02/2000

WORK PLAN FOR PERFORMING SOIL SAMPLING IN THE VICINITY OF THE SOIL GAS EXTRACTION WELLS at the CANTOR BROTHERS SITE FARMINGDALE, NEW YORK NYSDEC SITE NO. 152021

Prepared for:

CANTOR BROTHERS

and

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Prepared by:

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INTRODUCTION

EEA has operated a soil gas vapor extraction system (SVE) at the subject property since November of 1998.

Prior to the termination of the system, the Consent Decree between the Estate of Cantor Brothers and the New York State Department of Environmental Conservation requires that soil samples be obtained from the areas adjacent to the extraction wells.

SCOPE OF WORK

Four soil borings will be conducted as shown in Figure 1, one soil sample will be obtained form each boring and analyzed for Volatile Organic Compounds by USEPA Method 8260.

SOIL SAMPLING PROCEDURE

A geo-probe or similar drilling equipment will be used to perform the split-spoon sampling. It is anticipated that continuous split-spoon sampling will be conducted in two-foot increments and screened with an OVA until the groundwater interface is reached (or rejection of the auger). The soil sample exhibiting the highest OVA reading will be sent to the laboratory.

If no response is obtained during the soil screening procedure, the sample collected below the groundwater interface will be sent to the laboratory for analysis.

LABORATORY ANALYSIS

The analytical methods, containerization, quantitation limits, preservation techniques, and maximum holding times for the above parameters shall follow the requirements of the NYSDEC. A NYSDOH ELAP CLP certified laboratory will perform all the analysis. The laboratory will follow NYSDEC ASP 95 Rev. 1, Methods, with Category B reporting and deliverables. The samples will be sent to the laboratory within eight hours. All samples will be maintained at 4° C during the delivery period. The laboratory will perform the extraction within the 7-day maximum holding time.

The laboratory has a Quality Assurance/Quality Control (QA/QC) program that consists of proper laboratory practices, including the required chain-of-custody, an internal quality control program, and external quality controls (see Appendix A, Reference 1).

The chain-of-custody procedures used and approved by the NYSDEC will be followed throughout sample collection in the field and during sample analysis.

The following is a tabulation of the anticipated number of soil samples to be sent to the laboratory:

Matrix Soil	Investigative Samples	MS	MSD	Duplicate	Total
USEPA Method 8260 and laboratory search	4	1	1	1	7

- Field Decontamination

To avoid contamination and cross-contamination of samples, all sampling equipment will be cleaned prior to collection of each sample. All drilling equipment shall be steam cleaned before commencement of work, between each soil boring, and when exiting the site.

- Report

A report will be prepared that will document the results of the laboratory analysis of the soil samples.

- Community Air Monitoring Plan

  - At the one location located outdoors; volatile organic compounds will be monitored at the downwind perimeter of the work area daily at two-hour intervals. If total organic vapor levels exceed 5 ppm above background, work activities will be halted and monitoring continued under the provisions of a Vapor Emission Response Plan (see below). All readings must be recorded and be available for State (DEC and DOH) personnel to review.

  - Particulates will not be released during sampling activities. Most of the drilling will occur in the saturated zone.

- Vapor Emission Response Plan

  - If the ambient air concentration of organic vapors exceed 5 ppm above background at the perimeter of the work area, activities will be halted and monitoring continued. If the organic vapor level decreases below 5 ppm above background, work activities can resume, but more frequent intervals of monitoring, as directed by the Safety Officer, will be conducted. If the organic vapor levels are greater than 5 ppm over background, but less than

25 ppm over background at the perimeter of the work area, activities can resume provided:

The organic vapor level 200 feet downwind of the work area of half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background, and

More frequent intervals of monitoring, as directed by the Safety Officer, are conducted.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Safety Officer, will be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

For completeness, the QA/QC specifications for the analysis of soil samples are presented.

