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IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF NEW YORK

UNITED STATES OF AMERICA,
THE STATE OF NEW YORK,

Plaintiffs,

v.

HOOKEER CHEMICALS & PLASTICS CORP.;
OXY CHEMICAL CORPORATION; HOOKEER
CHEMICAL CORPORATION; OCCIDENTAL
PETROLEUM INVESTMENT CO.; OCCIDENTAL
PETROLEUM CORPORATION; THE TOWN OF
LEWISTON; THE TOWN OF NIAGARA,
(Hyde Park Landfill)

Defendants.

Civil Action No. 79-989
(JTC)

GOVERNMENTS' RESPONSE TO ISSUES RAISED
DURING COURT HEARING

In response to the Court's suggestion at the close of testimony on October 6, 1981, the State and Federal parties have set forth below their position with respect to several issues raised by Amici Curiae and movants for intervention. As a prefatory matter, it should be noted that the record demonstrates that the parties are in substantial agreement. We agree that wastes deposited by Hooker have migrated away from the Landfill site and have reached the Lockport Dolomite. We agree that the potential for continued migration is downward, into the bedrock. We agree that the wastes have the potential to migrate in groundwater to the Niagara Gorge. We agree that the chemicals deposited are highly toxic. Finally, we agree that the Landfill must be contained and the potential for exposure reduced to the maximum extent possible.

After seven days of testimony from fifteen witnesses, it is important to place the issues raised into a meaningful perspective. The proposed Stipulation and Judgment Approving Settlement Agreement is an integrated document, and must be considered as a whole. The defendant must comply with the

purpose and goal of the proposed Agreement set forth in Paragraph 4 of the Judgment, which provides:

The containment, monitoring, and maintenance programs described in this Judgment have been designed, and have as a goal, to protect against endangerment to human health and the environment in the Hyde Park-Bloody Run Area utilizing requisite Remedial Technology to achieve the purposes set forth in this Judgment.

Every action to be undertaken by Hooker pursuant to the proposed Agreement is subject to review and approval by EPA and the State. See, e.g., Judgment, ¶¶6, 7,9. If a particular activity does not meet the goal of the Judgment, Hooker is required to undertake corrective action, or install an appropriate requisite remedial technology to protect against endangerment. See, e.g., Addendum II, ¶J(3), (4).

With this framework in mind, we submit that the record before the Court demonstrates that the governmental parties have taken into consideration each of the issues raised by Amici and movants for intervention, and that the proposed Agreement incorporates their concerns and adequately addresses them.

1. Potential for migration through the Bedrock to the Niagara Gorge.

All of the geologists and engineers who testified agreed that wastes deposited in the Landfill have the potential to migrate out of the Landfill downward into the Bedrock. The analytical data available demonstrates that such migration has already occurred (Ex. 4, Tr. 153, 155-156, 171). The geologists, including Amici's witness Grant Anderson, also agree that the overburden beneath the Landfill is "reasonably tight". See, e.g. Tr. 1262-63, 1321, 1571, 1573, 1645).

Witnesses with a substantial amount of "hands-on" experience with the geology in the immediate vicinity of the Hyde Park Landfill are also agreed that, below the top

fifteen feet of the Lockport Dolomite, the vertical and horizontal fractures which would serve as a potential path for migration are reduced in number and size. See, Johnston, Tr. 234-235, Davis, Tr. 289. The geologists are also agreed that at some point closer to the Niagara Gorge than the Hyde Park Landfill is located, the cracks and fissures are greater than they are under the Landfill itself. See, e.g. Johnston, Tr. 235, Davis, 290-291, Anderson, Tr. 1493.

The proposed Agreement addresses the potential for migration into the Lockport Dolomite and the potential for migration to the Niagara Gorge in several ways. First, the proposed Agreement requires Hooker to determine the full extent of the aqueous and non-aqueous plumes of contamination (Addendum I, 1C). This will be accomplished by installing a series of wells radiating out from the Landfill in all directions from ten initial locations. The wells immediately adjacent to the Landfill will be drilled down to the Rochester Shale. Additional wells will be drilled along each vector at 800 foot intervals. Each well will be sampled for groundwater contamination through chemical analysis at specified plume definition levels. 1/

In addition, the rock cores from each well will be examined for evidence of non-aqueous contamination, and a log must be prepared showing the characteristics of the rock core. Hooker must continue to drill these wells until a well is drilled to the Rochester Shale which shows neither evidence of chemicals in the groundwater at or above the plume definition levels, nor physical evidence of chemicals in

1/ Drs. Miller, Mason and Levins discussed the basis for selecting the indicator chemicals and the plume definition levels. Tr. 52-59, 78, 125, 1137, 1139, 1160, 1174. Dr. Twedell and Dr. Mason described how remedial activities will address contamination below plume definition levels. Tr. 387, 926-928, 930-931.

examination of the cores. Figure 6 in the proposed Agreement sets forth the proposed vector directions, two of which radiate toward the Niagara Gorge. If evidence of contamination is found in these wells, the vectors will be extended to track the plume to the Niagara Gorge, if necessary.

