



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

JUN 17 2009

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Russell Becker
Program Manager
Environmental Engineering & Affairs
Severstal Sparrows Point
1430 Sparrows Point Blvd
Sparrows Point, MD 21219

Subject: Coke Oven Area Special Study Area Interim Measures Work Plan Phase I
Docket No. JFM-97-558 & JFM-97-559

Dear Mr. Becker:

Pursuant to Paragraph XIII.1. of the above- referenced Consent Decree ("CD") and in response to your April 20, 2009 Work Plan submission, the United States Environmental Protection Agency ("EPA") hereby provides comments to OAO Severstal ("Severstal") on the Work Plan submission. The Work Plan was submitted to EPA in response to EPA's February 19, 2009 letter in which EPA requested Severstal to submit a work plan to EPA for the implementation of interim measures to recover hydrocarbon product in the Coke Oven Area ("COA") of the Bethlehem Steel Sparrows Point Facility ("Facility"). EPA's comments to the Work Plan follow.

General Comments:

In its Work Plan, Severstal proposes a pilot test plan to collect design data to implement an interim measure system based on soil vapor extraction and air sparging. Groundwater pumping was excluded in Severstal's proposed pilot test plan. The proposed vapor extraction/air sparging system alone will not be sufficient to effectively remediate hydrocarbon product found at the COA. A mixture of light and heavy fraction hydrocarbons underlie the COA with the light fraction concentrated in the northwest corner where the former benzene processing plant was located, and the heavier fraction concentrated in the northeast corner where the former coal tar storage area was located. A vapor extraction/sparging system is only effective in remediating light fraction hydrocarbons which volatilize readily, but not in remediating heavier hydrocarbons which have low volatility. Therefore, Severstal must add a groundwater pumping component in the Work Plan and revise the pilot test plan to include a pumping test to evaluate groundwater pumping.

Groundwater pumping and vapor extraction technologies are commonly combined in the same extraction well, which is referred to as a dual phase extraction system. In addition to being more effective in remediating both light fraction and heavier fraction hydrocarbons, dual phase extraction has the following additional advantages:

(a) The groundwater pumping component will provide hydraulic control to reduce or prevent the migration of the hydrocarbon plume into the bay. The Coke Oven peninsular bay water samples collected by the Facility owner in 2005 and recent water and sediment samples collected in 2009 by the Maryland Port Administration have confirmed that the hydrocarbon plume has migrated into the Bay. Vapor extraction/air sparging alone, as proposed, will have no hydraulic control effect;

(b) The water table in the COA averages only 10 feet deep, and vacuum-induced vapor extraction will further reduce the vadose zone by creating a groundwater mound. Groundwater pumping will depress the water table creating more vadose zone for the vapor extraction to work more effectively; and

(c) Vacuum enhanced pumping will increase the mobility of hydrocarbon product to enter the extraction wells thereby improving product recovery efficiency.


Specific Comments:

1. Page 1 of 8 - Section 1.1, Objectives – While Severstal states that the overall objective is to "collect site-specific information pertaining to technologies that have the potential to protect human health and the environment...", the Work Plan does not evaluate technologies other than soil vapor extraction and air sparging. Other technologies, such as thermal enhanced recovery, may also be effective and should be evaluated for further testing or rejection. The Work Plan should include a pump test to furnish data to design a groundwater pumping component which EPA has identified above as an essential remediation component.
2. Page 7 of 8, sixth bullet - The text indicates a decision point relative to proceeding with the Air Sparging component of the field test. The Work Plan indicates that the decision will be based on field-measured responses to vacuum pressures, soil gas concentrations, and other performance factors, but does not indicate how these parameters might affect the decision to proceed. The Work Plan should state clearly when Air Sparging testing will proceed.
3. The Work Plan is unclear on how the effectiveness of air sparging will be evaluated. The Work Plan shall describe the monitoring parameters, procedures and criteria as to how to evaluate the effectiveness of air sparging in enhancing hydrocarbon recovery in groundwater.

Please provide a revised work plan that addressed the General and Specific comments within 30 calendar days of your receipt of this letter. If you have questions about the

requirements of the work plan, please call the project manager for the Facility, Andrew Fan, at (215) 814-3426. For legal questions regarding the requirements described above, please have your attorney contact Susan Hodges in our Office of Regional Counsel at (215)814-2643.

Sincerely,


Abraham Ferdas, Director
Land and Chemicals Division

cc: Rick Johnson, MDE