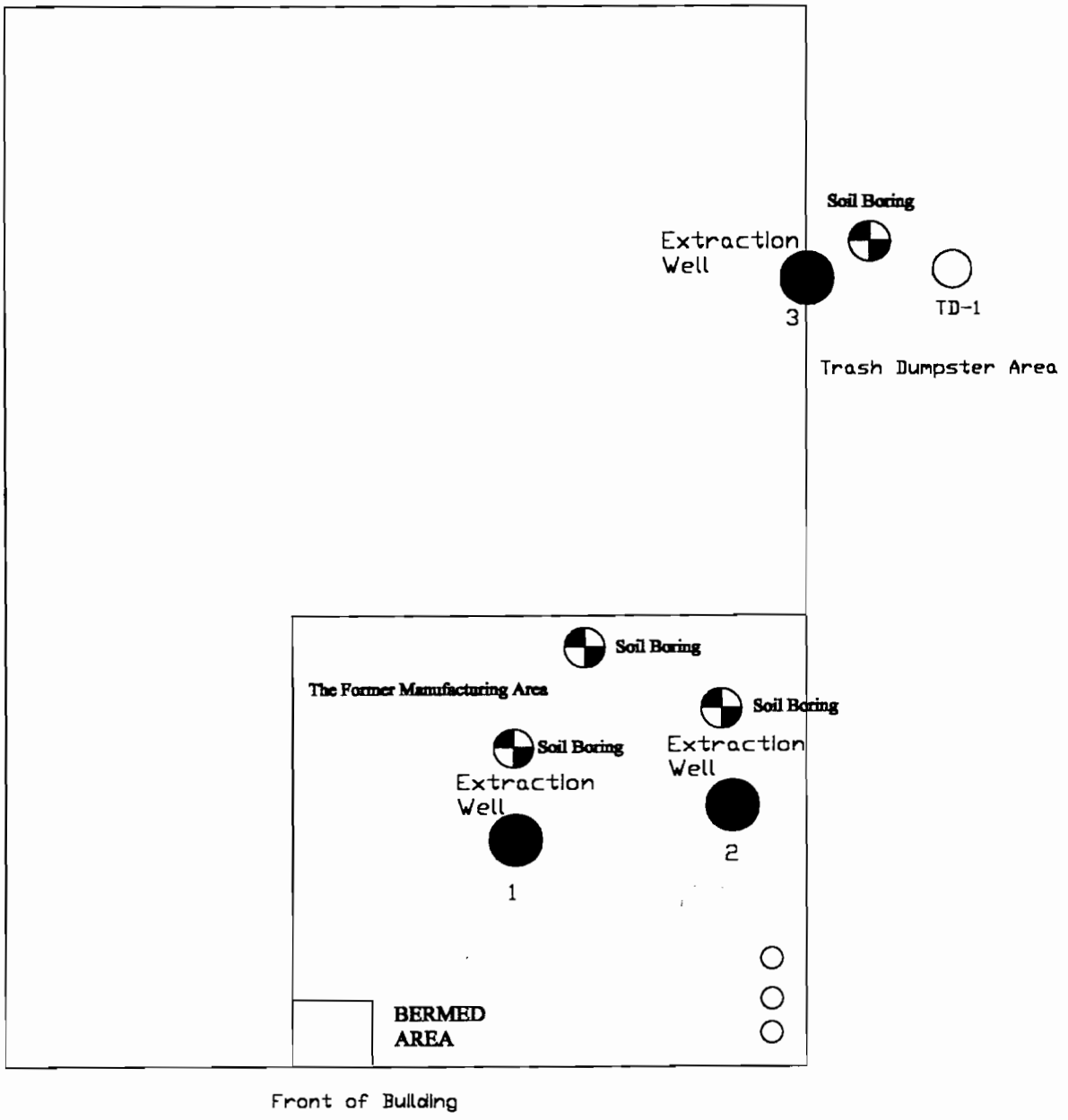

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FIGURE 1

PROCEDURES FOR ANALYSIS OF GROUNDWATER and SOIL SAMPLES

1.0 PURPOSE OF WORK

This document defines the procedures for laboratory chemical analyses and the handling of samples during laboratory analysis. Groundwater samples will be collected and transported to a certified New York State laboratory per United States Environmental Protection Agency (USEPA) protocols. All samples are to be preserved as required, stored at 4°C and must be received by the laboratory (VTSR) within 48 hours of sample collection. Chain-of-custody sheets are to accompany each sample.

