

8

Administrative Record

August 17, 1989

CONFIDENTIAL

SUBJECT: Westinghouse/Vanport - TCE Contamination Case
Negotiations for Anticipated Consent Order and Agreement
Hydrogeologic/Groundwater Quality Investigation
Vanport Township
Beaver County

TO: Anthony D. Orlando
Regional Manager
Bureau of Waste Management
Southwestern Region

FROM: Eric T. Manges *ETM*
Hydrogeologist
Bureau of Waste Management
Southwestern Region

This memo will outline the pertinent issues that the Department should pursue during the impending negotiations with the Westinghouse Electric Corporation in regard to a legal agreement that will address hydrogeologic/groundwater quality investigations and remedial measures to be performed by Westinghouse at its Beaver Valley Plant and in the Vanport Township area.

1. Groundwater Interception and Treatment - Beaver Facility Identified as Source

When combined with data obtained from the Department's hydrogeologic investigation, the recent data from Westinghouse's on-site investigation, received through correspondence dated July 14, 1989, clearly indicates that Westinghouse's Beaver Plant is a contributing source to the TCE contamination observed in the Vanport Township Municipal Authority (VTMA) well field.

As a result, the Department should direct Westinghouse to initiate a remediation action at the facility. At a minimum, this action should include the recovery of contaminated groundwater at the plant and the identification and elimination of point sources within the plant boundaries.

Westinghouse should be required to submit a remediation action plan that identifies the methods (with justification) by which an effective remediation action could be carried out and a detailed time schedule that will indicate critical dates, including action initiation and final report submittal.

The Department should insure that the action plan includes a performance and post-monitoring system that will be capable of determining the effectiveness of the remediation action.

It can be assumed that Westinghouse will insist that additional site specific information is needed to satisfactorily design/develop an appropriate remedial action plan. This is not wholly unwarranted, but it is the opinion of this writer that a large amount of pertinent, site specific data exists that would allow Westinghouse to begin development of a plan. Any additionally needed information could be easily obtained and a final plan could be developed within sixty (60) days of the signing of an agreement.

Several points of fact which justify the Department's position requiring this action would be:

- A. Westinghouse's on-site investigations produced information that indicate there are no contaminant sources upgradient of the Beaver Plant. Specifically, monitoring wells B-16A, B-13, 15 and 15A show non-detectable levels for the contaminants in question. All of these wells are monitoring the deeper groundwater zone upgradient of the plant.
- B. The information obtained to date from all of the investigative activities in the plant vicinity indicate that the predominant groundwater zone underlying the plant is contaminated with TCE and that its flow direction is primarily controlled by an ancient, buried stream channel that is cut into the bedrock and underlies the unconsolidated sediments that constitute the aquifer medium.

The information also indicates that the ancient stream channel is oriented in a northeast-southwest direction and that the groundwater underlying the plant is flowing directly towards the abandoned sand and gravel quarry and the VTMA well field. There is a definite hydrogeologic connection between the contaminated groundwater zone underlying Westinghouse's plant and the aquifer underlying the VTMA well field.

- C. The elimination of the Westinghouse plant as a contaminant source will accelerate the remedial process that will eventually be initiated downgradient of the Westinghouse plant.

2. Remedial Investigation/Feasibility Study (RI/FS) of Hydrogeology/Groundwater Quality Downgradient of the Westinghouse Plant

A RI/FS should be initiated by Westinghouse in the aquifer system downgradient from its Beaver Valley Plant. This investigation should be conducted concurrently with the remedial action taken on-site at the Beaver Plant.

It is suggested that the RI/FS be developed according to guidelines currently used by the EPA and Pa. DER's H.S.C.A. program. Because of the large amount of information already collected at the site, most of which Westinghouse possesses, the Department should expect an accelerated time frame for development and receipt of the Remedial Investigation work plan (60 days).

