US EPA RECORDS CENTER REGION 5
485634

QUALITY ASSURANCE PROJECT PLAN
FOR
N-FORCER SITE
14300 HENN STREET
DEARBORN, MICHIGAN

JUNE 2005

Prepared For:
CSX Transportation, Inc.
Public Safety & Environment
500 Water Street, J-275
Jacksonville, FL 32202

Prepared By:
Center for Toxicology and Environmental Health, L.L.C.
615 W. Markham Street
Little Rock, AR 72201

ARCADIS

Infrastructure, environment, buildings

ARCADIS G&M of Michigan, LLC
25200 Telegraph Road
Southfield
Michigan 48034
Tel 248 350 3239
Fax 248 350 8284
www.arcadis-us.com

ENVIRONMENT

Mr. Brian Kelly
SE-GI
USEPA Large Lakes Research Station/ORD
USEPA Region 5 Emergency Response # 1
9311 Groh Road
Grosse Ile, MI 48138-1697

Subject:
CSXT N-Forcer, Dearborn, Michigan, CSXT Project # R0008210 – Draft Quality Assurance Project Plan (QAPP)

Date:
June 29, 2005

Contact:
Terri Rubis

Phone:
248.936.8268

Email:
trubis@arcadis-us.com

Our ref:
SFE04044.0003

Mr. Kelly:

Please find attached the Draft Quality Assurance Project Plan (QAPP) for the CSXT N-Forcer site in Dearborn, Michigan for your review and comments.

Sincerely,

ARCADIS G&M of Michigan, LLC

Terri L. Rubis
Project Manager

Attachment

TABLE OF CONTENTS

1.0 PURPOSE 1
2.0 PROJECT DESCRIPTION 1
2.1 PROJECT ORGANIZATION AND RESPONSIBILITIES 1
2.2 PROJECT BACKGROUND 2
2.3 DATA QUALITY OBJECTIVES AND CRITERIA FOR MEASUREMENT OF DATA 2
2.4 TRAINING AND CERTIFICATION 3
3.0 DATA GENERATION AND ACQUISITION 3
3.1 SAMPLING AND MONITORING METHODOLOGY 3
3.1.1 AIR SAMPLING 3
3.1.2 METOROLOGICAL MONITORING 4
3.1.3 TOTAL PARTICULATE MONITORING 4
3.1.4 SOIL SAMPLING 4
3.2 SAMPLE HANDLING AND CUSTODY 5
3.3 ANALYTICAL METHODS 5
3.4 QUALITY CONTROL 5
3.5 INSTRUMENT/EQUIPMENT TESTING, INSPECTION AND MAINTENANCE 5
3.6 INSTRUMENT/EQUIPMENT CALIBRATION AND FREQUENCY 6
3.7 DATA MANAGEMENT 6
4.0 ASSESSMENT 6
5.0 DATA VALIDATION AND USABILITY 6
5.1 DATA REVIEW, VERIFICATION AND VALIDATION 6
5.2 VERIFICATION AND DATA VALIDATION METHODS 7

1.0 PURPOSE

The purpose of the Quality Assurance Project Plan (QAPP) is to document how previous samples were collected and to describe how future samples, if required, will be collected and managed.

2.0 PROJECT DESCRIPTION

2.1 PROJECT ORGANIZATION AND RESPONSIBILITIES

Key personnel and contact information for this project are outlined below:

Project Manager
Name: Paul Kurzanski
Company: CSXT
Telephone: (904) 359-3101

The Project Manager is the official point of contact with the regulatory agencies.

Site Manager
Name: Terri Rubis
Company: ARCADIS
Telephone: (248) 396-8400

The Site Manager is the person responsible for overall operations and resources at the Site. The Site Manager implements and directs field operations to ensure that operations are conducted in accordance with site plans. The Site Manager works closely with the Project Manager and will be onsite full time to provide direction to field personnel.

Site Health and Safety Officer
Name: Erik Olson
Company: Olson and Associates, L.L.C.
Telephone: (615) 746-4697

The Site Health and Safety Officer (SHSO) is responsible for directing the implementation of the HASP. The SHSO will implement air monitoring program at the Site. If necessary, the SHSO will work with Site Manager to implement administrative controls or other protective measures to reduce or eliminate potential dust causing activities.

Project Field Personnel

Field personnel responsible for collecting samples at the Site will be experienced in the procedures and safety issues associated with sampling activities.

