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LETTER INFORMING A CHANGE IN METHOD OF COLLECTING AIR SAMPES FROM TO-1
TO TO-14 NSB KINGS BAY GA
10/27/1994
ABB ENVIRONMENTAL



October 27, 1994
(9410016.wp/KB001/8503.13)

Ms. Madeleine Kellam
Georgia Department of Natural Resources
Environmental Protection Division
Hazardous Waste Management Branch
Floyd Tower East, Suite 1154
205 Butler Tower, SE
Atlanta, GA 30334

Subject: Revision to Air Sampling Method - ADDENDUM 1
Supplemental RFI for Site 11
Volume II, Sampling and Analysis Plan
Naval Submarine Base, Kings Bay, Georgia
August 1994, Final Document

Dear Ms. Kellam:

As we recently discussed on the telephone, ABB-ES is changing the method of air sample collection for the baseline, residential, and perimeter monitoring described in the subject document. The overall technical approach and objectives remain unchanged. The sampling change is a result of the analytical laboratory's improved ability to reach desired detection limits using air samples collected in SUMMA canisters. When ABB-ES first developed the Sampling and Analysis Plan (SAP) almost one year ago, sorbent tubes were the only method of sample collection which would allow the laboratory to reach the detection levels we needed for assessment. The use of SUMMA canisters is generally the preferred method of air sample collection, therefore, we will use this method since it will now meet our technical objectives.

The attached Addendum 1 incorporates our sampling and analysis method change from EPA Method TO-1 to TO-14. Addendum 1 is structured similarly to the section that it replaces in the subject SAP. Only Section 2.2.2 on pages 2-9 through 2-11 have been affected by this change. Also attached is an addition to the Quality Assurance Project Plan (QAPP) which explains the sampling methodology.

ABB-ES is scheduled to begin the baseline air monitoring on November 7, 1994. Please contact me should you have any question concerning this revision.

Sincerely,

ABB ENVIRONMENTAL SERVICES, INC.

A handwritten signature in black ink, appearing to read 'Theodore W. Taylor'.

Theodore W. Taylor, R.G.
Task Order Manager

pc: Anthony Robinson, SOUTHDIV
Mike Anderson, NSB-Kings Bay

ABB Environmental Services, Inc.

ADDENDUM I

SAMPLING AND ANALYSIS PLAN SUPPLEMENTAL RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION FOR SITE 11

This section is to replace Section 2.2.2 in the original Sampling and Analysis Plan

2.2.2 Air Sampling The air quality evaluation for the RFI includes characterization of baseline air quality at the site and characterization of air quality during excavation of test trenches at the landfill. The air quality sampling program to be conducted during excavation of test trenches includes monitoring at the site perimeter and in nearby residential areas.

2.2.2.1 Baseline Site Air Quality Characterization Prior to conducting intrusive activities at the site (soil borings, test trenches, and surface soil sampling), an air monitoring program will be conducted to evaluate the baseline air quality. A portable meteorological station capable of monitoring wind speed, wind direction, and temperature will be set up at the site. The meteorological station will be used to assist in the selection of upwind and downwind site perimeter monitoring stations. One upwind station and two downwind stations will be established. Sample stations will be located on platforms at approximate breathing height level (4 to 6 feet above ground). To accommodate shifts in wind direction, the sampling locations will be selected on the morning of each day of testing. During the testing, if a sustained (greater than 1 to 2 hours) wind shift is noted, sampling will be temporarily suspended, and the sampling station locations will be moved to maintain the upwind/downwind monitoring network design.

Baseline air monitoring will be conducted during favorable meteorological conditions (i.e., no precipitation, low winds, and ambient temperature greater than 45 degrees Fahrenheit).

A total of three 1-day sampling events will be conducted. Samples will be collected over an 8- to 9-hour period. Each sampling event will consist of the collection of one sample at each of the sampling locations. Additionally, one of the downwind stations will have a co-located sample for quality control. Therefore, four samples will be collected for each of three sampling events, yielding a total of 12 samples. One field-biased blank will be collected during the sampling events. Total laboratory analyses, therefore, will consist of 12 samples plus 1 blank. Sampling and analysis will be conducted in accordance with USEPA Method TO-14. Parameters for analyses include TCL VOCs. Sampling and analytical methodology are described in the QAPP, Subsection 3.5.7.

2.2.2.2 Air Monitoring During Excavation Air monitoring during excavation of test trenches includes real-time measurements and collection of laboratory samples at the site perimeter. Additionally, air samples will be collected in nearby residential areas to evaluate the potential for exposure of offsite receptors to VOCs in air.

Perimeter Monitoring and Real-time Measurements. During excavation, air monitoring will be conducted at the site perimeter to evaluate concentrations of vinyl chloride which may result from disturbance of the site soils. To protect the health of onsite personnel and nearby, offsite receptors, an action limit of one half of the Occupational Safety and Health Administration permissible exposure limit is proposed, equivalent to 0.5 parts per million (ppm) or 1.28 milligrams per cubic meter (mg/m³).

The nearest receptor, a residential home, is located approximately 200 to 300 feet from the site. It is assumed that with dilution due to air dispersion, a concentration of 1.28 mg/m³ or less at the site fence line will result in receptor exposures less than the negligible risk level of 0.027 micrograms per cubic meter (µg/m³). As described below, the validity of this assumption and the adequacy of the proposed perimeter action limit will be evaluated via residential exposure monitoring during site excavation.

