 5/1/03 Bath Temp2.: 55°C

H2CL2 Lot # CH061, CG921 Hexane Lot # C6242 Na2SO4 Lot# —

Acetonitrile Lot # — Methanol Lot # — Acetone Lot# —

BA Reagent # EN#362 Isopropyl Reagent # 011423 Reagent #

Comments:

Relinquished By: Date 2/24/03

Accepted By: Dat 2/24/03

Prep method for SW846 methods is 3510C for waters and 3580A for non-aqueous liquids. 8330A and 8332 prepped by 3535A.

Water.xls NF rev. 9/01