File: CCI Olathe

QUALITY ASSURANCE PROJECT PLAN FOR SAMPLING AND ANALYSIS OF CHLORINATED COMPOUNDS AT THE CHEMICAL COMMODITIES, INC. SITE: OLATHE, KANSAS

Bruce Morrison, Environmental Engineer
U.S. EPA Region VII, Superfund Division

March, 2000

A1. Title & Approval Sheet

Gene Gunn — 3/27/00
Gene Gunn, Manager
Federal Facility/Special Emphasis Branch
Superfund Division, EPA Region VII
Date

Mike Davis — 5/26/00
Mike Davis, Environmental Scientist
Environmental Monitoring and Water Compliance Branch
Environmental Services Division, EPA Region VII
Date

Benjamin Rueta — 6-5-00
David Parker, Regional Representative
Agency for Toxic Substances and Disease Registry
Date

Ernest L. Arnold — 6-20-00
Ernest L. Arnold
EPA Regional Quality Assurance Officer
Date

A2. Table of Contents

A. Project Management

A3. Distribution List

Gene Gunn	Director, Superfund Services Division	U.S. EPA Region VII, SUPR
Mike Davis	Environmental Scientist	U.S. EPA Region VII, ENSV
David Parker	Regional Representative	ATSDR
Donna Porter	Environmental Scientist	KDHE

A4. Project/Task Organization

This project is being managed and administered by the Federal Facilities/Special Emphasis Branch, SPFD, EPA Region VII. Air monitoring issues and the indoor air sampling and analysis QAPP are being addressed by EPA Region VII, Federal Facilities/Special Emphasis Branch (FFSE) in consultation with Environmental Monitoring & Water Compliance Branch personnel.

EPA, Region VII

Mary Peterson: RPM, IANE/SPFD (913)551-7882 Responsibilities: EPA Project Manager

Mike Davis: Environmental Scientist, EMWC/ENSV (913) 551-7096
Responsibilities: EPA Air Monitoring Project Consultant for Design and Implementation

A5. Problem Definition / Background

The purpose of this Quality Assurance Project Plan (QAPP) is to describe the procedures to be used for the environmental sampling which is to take place in homes adjacent to the Chemical Commodities Inc., Superfund Site located in Olathe, Kansas.

The Chemical Commodities, inc. Site, henceforth CCI, is located on 1.5 acres within the city limits of Olathe, Kansas. The site is bordered on the west and north by single family residences, on the east by rail tracks and on the south by vacant property. The street address for the site is 300-320 South Blake Street, Olathe, Kansas.

The Chemical Commodities Corporation operated a chemical brokerage business at this site from 1951 to 1989. The company engaged in the resale of chemicals which were surplus, off-specification, recycled, or had exceeded their specified shelf life. Various materials in many types of containers were stored in sheds and trailers throughout the site and in a warehouse that is approximately 50 feet by 100 feet. Chemical substances consisting primarily of chlorinated solvents were detected in soils, surface water, and ground water on-site and immediately off-site. Contamination of these environmental media was a direct result of numerous chemical spills

from poorly maintained containers housed in inadequate storage facilities.

The EPA completed a removal assessment at CCI in March 1989. Several hazardous conditions were identified from the assessment including incompatible chemicals being stored together, extensive leakage from numerous containers, unlabeled containers of chemicals and many deteriorated containers. Subsequently, the EPA initiated a fund-lead, time-critical, removal action in July 1989, to address surface soil contamination, shallow subsurface contamination, and the threat of additional releases of chemicals.

The EPA removal action was conducted in three phases. Phase I consisted of the assessment and inventorying of the chemicals remaining on site. Phase II covered the packaging, transportation, and disposal of the chemicals, and Phase III consisted of structure decontamination, surface soil excavation and disposal, and subsurface remediation. Phases I and II were completed in 1991. Phase III included the removal of approximately 300 tons of contaminated soil and the on-site stockpiling of an additional 1,200 tons of contaminated soil. Subsurface contaminants consisting of a host of volatile organic compounds (VOCs), were addressed using an interceptor trench for collecting shallow ground water and treating it with an on-site air stripper apparatus.

The treatment of shallow ground water was initiated in 1991 and is ongoing. The primary VOC contaminants found in the ground water are TCE and PCE. The subsurface contamination at the site is extensive with total VOC concentrations in the shallow ground water frequently found above 100 parts per million (ppm). The vadose zone soils are also heavily contaminated with VOCs at concentrations ranging as high as 700 ppm. Weathered limestone bedrock is encountered on site at depths varying from 17 to 23 feet. Only one well has been drilled into the bedrock throughout the investigations at the site, in an effort to prevent deeper migration of dense, non-aqueous phase liquids (DNPL) to the underlying aquifer.