2.0 SCOPE OF WORK

2.1 A NYSDOH ELAP CLP certified laboratory will analyze all samples to determine the chemical parameters called for in this study.

2.2 Any changes in the analytical program will be based on changing needs of the job as may develop with the information disclosed by the completed work. All changes in the work plan or analytical program must be prior approved by the NYSDEC Project Manager.

3.0 SERVICES

3.1 The Laboratory will provide all personnel, vehicles, equipment, instruments, services, facilities, power and support necessary for the successful completion of laboratory work.

3.2 The Laboratory will analyze for the chemical parameters listed in the chain-of-custody form in both groundwater and soil, unless otherwise noted.

4.0 RESPONSIBILITIES AND REQUIREMENTS OF THE LABORATORY

4.1 The Laboratory shall maintain an inventory of all water and soil samples received. This inventory shall be made available to the Engineer at his request.

4.2 The Laboratory will maintain a file of all Chain-of-Custody sheets that accompany incoming samples.

4.3 All data and results obtained shall be tabulated by the Laboratory for inclusion in the report.

4.4 A cover letter shall accompany all technical reports and shall include a summarized description of their content.

4.5 The laboratory will provide a NYSDEC ASP 95 Rev. category B data package.

5.0 QUALITY ASSURANCE

The Laboratory will have available a typewritten copy of a Quality Assurance Program. The Quality Assurance Program will include the following points:

- o Resumes of all personnel involved in laboratory analyses and sample collection.
- o Calibration records for all instruments used for analyses. Calibrations, standardizations and laboratory records will follow NYSDEC ASP procedures.
- o Written preventive maintenance measures for each type of equipment used.

5.1 The Laboratory will follow NYSDEC ASP sample storage procedures.

5.2 The Laboratory will keep log books for this project containing information regarding laboratory procedures (i.e., instrument readings, standards used for equipment calibration, calculations and methods used for calculations, dates of tests, dates samples were received, volume of samples received, types of containers used for sample storage, preservatives used, etc.), person(s) performing analysis, and any other pertinent comments.

6.0 TECHNICAL PROGRAM

6.1 Analytical Methods - Analytical methods will follow NYSDEC ASP 95 Rev. procedures.

6.2 Quality Control - All analytical methods will follow NYSDEC ASP 95 Rev. procedures.

I. INTRODUCTION

This Health and Safety Plan (HASP) is prepared for performing a subsurface investigation at the Cantor Brothers warehouse at 50 Engineers Lane in Farmingdale, New York. The work involves performing soil borings and obtaining soil samples in the vicinity of the extraction well. Soil borings are anticipated to be conducted to a maximum depth at which groundwater is encountered.

This HASP is prepared to be consistent with the anticipated areas of concern. This is the most recent and available information. If additional pertinent information is made available, it will be used to amend this plan. In addition, the site project manager/safety officer may use this information to increase personal protective measures on the study area site. All workers will be briefed on any amendments made to this plan.

This HASP assigns responsibilities, establishes personal protection standards, recommends operating procedures, and provides for contingencies that may arise during performance of the assessment at the site. The protocols in this HASP apply to all personnel involved in the work activities including: EEA, Inc., all outside subcontractors, client, or regulatory agencies present during the performance of the work.

II. WORK PLAN

Based on what is already known about the site, it is anticipated that Level D protection will be adequate for all other tasks to be performed at the site.

Level D protection will consist of the following:

- Coveralls
- Gloves
- Boot/shoes, leather
- Hard hat when working in the vicinity of the drill rig
- Safety glasses will be worn when working in the vicinity of the drill rig.

In the event that air monitoring data, either during the preliminary on-site evaluation or during construction of the wells, indicate OVA levels above 10[1] ppm, all personnel will need to convert to level C protection. Specifically, the following criteria will be used for the selection of Level C. The description of the levels of personnel protection are presented in Table 1.

1. Measured concentration is within the service limit of the respirator's canister.

2. Atmospheric contaminant concentrations do not exceed IDLH levels.

3. Atmospheric contaminants, liquid splashes, or other direct contact, will not adversely affect the small area of skin left unprotected by chemical resistant clothing.