Laboratory

RJ Lee Group will analyze samples according to Section 3.3 of the QAPP.

2.2 PROJECT BACKGROUND

The CSXT property is contiguous with the N-Forcer Site (Site) (also known as the W.R. Grace & Company Dearborn Plant) located at 14300 Henn Street, Dearborn, Wayne County, Michigan. The N-Forcer Site occupies approximately 2.7 acres and is currently improved with a single 16,000-ft^2 building which was used for the processing of vermiculite ore into attic insulation and lightweight concrete aggregate. The Site historically consisted of a rail spur, storage silos, processing space, and furnaces.

Shipping records show that between 1966 and 1988, the Site received and processed approximately 206,000 tons of vermiculite ore from Libby, Montana. Processing of vermiculite ore ceased in 1989. The storage silos and furnace were dismantled, and the rail spur is no longer used. Die, Mold & Automation Components, Inc. currently operates on the Site. In the spring of 2005 a removal action was performed at the N-Forcer site by EPA contactors. The action involved, among other things, removal of soils with Libby amphibole in excess of 1% by weight. Excavation of soils continued up to the property line between the CSXT property and the N-Forcer site.

EPA expressed concerns that, since soils with visible vermiculite and/or amphiboles were observed at the property boundary, this material may extend for some distance onto the CSXT property. They also provided some evidence that a small volume of materials on the CSXT property had evidence of amphibole impact. However, sampling performed in November 2004 by ARCADIS, a contractor for CSXT, failed to identify amphibole impact in excess of the 1% action level established by the EPA. In addition, a site inspection and sampling event was performed on a broader geographic area of the CSXT property on May 24, 2005 by CSXT contractors, including CTEH, RJ Lee Group, ARCADIS, and Olson and Associates, L.L.C. Similar to previous sampling, the May 24, 2005 investigation revealed that even in areas where visible vermiculite flakes were observed on the surface, microscopic examination of surface soils revealed either no detectable amphibole, or only "trace" levels. In spite of these findings, CSXT has voluntarily agreed to remove soils between the property line and track 3 with visually observable amphibole fragments or materials suspected to contain such fragments, including the switch and stub siding tracks.

2.3 DATA QUALITY OBJECTIVES AND CRITERIA FOR MEASUREMENT OF DATA

The purpose of the air sampling for amphiboles in air is to produce data that are, as reasonably as possible, an accurate representation of the levels of amphiboles in air in proximity to the N-Forcer facility and to measure levels of amphiboles in air along the property boundary during remediation activities. The purpose of the soil sampling for amphiboles is to produce data that are, as reasonably possible, an accurate representation of the current levels of amphibole fibers in soil in proximity to the N-Forcer facility. Air sampling will be conducted to determine the number of amphibole fibers per cubic centimeters of

air (f/cc) while soil sampling will be conducted to determine the percent amphibole of the soil. These data may be used for a variety of purposes, including the development of human health risk assessment and the evaluation of the adequacy of current measures that have been implemented to protect the public from excessive amphibole exposures.

2.4 TRAINING AND CERTIFICATION

Field personnel involved with sampling activities will have the following documented training:

- Occupational Safety and Health Administration (OSHA) 40-hour and 8-hour refresher training in Hazardous Waste Operations (20 CFR1910.120);
- Department of Transportation (DOT) hazardous materials shipping;
- First Aid and Cardiopulmonary Resuscitation (CPR) training (at least one team member); and,
- On-Track Worker Safety training in accordance with CSXT policies and procedures and 49 CFR214.

The Final Trip Report will provide a description of the project, field procedures, laboratory procedures, difficulties encountered and will include validated final laboratory reports (with copies of chain of custody records) as appendices.

3.0 DATA GENERATION AND ACQUISITION

3.1 SAMPLING METHODOLOGY

The sampling teams will collect air samples during remediation activities, meteorological data, total particulate data, and if necessary, confirmation soil samples.