Second, ¶C(6) requires Hooker, through installation of additional wells, to determine the location and flow characteristics of all water bearing zones in the Lockport Dolomite, the nature of connection between individual water bearing zones, and the capacity of the wells to affect the flow of aqueous contamination.

Third, after the surveys and studies have been completed, providing a more complete picture of the potential for migration, as well as the extent of actual migration, Hooker is required to submit to EPA and the State a study setting forth an appropriate requisite remedial technology designed to address the migration which has occurred and which may occur.

Four, the data shows, and the experts agree, that the top fifteen feet of the Lockport Dolomite is highly fractured and that chemicals can move easily through this area in the groundwater. The proposed Agreement requires Hooker to address this potential route of migration by installing a Bedrock Barrier Collection System (Addendum I, ¶D(3)). The Bedrock Barrier Collection System "shall be designed to be capable of collecting aqueous phase liquids in the Overburden below the Overburden Barrier-Collection System and in the Lockport Bedrock Zone which have migrated from the Landfill Site to the same extent as a tile drain system..." If, based upon the data collected, Hooker believes that purge wells will meet the design and performance criteria, and EPA and the State agree, purge wells may be installed. If a purge well system will not meet the design and performance

criteria, Hooker must submit plans and specifications for a requisite remedial technology (Addendum I, ¶D(5)).

Five, the Bedrock Barrier Collection System may not be installed until after all the surveys required by ¶C have been completed and Hooker has submitted a requisite remedial technology study pursuant to ¶C(8). This final requirement is important, because it gives EPA and the State the flexibility to require Hooker to install a more comprehensive technology to address contamination. If the results of the surveys and studies show that a method other than purge wells is more appropriate to contain migration, the governmental parties can, pursuant to ¶C(9), proceed to that technology. If Hooker agrees, that new technology will be installed. If Hooker disagrees, a judicial determination will be necessary.

The governmental parties submit that this logical multi-stage approach will determine the extent of chemical migration from the Landfill, and will result in installation of appropriate remedial technologies to effectively contain such migration.

2. Potential for migration through the Rochester Shale.

Geologists having actual experience with the Rochester Shale in the vicinity of the Hyde Park Landfill testified about its relative impermeability. This testimony was based upon visual observation of the rock cores, and upon extrinsic evidence, such as the inability to recover water from the Rochester Shale.

(See, e.g. Johnston, Tr. 237-238, Davis, Tr. 293-294, Twedell, Tr. 400, Rovers, Tr. 1303).^{2/} The experts agreed that close to

^{2/} Richard Johnston testified that, "to my knowledge of the few hundred wells that I have examined data on in the Niagara Falls area, there was not one well which produced water from the Rochester Shale, even in the small amounts necessary for a single family dwelling." Tr. 237 (emphasis supplied).

water flowing through vertical fractures not flowing to well
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the Gorge face, the Rochester Shale is more fractured, but that there is at this time, insufficient data to determine at what point the increased fracturing occurs. Johnston, Tr. 245, Davis, Tr. 293. Mr. Anderson, testifying on behalf of Amici, also admitted that "the vertical joints are not this open underneath the Landfill Site..." (TR. 1493). Mr. Anderson's experience in determining permeability of the Rochester Shale was wholly in Canada and there, only in the highly fractured escarpment gorge face area. He has never examined rock cores or performed permeability testing of the Rochester Shale in the vicinity of the Hyde Park Landfill (Anderson, Tr. 1519-1520).

your experience 4000' from Escarpment (same distance)