4. Vapor readings of 10 ppm above background as registered on the OVA meters.

Level C protection will consist of the following protective equipment (e.g., in addition to level D): full-face, air-purifying canister equipped respirator (MSHA/NIOSH approved), and chemical resistant coveralls.

The activities required during the proposed investigation may involve the exposure of contaminated soil, therefore contributing to the movement of this material to unaffected areas. In order to control soil from releasing airborne contaminants due to its volatility, or wind-blown due to its disturbance, the following contamination control procedures will be instituted:

a. Establish Exclusion Zone - This is the zone where contamination does or could occur. All people entering this zone must wear prescribed levels of protection. An entry and exit check point must be established at the periphery to regulate the flow

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[1] Corrected for background and methane

of personnel and equipment. The exclusion zone, for the purpose of this investigation, will probably include the area of drilling and, therefore, the outer boundaries will need to be established by use of the OVA readings. The radius of this zone will be determined by the distance it will take for the OVA readings to stabilize between 0 to 5 ppm.

b. Establish Contamination Reduction Zone - This zone provides a transition between contaminated and clean zones. It provides additional assurance that the physical transfer of contaminating substances on people, equipment, or in the air and water is limited through a combination of decontamination procedures. As operations proceed, the area around the decontamination station may become contaminated, but to a much lesser degree than the Exclusion Zone.

On a relative basis, the amount of contamination should decrease due to distance involved and decontamination procedures used.

The use of this zone system, access control points, and exacting decontamination procedures provides a reasonable assurance against the translocation of contaminated soil or water. The site control system described is based on a "worse case" situation. Less stringent site control and decontamination procedures may be utilized if more definitive information is available on the types of substances involved and hazard they present.

As previously mentioned, there are no reasons to believe that this site is unsafe or potentially unsafe, nonetheless, there are certain safety measures and precautions which can be instituted to reduce risk. The following are some of those personal precautions:

1. Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in any area designated as contaminated.

2. Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other activities.

3. Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

4. No excessive facial hair, which interferes with a satisfactory fit of the mask-to-face-seal, is allowed on personnel required to wear respiratory protective equipment.

5. Contact with contaminated or suspected contaminated surfaces should be avoided. Whenever possible, do not walk through puddles, mud, or other discolored surfaces; kneel on ground; lean; sit; or place equipment on contaminated surfaces, vehicles, or ground.

In addition, the following safety equipment will be maintained on-site for responding to potential emergency situations: portable eye wash, ABC fire extinguisher, and first aid kit. Telephone numbers of emergency response units in the area will also be posted where they can be easily seen by all those working at the site. All personnel who will be working at the site will also be required to receive training in respirator fitting, emergency procedures, equipment decontamination, and specific task procedures. All personnel involved with the collection of soil or water will have successfully completed the 40-hour OSHA Hazardous Materials Training Program.

o Safety Decision-Making Procedures

During the course of this investigation, health and safety procedures will be reviewed daily by the Field Operations Manager (FOM) and the Health and Safety Officer (HASO). If modifications or additional field protection requirements are deemed necessary, such changes will be incorporated into the Health and Safety Plan by the Health and Safety Officer and reviewed by all field personnel prior to their implementation.

In addition, the Health and Safety Officer will monitor near the drillhole with a CGI (Combustible Gas Indicator) and HNU, and scan drill cuttings with the HNU and monitor the spoon upon retrieval. The contents of the spoon will be screened using the HNU when opened and the Site Health and Safety Officer will inform the Site Manager and drill crew supervisor of the readings, and notify the on-site personnel if any changes need to be made in personal protective equipment requirements.

All personnel working at the site will enter their names into the project log book which will be kept by the Health and Safety Officer.

Before engaging in the assigned work, all personnel will be briefed on the following:

- Identification of the project Health & Safety Officer.
- Location of first aid and emergency equipment.
- Activities taking place that day.
- Personnel protective equipment requirements and limitations.