3.1.1 Air Sampling.

Analytical air sampling for Libby amphibole will be performed using SKC air sampling pumps and 0.8 µm cellulose membrane cassettes, connected with Tygon tubing. Air samples will be collected and analyzed according to NIOSH Methods 7400 and/or 7402. Using NIOSH 7400, airborne fibers are counted using an optical phase contrast microscope (PCM). This method counts all fibers that are at least 5 microns in length and have a minimum 3:1 aspect (length to width) ratio. It accurately assesses fiber exposure levels, but cannot differentiate between Libby amphibole and other types of fibers. Thus, samples with fibers detected using PCM will be further analyzed using NIOSH 7402. NIOSH 7402 uses transmission Electron Microscopy (TEM) methods to count and identify fiber types, including Libby amphibole structures (including fibers, fiber bundles, clusters and matrices). This includes fibers both greater than and less than 5 microns in length and structures too thin to be optically detected by PCM (Wellings, 1999). Area and personnel air samples will be collected throughout remediation activities.

3.1.2 Meteorological Monitoring.

Meteorological data will be collected with a WeatherPak®-2000 that continuously measures wind speed, wind direction, ambient temperature, solar radiation, humidity, U component, V component, sigma theta, horizontal stability, vertical stability, scalar wind speed, scalar wind direction, and sigma wind speed.

In the event of sustained elevated wind speeds in excess of 10 miles per hour, potential dust producing activities will be temporarily suspended pending reevaluation of existing dust suppression engineering controls at the Site. If air quality monitoring confirms increased levels of airborne dust, further dust suppression measures will be necessary until wind speeds decrease or air quality improves.

3.1.3 Total Particulate Monitoring.

Total particulate air monitoring will be performed using a DUSTTRAK™ Aerosol Monitor Model 8520 or a SidePak™ Aerosol Monitor Model AM510. These instruments use a light scattering photometer that incorporates a pulsed, high output, near-infrared light emitting diode source, a silicone detector/hybrid preamplifier, controlling optics, and a source reference feedback PIN silicone detector. The intensity of the light scattered over the forward angle of 45° to 90° by the airborne particles passing through the sensing chamber is linearly proportional to their concentration. The optical configuration produces optimal volume response to particles ranging in size from 0.1 to 10 microns.

3.1.4 Soil Sampling.

It is not anticipated that confirmation sampling will be required at the conclusion of removal actions at the Site since all locations where soil removal occurs will be lined with a geomembrane to demarcate the extent of excavation. However, if changes to conditions at the site necessitate confirmation sampling, samples will be collected as follows.

Post Excavation Confirmation Sampling

If collection of post excavation confirmation samples is required, samples will be collected using a hand-held gardening trowel or a stainless steel auger. Samples will be placed into a plastic bag, and labeled with the samplers' initials, sample identification number, sample date, sample time, and sample depth.

To ensure the health and safety of the sampling team, the soil samples will not be handled directly. If handling of the sample is unavoidable, as might be in the case of an obstructed auger, a new pair of nitrile gloves will be donned. Using a distilled water/liquinox solution, followed by a double rinsing of distilled water; the sampling tools will be thoroughly cleaned, between each sampling location to minimize cross contamination. Documentation during the sampling event will include digital photographs, GPS coordinates, and general observations at the time of sampling.

For accurate and efficient data management, sample information will be recorded using a hand-held personal data logging device. Pertinent information will be entered including sample locations, observations, analyses, photographs, and GPS coordinates. The samples will be hand carried by a RJ Lee Group, Inc. employee from the field site to the laboratory for analyses. Chain of custody forms will be completed and accompany the samples.

3.2 SAMPLE HANDLING AND CUSTODY

The amphibole samples will be put in a cooler with ice immediately following sample collection, and hand delivered under chain of custody record to RJ Lee Group for analyses. Chain of custody records will be used to document the collection of soil and air samples and maintain sample integrity.

3.3 ANALYTICAL METHODS

The air samples will be analyzed at RJ Lee Group, Inc. in Monroeville, Pennsylvania using NIOSH 7400 (phase contrast microscopy, PCM). Selected air samples (those exceeding the NIOSH 7400 lower detection limit) will also be analyzed using NIOSH 7402 (transmission electron microscopy, TEM). The grab and surface samples will be analyzed in general accordance with EPA/600/R-93/116, a polarized light microscopy procedure (PLM). To improve the analyses, each sample will be dry screened using a 10 mesh (2 mm) screen. Each screen fraction will be weighed. The coarse fraction will be analyzed by sorting each particle and segregating all possible amphibole particles. These particles will be weighed and their mineralogy verified in accordance with the PLM procedure. The fine fraction will be evaluated by performing a 400-point count on each fraction in accordance with the PLM method. If an amphibole particle is observed, but not counted, the results will be reported as "Trace". The grab samples and the surface samples will also be analyzed using New York ELAP 198.4, a TEM analytical procedure. A portion of the fine "soil"-like material will be removed and prepared for analysis by first ashing the sample (to remove organic material), followed by an acid-wash (to remove carbonate minerals). The mass of the material at each step of the sample preparation will be recorded. An aliquot of the residue will be prepared for TEM analysis.