The proposed Agreement provides several mechanisms for confirming the characteristics of the Rochester Shale. Vector wells installed pursuant to 1C are required to be cored to the top of the Rochester Shale. As a matter of engineering practicality, it is impossible in drilling such a well to determine precisely the point at which the Lockport Dolomite ends and the Rochester Shale begins. See, e.g., Rovers, Tr. 1303. Therefore, in order to accomplish the requirements of 1C, in accordance with plans and protocols approved by EPA and the State, Hooker will, of necessity, be drilling partially into the Rochester Shale. Moreover, the results of the studies and surveys will provide a picture of the extent of migration through the Lockport. If chemicals have migrated throughout the depth of the Lockport to the interface with the Rochester Shale, Hooker will be required to submit a requisite remedial technology study which must contain a description of all analytical techniques and/or monitoring which are necessary "to continue to define plumes of chemical contamination, if any, from the Landfill Site." Addendum I, 1C(8)(f). Under 1c(9), EPA and the State can require Hooker to provide additional data and to take further action to define and remedy the extent of migration. Therefore, the proposed Agreement contains provision for an investigation of the Rochester Shale, if such an investigation is determined necessary to

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See, e.g., Rovers, Tr. 1303. Therefore, in order to accomplish the requirements of 1C, in accordance with plans and protocols approved by EPA and the State, Hooker will, of necessity, be drilling partially into the Rochester Shale. Moreover, the results of the studies and surveys will provide a picture of the extent of migration through the Lockport. If chemicals have migrated throughout the depth of the Lockport to the interface with the Rochester Shale, Hooker will be required to submit a requisite remedial technology study which must contain a description of all analytical techniques and/or monitoring which are necessary "to continue to define plumes of chemical contamination, if any, from the Landfill Site." Addendum I, 1C(8)(f). Under 1c(9), EPA and the State can require Hooker to provide additional data and to take further action to define and remedy the extent of migration. Therefore, the proposed Agreement contains provision for an investigation of the Rochester Shale, if such an investigation is determined necessary to

shale 55' thick

protect against endangerment to human health or the environment.

3. Potential for migration through the Overburden at Bloody Run.

All of the witnesses who testified on this issue agreed that the overburden in this area was "tight" and that migration through the overburden would be downward, with little, if any lateral movement. Counterman, Tr. 689-694, 730-733, Mason, Tr. 932-934, Levins, Tr. 1150-1151, 1160-1161, Rovers, Tr. 1257, Anderson, Tr. 1469, 1474-1475. The analytical data, Exs. 65, 66, support this testimony. Therefore, once the area to be capped is defined pursuant to Addendum I, ¶G, and a proper cap is installed, Tr. 932-934, all potential for lateral migration through the fairly impermeable overburden, will be stopped. If there is any downward migration, the bedrock monitoring wells required by Addendum II, ¶M will provide information so that the parties can proceed as specified in the proposed Agreement.

It must be emphasized that before any decision is made about the appropriate remedy at Bloody Run, a detailed evaluation of the public health and environmental risks of capping and excavation must be undertaken. Both the organization retained to perform the evaluation, and the scope of the evaluation, are subject to approval by EPA and the State. The potential for migration through the Overburden is certainly a factor to be included in the evaluation, and must be considered before any final determination is made on this issue.

4. Monitoring of vector wells

The Court raised a question about continued monitoring of the vector wells after the surveys and studies were completed (Tr. 1010). The vector wells are installed to determine the areal and vertical extent of migration from the Landfill. Based upon data obtained from those wells, a requisite remedial technology is to be installed. Whenever Hooker submits a study for a requisite remedial technology, Hooker must also provide for appropriate monitoring of the effectiveness of the technology, subject to the approval of EPA

and the State (Addendum I, ¶C(8)). This monitoring requirement may include re-sampling the vector wells, or installation of additional monitoring mechanisms. If all the vector wells radiating out from the Landfill Site are clean (which we know is contrary to the evidence), or if no requisite remedial technology is available, EPA and the State, pursuant to ¶C(9), can require Hooker to sample the vector wells at appropriate intervals if necessary to meet the goals of the proposed Agreement.

5. Appropriateness of Indicator Chemicals.

Drs. Lamar Miller, Benjamin Mason and Philip Levins testified at length about the rationale for selecting the particular indicator chemicals for groundwater and soil analyses. It is important to focus on the purpose for which these chemicals are used. The groundwater and soil analyses required in Addendum I define the plume of contamination, and the area which must be remedied. If any of the specific indicator chemicals are found in the groundwater, it is presumed that all the chemicals deposited in the Landfill are also present (Addendum I, ¶C(b)), and Hooker must take action to address the entire area so defined. The technology to be installed must remedy the problem to the extent technologically possible, not merely to the plume definition levels. See, e.g. Tr. 551-552, 638. The chemicals defining migration in soil are also used to delineate the area to be remedied. Chemicals which are more soluble and move faster in soil will define a larger area within which remediation must occur. Chemicals which move slowly, such as TCDD and Mirex, will therefore be encompassed within the remediated area. 3/ See, e.g. Hallett, Tr. 1693-1694. All the witnesses testifying on this issue, including Dr. Hallett

3/ Pursuant to Addendum I, ¶B(1)(a), the presence of trichlorophenol or hexachlorobenzene creates a rebuttable presumption that TCDD is present. However, the absence of these chemicals does not create a presumption that TCDD is also absent. The absence of TCDD at the final boundary must be confirmed by specific analysis for TCDD (Addendum I, ¶B(1)(c), ¶G(1)(c), ¶H(1)(c)).