EPA previously conducted two indoor air-monitoring events inside homes adjacent to the site. One sampling event was conducted in 1989, and the other was conducted in 1997. It should be noted that the air samples from these events were collected from the crawl spaces of the residences, and not from the inhabited area of the dwellings. The Agency for Toxic Substances and Disease Registry (ATSDR) stated that the low levels of VOCs detected during the 1989 air monitoring did not represent either an imminent or long-term health hazard if the individual and combined total concentrations of VOCs detected in the CCI Air Toxics study are typical of on going releases at the site. ATSDR also recommended conducting periodic sampling of indoor air.

A6. Project / Task Description

The objective of this study is to assess the current levels of volatile organic compounds in the indoor air of six homes adjacent to the CCI Site. Table I lists the target compounds, their chronic exposure action levels, and their short term action levels. Any additional VOCs detected

in the samples will be reported to the project manager as non-target analytes. If appropriate, action levels for non-target analytes may be generated at a later date. The data from this study will be assembled and provided to ATSDR requesting that ATSDR evaluate the levels of VOCs detected in the indoor air with respect to its effect on human health.

TABLE I
Action Levels

COMPOUND	CHRONIC ACTION LEVEL (NOAEL)	SHORT-TERM ACTION LEVEL (MRL)
Chloroform	.04 ug/M^3	488 ug/M^3
1,2-Dichloroethane	.04 ug/M^3	809 ug/M^3
1,1,1-Trichloroethane	1000 ug/M^3	10,902 ug/M^3
Benzene	.13 ug/M^3	157 ug/M^3
Carbon Tetrachloride	.07 ug/M^3	1,256 ug/M^3
Trichloroethylene	.6 ug/M^3	10,741 ug/M^3
Toluene	3,764 ug/M^3	11,294 ug/M^3
Tetrachloroethylene	.04 ug/M^3	1,355 ug/M^3

A7. Quality Objectives and Criteria for Measurement Data

The data quality objective of this air sampling and analysis plan is to provide valid data of known and documented quality to be used for comparison to health-based criteria. The data quality indicators to be used are identified below.

Representativeness will be addressed by collecting the samples as described in this document.

Comparability will be addressed by collecting, analyzing, and reporting the data as described in this document.

Whole air VOC samples are to be collected in evacuated SUMMA® canisters in accordance with EPA Region VII Standard Operating Procedure 2313.4A, "Air Sampling With Stainless Steel Canisters".

VOC method accuracy will be assessed by laboratory analysis of blind performance audit samples with known concentration mixtures of multiple VOCs, including benzene, toluene, and

halogenated species in SUMMA® canisters. Method accuracy audit samples will be prepared by the EPA Region VII laboratory. In addition, field blanks will be included in the normal sampling schedule to assess canister cleanliness.

Method accuracy performance will be considered acceptable if blind audit sample results fall within the normal range of acceptable values as indicated by the LAST QC Summary Report. This report is generated by the method and parameter specific historical quality control database maintained by the EPA Region VII laboratory.

Method precision will be assessed by collection of field duplicate samples from collocated canisters. Method precision performance will be considered acceptable if collocated sample results fall within the normal range of acceptable values as indicated by the LAST QC Summary Report for Level One precision calculations based on field duplicate performance.

A8. Special Training Requirements / Certification

No special training or certification requirements apply to this project.

A9. Documentation and Records

This information is covered by Region 7 ENSV SOPs 2410.1B, "LABO Analytical Data Management Procedures" and 2410.10A, "Analytical Data Submission Packages". Sample documentation shall be in accordance with EPA Region 7 ENSV SOP 2130.3B, "Identification, Documentation, and Tracking of Samples."

B. Measurement / Data Acquisition

B1. Sampling Process Design

Whole air samples are to be collected in evacuated SUMMA® canisters, and analyzed in accordance with EPA Region VII Standard Operating Procedure 3230.4A, "Analysis of Air Canister Samples for Volatile Organic Compounds by GC/MS".