3.4 QUALITY CONTROL

Quality control for the laboratory and field procedures for air and soil sampling will include field duplicates (collected at a rate of one per twenty samples).

All appropriate QC samples required by the analytical method will be run. This includes but is not limited to: tunes, initial and continuing calibration standards, internal standards and method detection limit studies.

3.5 INSTRUMENT/EQUIPMENT TESTING, INSPECTION, AND MAINTENANCE

Preventative maintenance of the sampling and analytical equipment will be the responsibility of each user prior to use. Routine and “as needed” maintenance to

minimize equipment failure and/or inaccuracies will be recorded in a logbook specifically for this purpose.

3.6 INSTRUMENT/EQUIPMENT CALIBRATION AND FREQUENCY

All instruments will be calibrated and operated in accordance with the manufacturer's recommendations. All information will be recorded on worksheets for inclusion in the final deliverable.

3.7 DATA MANAGEMENT

Field sampling data will initially be recorded on field data sheets or in field notebooks. Samples will be delivered under COC record(s) to the specified laboratory. Samples will be identified by the field assigned number. The incoming samples will be checked against the COC record for accuracy and assigned a unique laboratory number, which identifies the sample to the laboratory personnel. This number can later be cross-referenced to the field number. All laboratory procedures will be reviewed and the data verified for the appropriate quality assurance objectives. A hard copy of the Final Analytical Report will be provided in an appendix of the final report.

4.0 ASSESSMENT

The Site Manager is responsible for quality control assessments and corrective action for this sampling and remedial action. The tasks associated with this QAPP are assessed through the use of peer reviews and management system reviews. Peer review enables the field chemist to identify and correct reporting errors before reports are submitted. Management system reviews establish compliance with prevailing management structure, policies and procedures, and ensures that the required data are obtained.

5.0 DATA VALIDATION AND USABILITY

5.1 DATA REVIEW, VERIFICATION AND VALIDATION

All data produced under this QAPP will be evaluated to determine compliance with the stated collection methods, type, and number of samples collected, sample handling, and correct analytical procedures. Data review will be conducted in the laboratory prior to data release to evaluate the validity of the sample batch. Two data quality indicators, precision and accuracy, will be used to assess the batch. The Project Manager will be notified by the Data Validation and Report Writing Group when inconsistencies or non-compliant laboratory data are discovered. For field activities, it is necessary to determine whether the samples are collected according to a specific method, whether the collected samples have been recorded and handled properly, and whether the proper amount of QC samples were taken to satisfy the QC requirements. For analytical activities, each sample should be verified to ensure that the procedures used to generate the data was performed as specified. The proper amount of QC checks that were prepared and analyzed during the actual analysis provide an indication of the quality of the data.

The data validation process summarizes the data and QC deficiencies, and determines the impact on the overall data quality. Data validation qualifiers are assigned in the data assessment records and are noted in the case narrative of the final analytical report.

5.2 VERIFICATION AND VALIDATION METHODS

Data verification occurs at each level in the field and in the laboratory to ensure that appropriate outputs are being generated routinely. Records produced electronically or maintained as hard copies are subject to data verification. During field activities, records associated with sample collection such as field data sheets, COC records, shipper's air bills, logbook documentation, or electronic devices to log samples or print sample labels are verified against approved SOPs or procedures. At sample receipt, COC records are verified along with refrigerator and freezer logs to ensure the integrity of the samples. During sample preparation, digestion/extraction logs, certificates of analysis for surrogates and spiking compounds, refrigerator and freezer logs, analytical requests and standard preparation logs are verified. Manufacturer's certificates for calibration and/or internal standards, instrument run or injection logs, standard preparation logs, calculation worksheets, and QC sample results are verified during the analysis of the sample set. Review of data package or client deliverables are verified for compliance with peer review procedures.

Data validation will be conducted to determine how seriously the sample data deviate from acceptance limits and the potential effect on the data. All anomalies will be documented in the case narrative of the final analytical report.