Perimeter monitoring during site excavation will be conducted using stain detector tubes. This methodology has been selected as it will provide inexpensive, real-time data specific to vinyl chloride and at sufficiently low detection limits equivalent to the 0.5 ppm action limit. Stain detector tubes that will detect vinyl chloride at levels below 0.5 ppm are available from several manufacturers. Action limit monitoring will be conducted at one upwind and two downwind locations at a frequency of three times per day during excavation. If vinyl chloride is detected at a level lower than the action limit, monitoring will be increased to a rate of once per hour, until non-detectable levels are reached. In the event that action limits are detected, the FOL will be immediately notified, and the excavation in progress will be backfilled in an attempt to eliminate the emission.

Perimeter Monitoring and Collection of Laboratory Samples. As a supplement to the action limit monitoring for vinyl chloride, additional VOC sampling and analysis will be conducted at the site perimeter. The objective of this air monitoring will be to validate the vinyl chloride measurements obtained via the stain detector tubes and to evaluate the impact of site excavation on the site air quality, relative to the baseline levels.

Three perimeter monitoring events are proposed during site excavation activities. The perimeter monitoring events will be scheduled to occur during periods of "worst case" excavation for the evaluation of the maximum air quality impact of site activities.

Perimeter monitoring for VOCs will be conducted using the identical procedures identified above for the baseline air monitoring, including the daily designation of one upwind and two downwind sampling locations. One of the downwind stations will be sampled in duplicate for quality control. Sampling and analysis will be conducted in accordance with Method TO-14, the evaluation of TCL VOCs (including vinyl chloride) (USEPA, 1988c). As with the baseline event, four samples will be collected for each of three sampling events, yielding a total of 12 samples. One field-biased blank will be collected during the sampling event. Total laboratory analyses will consist of 12 samples plus 1 blank.

Residential Area Air Monitoring. In addition to the site perimeter air monitoring, air quality in the nearby residential areas will also be evaluated to ensure that site excavation activities do not result in adverse exposures to offsite receptors.

Air monitoring will evaluate vinyl chloride concentrations near three residences which are located downwind of the site during a period of "worst case" excavation activity. As with the other air monitoring tasks, the sample locations will be located on the day of testing, with the assistance of the onsite meteorological station.

The residential air monitoring will be conducted at the same time as the perimeter monitoring; therefore, the upwind "background" air samples collected for the perimeter monitoring will also serve as background samples for the residential air monitoring. Efforts will be made to locate this sampling station in an area that will not be impacted by the site or other localized potential sources of vinyl chloride or other VOCs. Obtaining a credible background measurement concentration is essential to the success of the air monitoring program; the risk-based vinyl chloride concentration target is extremely low and it is important to evaluate background levels of this air contaminant as well as levels that may be attributed to site activities.

Three sampling events in the residential area are planned, using the same methodology as described in the baseline program. Three residences will be monitored for 3-day-long sampling events, yielding a total of nine samples for the residential air monitoring program. One field-biased blank will be collected during the sampling event. Total laboratory analyses, therefore, will consist of nine samples plus one blank.

Results of the residential air monitoring program will be used to confirm that offsite receptors have not been exposed to excessive concentrations (greater than the negligible risk concentration of $0.027 \mu\text{g}/\text{m}^3$) of vinyl chloride or other VOCs as a result of site activities. The perimeter action limit will be re-evaluated after receiving the results of the residential air monitoring, and adjusted, if necessary.

ADDENDUM 1

QUALITY ASSURANCE PROGRAM PLAN
SUPPLEMENTAL RESOURCE CONSERVATION
AND RECOVERY ACT FACILITY INVESTIGATION FOR SITE 11

This is an addition to Section 3.5.7,
Air Quality Monitoring (page 3-30)

Air Sampling and Analytical Methodology. Air quality samples for the evaluation of VOCs will be collected in accordance with USEPA Method TO-14 "Determination of VOCs in Ambient Air Using SUMMA Passivated Canister Sampling and Gas Chromatographic Analysis," as found in the *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*. This method involves the collection of a whole-air sample in a polished stainless-steel SUMMA canister. Recent advances in gas chromatography and mass spectrometry (GC/MS) and air sample preconcentrator technology have resulted in the ability to detect VOCs at levels as low as 0.05 ppb on a routine basis, and further fine-tuning may be applied to achieve levels as low as 0.01 ppb for vinyl chloride.

One SUMMA canister sample will be collected at each sampling station location. Using a vacuum gauge and calibrated flowmeter, integrated samples will be collected over the 8-hour sample collection period.

A field log book will be maintained that will note sample times, locations, and general ambient conditions during each event.

After the completion of samples, the canisters will be shipped under chain of custody documentation to the laboratory for analysis. Samples will be concentrated and analyzed via GC/MS for USEPA TCL VOCs (including vinyl chloride). Laboratory analytical procedures, including QA/AC, are attached.

Quality Control Procedures. One of the downwind sampling locations will be sampled in duplicate during each sampling event for quality control precision analysis.

Laboratory quality control procedures will be conducted in accordance with the method, including cleaning and conditioning the SUMMA canisters to ensure that they are not contaminated, method detection limit studies, instrument tune and calibration, analysis of field and method blanks, and the determination of internal standard/surrogate recoveries.

Data Reduction and Reporting. Analytical results will be reported in units of parts per billion for each detected VOC compound.

A description of the sampling and analytical procedures and a summary of the field conditions will be included with the reported data.