The objective of this study is to collect indoor air samples which will be representative of chronic and acute environmental exposures in the respective homes adjacent to the CCI site. Sampling for twenty-four hour periods will allow comparability with health-based criteria for acute exposures. For comparison to chronic action levels, sampling data at a specific location will be averaged over three separate 24-hour sampling events for each location. Samples shall be collected simultaneously at six homes every third day for three consecutive sampling events. A preliminary walk-around inspection will be performed prior to sampling to identify any potential sources of VOCs other than subsurface contamination.

In addition to the living area samples, an ambient outdoor air sample will be collected

from on site for each sampling event. This will provide an assessment of potential ambient air contributors to indoor air concentrations.

Sampling is scheduled to begin Mid July and be completed by the end of the month. Individual 24-hour sampling events will consist of collection of SUMMA® canister samples at each of the seven sampling locations. The complete sampling program will result in collection of 21 individual 24-hour canister samples from the living area of each home, and three individual 24-hour canister samples from an outdoor location at the site. The entire project will total 24 individual samples excluding quality control samples.

B2. Sampling Methods Requirements

Whole air samples shall be collected using a pumped canister collection system in accordance with EPA Region VII SOP 2313.4A, Air Sampling With Stainless Steel Canisters.

B3. Sample Handling and Custody Requirements

Sample containers, preservation, and holding times will be those found in EPA Region 7 ENSV SOP 2130.4B, "Sample Container Selection, Preservation, and Holding Times."

Chain-of-Custody and field documentation will be in accordance with EPA Region 7 ENSV SOP 2130.2A, "Field Chain of Custody for Environmental Samples" and EPA Region 7 ENSV SOP 2130.3B, "Identification, Documentation, and Tracking of Samples," respectively. The time of collection, location, sampling time, and canister starting vacuum / ending pressure will be recorded on computer generated field sheets.

B4. Analytical Methods Requirements

Canister samples will be analyzed in accordance with EPA Region VII SOP 3230.4A, "Analysis of Air Canister Samples for Volatile Organic Compounds by GC/MS".

B5. Quality Control Requirements

Duplicate samples will be collected at one location each sampling event. One trip blank sample and one performance evaluation sample will also be submitted for this project.

Sampling completeness shall be considered satisfactory with 75% (18 samples) data capture.

Laboratory quality control elements, including spikes and blanks will be performed in accordance with the above referenced analytical SOPs and EPA Region VII ENSV SOP 1610.1C, "Regional Laboratory Quality Control Policy."

B6. Instrument / Equipment Testing, Inspection, and Maintenance Requirements

The field equipment and analytical instrumentation testing, inspection, and maintenance will be performed in accordance with the above referenced analytical and sample collection SOPs along with manufacturer's recommendations.

B7. Instrument Calibration and Frequency

Field equipment and analytical instrument calibrations will be performed in accordance with the appropriate referenced analytical or sample collection SOP and manufacturer's recommendations.

B8. Inspection / Acceptance Requirements for Supplies and Consumables

No special requirements are needed.

B9. Data Acquisition Requirements

Acquired data used to support the decision making process associated with this project includes indoor air monitoring reports previously generated by EPA, toxicological assessments of the existing sampling effort, and various technical drawings, reports, and memoranda included as part of the site information file. The data included in the site information file are considered to be for background information only in formulating the objective and sampling design of this study.

B10. Data Management

Analytical data management will be in accordance with EPA Region VII ENSV SOPs 2120.2A, "Document Control" and 2410.1B, "LABO Analytical Data Management Procedures."

C. Assessment / Oversight

C1. Assessments and Response Actions

The EPA QA manager (or his designee) will conduct an audit of the field activities for this project as requested by the EPA project manager according to EPA Region VII SOP 2152.2A,. "Conducting On-Site Reviews of Field Sampling Activities," The EPA QA manager (or his designee) will have the authority to issue a stop work order upon finding a significant condition that would adversely affect the quality and usability of the data. The EPA project manager will have the responsibility for initiating and implementing response actions associated with findings identified during the on-site audit. Once the response actions have been implemented, the EPA QA manager (or his designee) will perform a follow-up audit to verify and document that the response actions were implemented effectively.

Assessments and response concerning the analytical aspect of the project are addressed in the EPA Region VII ENSV SOPs referenced above.

C2. Reports to Management

The final report shall incorporate the results from air sampling and shall be distributed in accordance with section A3. The final report will contain environmental sampling results and will compare the results with the respective levels of interest. The sampling analysis report will not draw conclusions regarding potential human health impacts resulting from any analyte concentrations.