In addition all field personnel will be required to review these Health and Safety Procedures and acknowledge such review. The Health and Safety Officer will ensure that all health and safety field procedures are followed, field conditions are regularly reviewed, and any alterations to the Health and Safety Procedures are communicated to all site personnel and implemented when they become necessary. Prior to commencing each day's field activities, the Health and Safety Officer will verbally review all health and safety procedures during a meeting with all field personnel.

All field personnel will acknowledge their review by signing an acknowledgment statement; this statement will be maintained with the daily Health and Safety Log.

TABLE 1

DESCRIPTIONS OF LEVELS OF PROTECTION

Level A Protection

Level A is the highest level of both respiratory and dermal protection, generally requiring a supplied-air respirator and a fully-encapsulating suit. The following equipment are required in the event of a Level A situation:

a. Supplied-air respirator approved by the Mine Safety and Health Administration (MSHA) and National Institute for Occupational Safety and Health (NIOSH). Respirators may be:

- pressure-demand, self-contained breathing apparatus (SCBA); or,
- pressure-demand, airline respirator (with escape bottle for Immediately Dangerous to Life and Health (IDLH) or potential for IDLH atmosphere).

b. Fully encapsulating chemically-resistant suit.

c. Coveralls (optional).

d. Long cotton underwear (optional).

e. Inner and outer chemically-resistant gloves.

f. Steel toe and shank, chemically-resistant work boots worn over or under a full-body suit.

g. Hard hat.

h. Disposable gloves and boot covers worn over fully encapsulating suit.

i. Cooling unit (optional).

Level B Protection

Level B protection requires the same degree of respiratory protection as Level A, but requires slightly less dermal protection. The following equipment are required in the event of a Level B situation:

a. Supplied-air respirator approved by the Mine Safety and Health Administration (MSHA) and National Institute for Occupational Safety and Health (NIOSH). Respirators may be:

- pressure-demand, self-contained breathing apparatus (SCBA); or,
- pressure-demand, airline respirator (with escape bottle for Immediately Dangerous to Life and Health [IDLH] or potential for IDLH atmosphere).

b. Chemically-resistant clothing, consisting of overalls, long-sleeved jacket, and either a hooded, one or two-piece disposable, chemical-resistant chemical-splash suit.

c. Long cotton underwear (optional).

d. Coveralls (optional).

e. Inner and outer chemically-resistant gloves.

f. Steel toe and shank, chemically-resistant work boots worn over or under a full-body suit.

g. Hard hat.

h. Disposable gloves and boot covers worn over fully encapsulating suit.

i. Cooling unit (optional).

Level C Protection

Level C protection requires the same degree of dermal protection as Level B, but requires slightly less respiratory protection. The following equipment is required in the event of a Level C situation:

a. Air-purifying respirator, full-face, canister-equipped (MSHA/NIOSH approved).

b. Chemically-resistant clothing, consisting of overall, long-sleeved jacket, and either a hooded, one or two-piece disposable, chemical-resistant chemical-splash suit.

c. Long cotton underwear (optional).

d. Coveralls (optional).

e. Inner and outer chemically-resistant work gloves.

f. Inner chemically-resistant work gloves (optional).

g. Steel toe and shank, chemically-resistant work boots.

h. Disposable, chemically-resistant, outer boot covers (optional).

i. Hard hat.

Level D Protection

Level D protection does not require any dermal or respiratory protection other than a normal work uniform. The following equipment are required for a Level D situation:

a. Coveralls.

b. Rain gear.

c. Chemically-resistant, rubber work gloves.

d. Chemically-resistant, steel toe and shank work boots/shoes.

e. Safety glasses or chemical splash goggles (optional).

f. Hard or soft work hat (optional).

III. CONTINGENCY PLANS FOR FIELD SAMPLING

This Contingency Plan is written to document and set forth the policies and procedures for emergency response. It incorporates the following items: personnel roles, lines of authority, and communication.

The following are the anticipated causes of emergencies that may be encountered during the site assessment.

o Worker-Related

- Minor accidents (slips, trips, falls)

- Accidents related to the drill rig activities, i.e., physical injuries from flying or falling objects, from mechanical equipment, burns from hot oils.

o Personnel Involved in Emergency Response On-Site

- Site Safety Officer

  Has authority to stop work if any operation threatens worker or public health or safety.