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on behalf of Amici, agree that chemicals migrating through soil will leave a trail and that there is a continuous gradient of chemicals migrating in groundwater. Miller, Tr. 58-59, Levins, Tr. 1148, 1199, 1202, Mason, Tr. 1077, Hallett, Tr. 1693-1694, 1705. *ph is the lead is, varied*

In view of the chemical properties of the wastes, the utilization of indicator chemicals which reflect a range of the properties of the disposed wastes will enable us to fully define the entire plume of migration so that appropriate remedial action may be taken. *by-passing PDL's to instilling into so much*

6. Effectiveness criteria for purge well system.

If a purge well system is installed, the proposed Agreement provides that it shall be deemed effective if the downgradient loading is less than 10% of the upgradient loading (Addendum II, ¶J). Chemical loading is not concentration, but is a combination of hydraulics and chemistry (Tr. 1327-1329). As explained by Mr. Counterman and Mr. Rover (Tr. 638, 1356), the purge well system must be as effective for aqueous phase liquids as a tile drain system, i.e., 100% collection of water within the cone of influence. However, the presence of non-aqueous phase contamination within the cone of influence will contribute to the loading (Tr. 1328). The proposed Agreement thus establishes a performance standard for collection of aqueous phase contamination, and an action level which reflects the presence of non-aqueous phase contamination.

If the system does not collect at least 90% of all material, both aqueous and non-aqueous, Hooker must first take corrective action, and if that proves not to be efficacious, must then submit a proposal for an appropriate requisite remedial technology (Addendum II, ¶J).

The effectiveness criteria is applicable only to the purge well system. The Overburden Barrier Collection System must be effective hydraulically, i.e. collect all water, and additional technologies installed pursuant to the proposed Agreement must include independent effectiveness criteria. The 90% effectiveness criteria for the purge well

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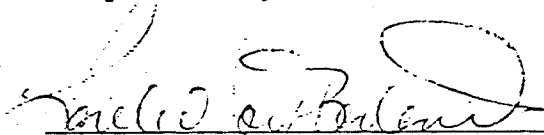
system does not, however, result in continued discharge into the environment. Pursuant to 4C(8), Hooker must suggest requisite remedial technologies to address migration outside the area covered by the overburden tile system and the bedrock barrier collection system. Such requisite remedial technologies would provide additional containment for a larger area. Any additional requisite remedial technology must be accompanied by appropriate monitoring requirements, subject to the approval of EPA and the State. Thus, if purge wells are installed, and if chemicals continue to migrate through the area encompassed by purge wells, the requisite remedial technology installed pursuant to 4C(8) provides an additional mechanism to prevent endangerment to human health and the environment.

The State and Federal governments share the concerns of Amici Curiae and movants for intervention. We agree that any settlement of our legal claims against Hooker must ensure that the Landfill Site and chemicals which have migrated, or may migrate, from the Landfill Site must be contained and cleaned up to the fullest extent technologically possible, and that human health and the environment must be protected from endangerment. We believe that the proposed Agreement accomplishes our common goal.

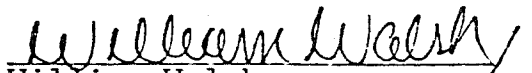
Respectfully submitted,



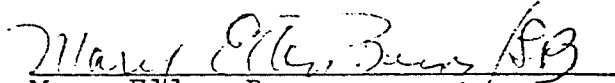
Michael Elder
Attorney
Department of Justice
Washington, D.C.



Lorelei Borland
Assistant Attorney General
State of New York



William Walsh
Attorney
Environmental Protection
Agency
Washington, D.C.



Mary Ellen Burns
Assistant Attorney General
State of New York

ROGER P. WILLIAMS
United States Attorney

By: 

JACK S. PENCA
Assistant United States Attorney

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CIVIL No. 79-989

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ROGER P. WILLIAMS
UNITED STATES ATTORNEY
WESTERN DISTRICT OF NEW YORK
UNITED STATES COURT HOUSE
BUFFALO, NEW YORK 14202

Filed _____, 19__

_____, Clerk.

By _____, Deputy.