D. Data Validation and Usability

D1. Data Review, Validation, and Verification Requirements

The data will be peer reviewed by a qualified analyst and the laboratory Section Manager as identified in Region VII ENSV SOPs 1640.1A and 1610.1C. The project manager will be responsible for overall validation and final approval of the data in accordance with project purpose and use of the data.

D2. Validation and Verification Methods

The data will be validated in accordance with Region VII ENSV SOPs 1610.1C and 1640.1A. QC spot checks will be performed to the Region VII laboratory following the frequency and criteria outlined in Region VII ENSV SOPs 1640.1A and 1610.5A, "Quality Control Spot Checks of Regional Laboratory Data Packages."

The project manager will perform the final review and approval of the data prior to it being entered into the LAST system as valid. The project manager will also compare the sample descriptions with the field sheets for consistency and will ensure that any anomalies in the data are appropriately documented.

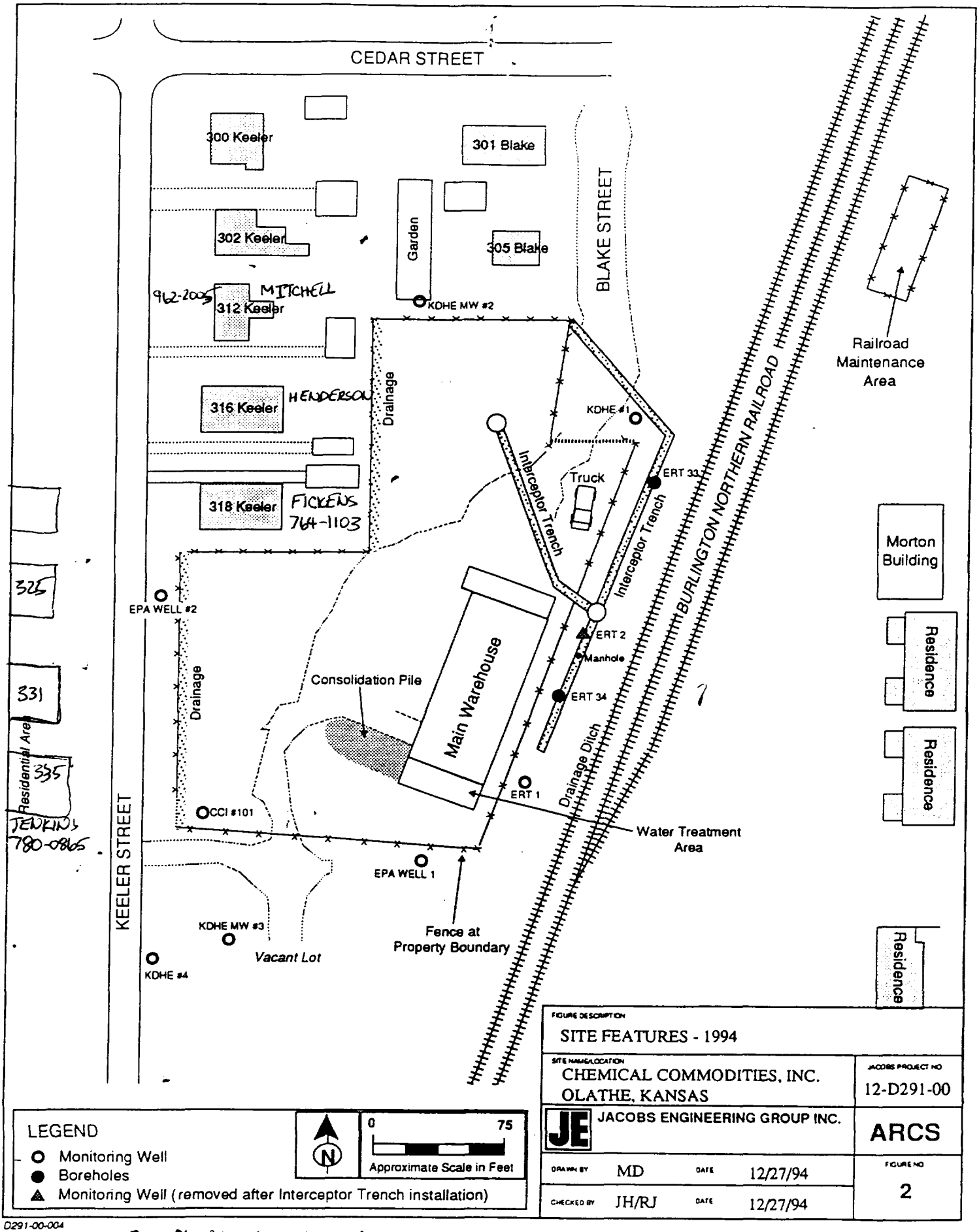
D3. Reconciliation with User Requirements