  Knows emergency procedures, and the telephone numbers of the ambulance, medical facility, fire department, and police department.

  Provides emergency medical care on-site

- Field Supervisor

  Notifies emergency support service, if needed, by portable telephone in case rescue operations are required.

  Assists the site safety officer in a rescue if necessary.

  Calls for ambulance, police, or fire department, if needed.

- Off-Site Personnel - individuals at the hospital emergency center, fire department, and the police. Emergency officers will be alerted to the types of emergencies that may arise. This will occur prior to the start of the field work.

o Training, Emergency Recognition and Prevention

All personnel working at the site will have completed the 40-hour OSHA Hazardous Materials Training Program. In addition, all site personnel will be made aware of the hazards and the actions that may trigger them. All employees will know what they are to do in case of an emergency.

On a day-to-day basis, individual personnel will be alert for indicators of potentially hazardous situations and for symptoms in themselves and others that warn of hazardous conditions and exposures. Before passing out daily work assignments, regular tailgate safety meetings will be held, and the following discussed:

- tasks to be performed
- time constraints (e.g., length of rest breaks)
- hazards that may be encountered (including their effects), how to recognize or monitor them, concentration limits, and other danger signals
- emergency procedures

After daily work assignments are completed, a debriefing session will be held to review the work accomplished and the problems observed.

Dry runs to the hospital emergency center will be conducted prior to the start-up of the field program.

o Communications

A cellular telephone will be used to contact and obtain assistance from the fire department, ambulances, hospitals, and emergency rooms. All personnel will be familiar with the protocol (phone number and emergency code for contacting public emergency aid team, etc.). The following are the telephone numbers and locations of the fire department, police department, ambulance units, and hospitals.

EMERGENCY RESPONSE TELEPHONE NUMBERS AND LOCATIONS

HOSPITALS

The nearest hospital is Central General Hospital in Plainview, New York, which is located on Old Country Road and Kalda Lane (five miles west of the subject property). Employees have been instructed to call the ambulance only and not drive injured personnel to the hospital.

EMERGENCY NUMBERS

To call for an ambulance	911
To call the local fire department	911
To call the police department	911
To call Central General	911

IV. FOLLOW UP

Before normal site activities are resumed, personnel will be fully prepared and equipped to handle another emergency. The following will be implemented:

- o Restock all equipment and supplies. Replace or repair damaged equipment. Clean and refuel equipment for future use.

- o Review and revise all aspects of the contingency plan according to new site conditions and lessons learned from the emergency response. When reviewing the information, consider questions, such as the following:

  - What caused the emergency?
  - Was it preventable? If so, how?
  - Were inadequate or incorrect orders given or actions taken? Were these the result of bad judgment, wrong or insufficient information, or poor procedures? Can procedures or training be improved?
  - How does the incident affect the site profile? How are other site cleanup activities affected?

V. DOCUMENTATION (will be as follows)

As soon as conditions return to normal, investigate the incident, putting all findings in writing. This is important in all cases, but especially so when the incident has resulted in personal injury, on-site property damage, or damage to the surrounding environment. Documentation may be used as evidence in future legal action, for assessment of liability by insurance companies, and for review by government agencies. Methods of documenting can include a written transcript taken from tape recordings made during the emergency or a bound field book (not a loose-leaf notebook) with notes. The document must have the following qualities:

- *Accuracy.* All information will be recorded objectively.

- *Authenticity.* A chain-of-custody procedure should be used. Each person making an entry must date and sign the document. Keep the number of documenters to a minimum (to avoid confusion and because they may have to give testimony at hearings or in courts). Nothing should be erased. If details change, or revisions are needed, the person making the notation should mark a horizontal line through the old material and initial the change.

- *Completeness.* At a minimum, include the following:

  - chronological history of the incident;
  - facts about the incident and when they became available;
  - title and names of personnel and composition of teams;
  - decisions made and by whom; orders given (to whom, by whom, and when): and actions taken (who did what, when, where, and how);
  - types of samples and test results; air-monitoring results;
  - possible exposures of site personnel; and
  - history of all injuries or illnesses during or as a result of the emergency.