It is recommended that the Department prioritize the review of the work plan in that it should be submitted in a fairly acceptable form due to the availability of existing data and that in reality, the investigation has already been initiated by the Department. The sooner Westinghouse can initiate their proposed work, the easier (and more acceptable) it will be for them to integrate the existing data and monitoring system into their investigation.

Upon completion of the RI, the Department should require the submittal of a report that not only details the investigation information, methodologies, rational/strategy, and conclusions but should also include methodologies, rational and details for several remedial options of the observed and fully defined problem (feasibility study).

It would be very difficult to at this point determine what would be an acceptable remedial action. It is therefore suggested that the agreement not be specific about a particular action but should be specific about developing a decision process for determining appropriate remedial options and a fairly strict timetable should be specified for submitting critical plans and reports during the RI/FS process.

The remedial investigation should include, at a minimum, all of the following points.

- A. All information and investigative activities undertaken to date by the Department and Westinghouse. This information should include, at a minimum, the following: accurate topographic base map, groundwater flow contour maps, subsurface cross-sections, bedrock contour map, geologic boring/well logs, well construction logs, existing soil and water analyses.
- B. Additional soil borings should be accurately logged in the cemetery area across from the plant. This will allow better definition of the bedrock contours in that area and will also allow for better definition of the stream channel underlying the plant area. Appropriate boring locations would be along the perimeter of the cemetery property, especially along South Walnut Street.
- C. Additional monitoring wells should be installed outward from existing contaminated wells in order to further define the TCE contaminant plume. Specifically, wells should be proposed for areas downgradient of the V.T.M.A. well field and in areas southeast of the abandoned sand and gravel quarry.
- D. A monitoring well should be installed in the vicinity of the Department's monitoring well MW-5 that will effectively monitor the saturated silt that was identified during the Department's investigation.
- E. Additional investigation needs to be performed in the sand and gravel quarry area. It is quite possible that additional contaminant sources exist in the quarry. It is critical to the eventual remedial design that these sources be identified. It would also be useful to define hydrogeologic conditions existing beneath the quarry.

- F. It is suggested that the investigation should also define the hydrogeologic conditions immediately downgradient of the quarry. The ancient Ohio River bedrock channel should be defined in this area because the ancient stream channel observed at the Westinghouse plant apparently discharges to the main Ohio River aquifer in this area. This discharge/interface zone may have a significant effect on the transport of the contaminants.
- G. Because of the physical properties of TCE it is recommended that Westinghouse be required to investigate for the presence of a dense, immiscible phase of TCE within the Ohio River aquifer system. There may be several options available to Westinghouse but investigation will probably involve the installation of discreet monitoring wells at different depths within the aquifer, especially downgradient of the quarry. Close analysis of groundwater quality results and noted confining layers within the saturated thickness of the aquifer should help in determining specific well locations. Modeling, in combination with the above noted physical activity, should not be ruled out as an interpretive option.
- H. Detection/performance monitoring should be required. This monitoring should be identified as to frequency of sampling, parameters to be analyzed and monitoring wells that will be used as compliance points.
- I. It is recommended that some form of a soil gas survey be performed in sediments overlying the contaminant plume. The eventual remedial action may have to address a potential soil gas contaminant problem. Soil gas recovery may also be used to enhance the eventual remedial program. A soil gas survey may also be useful in identifying appropriate locations for groundwater monitoring wells.
- J. Long-term pumping tests should be performed to define flow conditions and aquifer parameters around the VTMA well field and to define the Ohio River recharge boundary at the well field. When this information is obtained, an optimum pumping strategy can be developed and used to minimize the effects of the contamination on the VTMA water supply system. The information may also enhance the development and effectiveness of the eventual remedial action.

ETM:ld

cc: C. Duritsa
T. Vayansky
G. Campbell
E. Duke
M. Watson
J. Jones
M. Buchwach
K. Bowman
B. Gunter
Regional
Chron