Once the data results are compiled, the project manager will review the field duplicates to determine if they fall within the acceptance limits as defined in this QAPP. Completeness will also be evaluated to determine if the completeness goal for this project has been met. If data quality indicators do not meet the project's requirements as outlined in this QAPP (including the accuracy for lab spikes), the data may be discarded and re-sampling may occur. The project manager will evaluate the cause of the failure (if possible) and make the decision to discard the data and re-sample. If the failure is tied to the analysis, calibration and maintenance techniques will be reassessed as identified by the appropriate lab personnel. If the failure is associated with

the sample collection and re-sampling is needed, the sampling methodology will be re-evaluated and sampling personnel will be retrained.

FIGURES

Map



D291-00-004

SAMPLING LOCATIONS

APPENDIX A

FIELD DATA SHEET

SUMMA CANISTER SAMPLING

FIELD DATA SHEET

PROJECT:Chemical Commodities, inc. SAMPLE DATE: _____

CANISTER ID NO: _____ SAMPLE LOCATION: _____

SAMPLE NO: _____ OPERATOR: _____

SAMPLER ID: _____ ANALYTICAL METHOD: 3230.4A (TO-14) FULL SCAN GC/MS

SAMPLING INFORMATION

	LOCAL TIME	DATE	VACUUM/ PRESSURE	WEATHER CONDITIONS
START	_____	_____	_____ in Hg	_____
STOP	_____	_____	_____ PSI	_____

COMMENTS AND FIELD OBSERVATIONS: _____

_____

_____

_____

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

JUN 20 2000

MEMORANDUM

SUBJECT: Quality Assurance Project Plan for Sampling and Analysis of Chlorinated Compounds at the Chemical Commodities, Inc. Site: Olathe, Kansas, QAO#2000114–Approved with Conditions

FROM: Ernest L. Arnold
Regional Quality Assurance Manager
ENSV/DISO/QAO

TO: Bruce Morrison, SUPR/EFLR (includes QAPP)
Mike Davis, ENSV/EMWC
Mary Peterson, SUPR/IANE

As requested, we reviewed the subject document, dated March 2000, for compliance with the *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations*, EPA QA/R-5, October 1997.

Based on the comments presented below, the document is approved with conditions. The document was found to be deficient in some key areas to the extent of jeopardizing the quality of the data. These areas are fully addressed in the conclusion memorandum and can be adequately addressed by incorporation into the document without resubmission. The document would not be approved without the inclusion of the recommendations.

Critical Comments

1. Sections A.3 and A.4: The distribution list and the key personnel do not match. Do David Parker, ATSDR, and Donna Porter, KDHE, have any duties for this project, or are they on the distribution list for information purposes? If these people have a responsibility, then their duties need to be described in Section A.4. If not, then need to add "for information" after their names in the distribution list. Later in the QAPP, the Regional Quality Assurance Manager (RQAM) is described with duties. Need to add the RQAM to the key personnel in the Project/Task Organization. The RQAM's duties include approval of the QAPP and perform an audit as requested by the project manager. What are the duties of the Project Manager? Need to describe in more detail, and may be added as bulleted responsibilities. Some examples may include distribute the QAPP to all personnel working on the project, ensure the equipment are operating properly, ensure

the field equipment are calibrated properly, validate data from the laboratory, and any other specific duties which they may perform.

2. Section A6: This section describes a project where samples will be collected from six (6) houses and one outdoor location. The Figure at the back of the QAPP highlights eight (8) houses and one outdoor location. Which six houses will be selected? Will there be a selection process? Will all eight houses be tested? [Bruce indicated that six of the eight houses would be selected based on access permission.]

3. Section A9: This section describes the documentation and records. However, nowhere in the QAPP or the referenced SOPs does it describe who is responsible for ensuring all the documents are provided for the project files, and who is responsible for providing the QAPP to all project personnel. See comment #1.

