MEMO

TO: File
FROM: Ken Feathers, Rm 6
DATE: 2 July 1986

CC: Terrance Conlon, EPA
John Fleming, AVCO

RE: AVCO Lycoming Division Comprehensive Monitoring Evaluation

A Comprehensive Monitoring Evaluation site visit to observe groundwater sampling at the AVCO Lycoming plant in Stratford, CT was made on 18 April, 1986. The field visit was conducted by Ken Feathers and Jack Gelting of CT DEP and Terrance Conlon of EPA. Also present were John Fleming, representing AVCO Lycoming, and John Naso, representing the consulting firm (Leggette, Brashears and Graham).

The following deficiencies were noted during the site visit and a subsequent review of groundwater monitoring plans and information on file with Connecticut DEP.

Groundwater monitoring plan

Several versions of groundwater monitoring plans exist in DEP files. A single, comprehensive document should be compiled and identified as the version being followed by all parties involved in groundwater investigations at AVCO Lycoming. Copies of this compiled document should be kept on site and forwarded to DEP and EPA.

Parameters establishing groundwater quality (265.92(b)(2)) are not determined annually. Note that while this departure from RCRA requirements was implicitly authorized by DEP personnel it is not in accord with the requirements of 40CFR265 and these parameters must be determined annually.

Use of methanol as a cleaning rinse for sampling equipment is not in accord with the most recent draft guidance on cleaning procedures.

SW 846 indicates that the purge and trap method is prefered over the headspace method for organic analyses of groundwater samples.

Sample shipping protocols are not specified.

Sample chain of custody and request for analysis forms are not included.

None of the groundwater assessment plans contain:
adequate characterization of site hydrogeology;
adequate description of tidal influences or lack thereof;

provision for field determination of aquifer parameters;
adequate determination of any vertical component of groundwater flow;
specific provision for quarterly mapping of the plume; or
adequate provision for reporting of results to DEP.

No schedule for implementation of the assessment monitoring program is provided, with the exception of well installation.

Sampling program

PVC bailers were used to sample wells during the site visit. Use of bailers made of Teflon or stainless steel is recommended to minimize adsorption of organic constituents.

Evacuated water from wells known to be contaminated was discharged to the ground surface rather than returned to surface impoundments as specified in the plan.

String used to lift bailers from wells was allowed to bunch up, blow in the wind, and touch the ground between sampling trips. Reusing the bailer could introduce contamination in subsequent samples.

Sample acquisition and sample preservation differ in detail from the reviewed groundwater monitoring plan.

Replicate field determinations of pH, Temperature, and Specific Conductance are obtained on successive volumes obtained during evacuation. The replicate determinations are consequently not representative of formation water but rather some mixture of formation water and standing casing water.

Chain of custody forms and sample seals were not in use by the field personnel.

Physical condition of wells

No surface concrete seals were found at wells 1,2,3, or 5 and the seals on wells 8 and 13 were cracked. Additionally, the seal on well 11 may not adequately promote drainage of surface runoff away from the well. All concrete seals should be periodically inspected, as part of regular maintainence activity, and upgraded or replaced as necessary.

Well 13, installed in a parking lot without stanchion protection, has a bent surface casing and cracked concrete surface seal. An unsuccessful attempt to straighten the casing, by hitting it with the bumper of a truck, was made during the site visit. Samples could not be obtained using the bailer available due to inadequate clearance. A

smaller diameter bailer, to be obtained from the consultant's home office, could make sampling possible. Repair of casing and seals is needed.

All wells exposed to vehicular traffic should be reviewed for adequacy of physical protection, with stanchions installed if needed.

Well 4 is reportedly installed in a parking lot using a flush, curb box installation. The well could not be located during the site visit due to parked cars. Parking lot runoff could conceivably contaminate this well consequently a new surface casing with adequate stick-up and protection from surface runoff is needed.

Only the outer protective casings have caps. Caps should also be present on the inner PVC casing to minimize introduction of foreign material into the well.

Siltation of monitor wells 1-7 was determined in May, 1984, with wells 2,3, and 6 slightly exceeding 2 feet of silt accumulation. Even though a possible siltation problem is indicated by these data, no periodic soundings of total depth are made to monitor silt accumulation. This determination must be made during every sampling round, with provisions made for redeveloping or replacing wells affected by excess silt accumulation.

Wells have been variously surveyed to either plant datum or MSL and reported elevations have not always been clear. Clearly marked reference points related to a uniform datum are needed but are not present.

Reporting

Quarterly groundwater monitoring results have not been submitted to DEP within 60 days of sample acquisition.

Adequate determination of hydraulic gradients and groundwater flow direction, using all wells at the site, has not yet been accomplished.

The first year annual report (November, 1984) states contaminants are presumed to be entering the groundwater based on apparent groundwater mounding and high chrome and cyanide levels in some wells. In spite of this the assessment monitoring plan has not yet been completely implemented and determination of rate, extent and degree of contamination has not been made.