4. Section B2: This section describes the sampling methods. However, nowhere in the QAPP or the referenced SOP does it describe who is responsible for following the SOP for calibrating the field equipment, for ensuring the samples were collected properly, nor for the initiation of the sample and sample documentation. See comment #1

5. Section C2: Who will prepare the final report? What will the final report contain? The recipients have been identified. See comment #1

General Comments

1. Section A7 and references to SOPs on documentation: LAST no longer exists. The new data system is LIMS Lite. LIMS Lite is a database similar to LAST and currently follows the same procedures as cited in the SOPs.

2. Section B4: This section describes the analytical methods. The current analytical method SOP is 3230.4C, not 3230.4A. It does not specify a laboratory turnaround time. Is the laboratory turnaround time critical for this project?

If you have any questions, please contact me at x7170 or Margie St. Germain at x7209.
RQAO Document Number: 2000-114

July 18, 2000

MEMORANDUM

SUBJECT: Quality Assurance Project Plan for Sampling and Analysis of Chlorinated Compounds at the Chemical Commodities, Inc. Site - Response to Comments

FROM: Mary P. Peterson, Project Manager
IANE/SUPR

TO: Chemical Commodities, Inc., Olathe, Kansas, Site File

This memo is written in response to comments received by the regional Quality Assurance Office (QAO) on the subject quality assurance project plan (QAPP). The QAPP was approved with conditions as set forth in the June 20, 2000, memorandum from Ernest Arnold to Bruce Morrison. A meeting attended by project personnel was held on July 11, 2000, to discuss the QAO's comments. In that meeting, Margie St. Germaine of the QAO indicated that a revised QAPP was not needed, and that a memorandum to the file would suffice to address the QAO's comments.

The responses below correspond to the comments discussed in the June 20, 2000 memo.

Critical Comment 1:

Sections A3 and A4 are being revised as follows:

A3. Distribution List

Mary Peterson	Project Manager	EPA/SUPR
Mike Davis	Environmental Scientist	EPA/ENSV
Leland Grooms	Field Scientist	EPA/ENSV
Ben Puesta	Regional Representative	ATSDR
Randy Carlson, for information only		KDHE
Ernest Arnold	Quality Assurance Manager	EPA/ENSV

SUPR:IANE:PETERSON:RH:X7875:G:IANE:AIRQAPP.MEM.:07:18:2000

IANE PETERSON
IANE CURTIS
MPP
7-18-00

A4. Project/Task Organization

This project is being managed and administered by the Iowa/Nebraska Branch, Superfund Division, EPA Region 7. The duties of the key project personnel are presented below.

Mary Peterson, Project Manager (913) 551-7882

- coordinate project activities
- distribute project documents
- coordinate community outreach activities
- obtain property access
- communicate with the Agency for Toxic Substances and Disease Registry (ATSDR) regarding sampling results

Leland Grooms, Field Scientist (913) 551-5020

- assist with community outreach activities
- coordinate sampling event with laboratory
- conduct equipment checks and calibrations
- conduct field sampling activities
- prepare data summary report

Ernest Arnold, Quality Assurance Manager (913) 551-5194

- approve QAPP
- conduct audit as requested by project manager

Mike Davis, Environmental Scientist (913) 551-5081

- approve QAPP
- assist with field activities
- assist with data summary report

Ben Puesta, ATSDR (913) 551-7356

- approve QAPP
- review sampling results
- provide health consultation as requested by project manager

Critical Comment 2:

Six indoor air samples will be collected from residences near the site. The figure attached to the QAPP identified eight residences as potential candidates for sampling. Only six of these eight homes will be included in the project. The six homes to be sampled will be determined based on property access permission.

Critical Comment 3:

The project manager will be responsible for distribution of the QAPP to project personnel and distribution of other pertinent project documents to the site file.

Critical Comment 4:

The field scientist will be responsible for all field activities including following the designated SOP, calibrating and operating field equipment, and coordinating with the lab for sample initiation and documentation.

Critical Comment 5:

The field scientist will prepare a data summary report which will contain a summary of the analytical sampling results. The ATSDR will prepare a health consultation based on the data summary report, which will compare the results to health based cleanup levels, and present recommendations for follow up actions.

General Comment 1:

The LAST data system has been replaced by the LIMS Lite data system. However, information from the LAST QC Summary Report remains relevant to the assessment of data quality objectives.

General Comment 2:

The correct analytical method SOP 3230.4C will be used. Laboratory turnaround time is not critical for this project.

cc: Bob Dona, SUPR
Leland Grooms, ENSV
Mike Davis, ENSV

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

July 18, 2000

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FROM: Mary P. Peterson, Project Manager Mary P. Peterson
IANE/SUPR

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