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U.S. DISTRICT COURT
W.D. OF N.Y.

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF NEW YORK

UNITED STATES OF AMERICA,
THE STATE OF NEW YORK,

Plaintiffs

-vs-

HOOKER CHEMICALS & PLASTICS CORP.,
ET AL.,

Defendants

CIVIL NO. 79-989C

REPLY BRIEF OF THE UNITED STATES OF AMERICA

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UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF NEW YORK

UNITED STATES OF AMERICA, THE STATE OF NEW YORK, Plaintiffs, v. HOOKER CHEMICALS & PLASTICS CORP.; OXY CHEMICAL CORPORATION; HOOKER CHEMICAL CORPORATION; OCCIDENTAL PETROLEUM INVESTMENT CO.; THE TOWN OF LEWISTON; THE TOWN OF NIAGARA (Hyde Park Landfill), Defendants.	Civil Action No. 79-989

REPLY BRIEF OF THE UNITED STATES OF AMERICA

I. INTRODUCTION

On December 20, 1979, the United States filed suit in this Court for injunctive and other relief concerning an imminent and substantial endangerment arising from chemical wastes deposited by Hooker Chemicals and Plastics Corporation and its predecessors ("Hooker") at four landfill sites in the Niagara Falls area.

The present case concerns the Hyde Park Landfill, an approximately fifteen (15) acre chemical waste disposal site owned by Hooker in the Town of Niagara. From 1953 to 1975, Hooker disposed of more than 80,000 tons of chemical wastes in the Hyde Park Landfill, including mirex, lindane, trichloro-

phenols and other organic chemicals. EPA, the State of New York and Hooker have extensively sampled the Hyde Park Landfill, sediments in Bloody Run Creek, the Niagara River Gorge face and other locations in and around the Hyde Park Landfill and it is believed by the governmental parties that chemicals, including dioxin, a highly toxic chemical by-product of the production of trichlorophenol, have migrated from the landfill.

The landfill site was closed in 1977 and certain partial remedial measures were undertaken to prevent the further migration of chemicals from the landfill. These measures included installation of an overburden tile drain system and a clay cap.

In order to fully address chemical migration from the landfill, the parties commenced negotiations concerning settlement of the present case and the expeditious development of a complete remedial program.

On January 19, 1981, a Stipulation and Judgment Approving Settlement Agreement ("proposed Agreement") was lodged with the Court. Pursuant to 28 C.F.R. §50.7, notice of the proposed Agreement was published in the Federal Register on February 5, 1981, and public comments were received through and including March 20, 1981. In order to accomodate the extraordinary public interest in this case, a public hearing was held by the Department of Justice on February 19, 1981 and additional comments were received. To respond

to these comments, the governmental parties submitted a 108 page response to the Court on April 3, 1981.

Following extensive submissions by the parties concerning the adequacy of the proposed Agreement, this Court entered an Order requiring all additional comments and pleadings to be submitted by June 30, 1981. On the last date for submission, Amici Curiae, the Ecumenical Task Force of the Niagara Frontier, Inc., Pollution Probe and Operation Clean-Niagara, submitted a joint brief and affidavits in opposition to the proposed Agreement.

On July 10, 1981, this Court entered an Order requesting the parties to respond to the objections raised by Amici, specifically, (1) the absence of an impermeable floor to contain the toxic substances migrating from the landfill and (2) whether the Requisite Remedial Technology provisions of the decree, discussed at pp. 6-7, infra, adequately address such migration.

The United States respectfully submits this Brief and the attached affidavits in response to Amici's objections.

II. SUMMARY OF AGREEMENT

The proposed Agreement represents the collective efforts of the parties to resolve the present suit without extended litigation and to implement expeditiously a remedial program which will fully address the threat of chemical migration from the Hyde Park Landfill.

Although the provisions of the proposed Agreement have been explicated in prior submissions, a brief summary is useful to place the objections of Amici in context.

Under the terms of the proposed Agreement, Hooker is required to conduct extensive surveys and studies to determine the hydrogeologic characteristics of the site and the areal and vertical extent of chemical migration from the landfill. 1/

Following completion of the required surveys and studies, Hooker must install a tile drain system for the removal of chemicals migrating through the Overburden to augment the tile drain system presently in operation at the site. 2/ In order to collect chemicals which have migrated through the Overburden and into the top fifteen (15) feet of the Lockport Formation, Hooker is required to install a barrier-collection system consisting of purge wells capable of collecting aqueous phase chemicals (chemically laden groundwater) . 3/ If any of the remedial systems specified above fail to meet the design and performance standards specified in the proposed Agreement, Hooker must study and implement Requisite Remedial Technology to address such failure.

1/ Paragraph C of Addendum I at I-9-21.

2/ Paragraph D(2) of Addendum I at I-21-22.

3/ Paragraph D(3) of Addendum I at I-22.

Moreover, in the event that the studies and surveys required by the proposed Agreement indicate that chemicals have migrated into areas of the Overburden and Bedrock which are not addressed by the systems described above, Hooker must conduct a study to determine what Requisite Remedial Technology is required to address such chemical migration.

As part of its Requisite Remedial Technology study, Hooker must specifically consider, among other things, the following technologies. 4/

1. Installation of a grout curtain wall around the site down to the Rochester Formation to prevent the migration of non-aqueous phase liquids (highly insoluble, relatively viscous chemicals) from the landfill site.

2. Implementation of a system of grouting through controlled fractures, similar to that used in the petroleum extraction industry, designed to prevent the migration of non-aqueous phase liquids from the landfill site.

3. Installation of a purge well system designed to collect liquids migrating from the landfill site to the bottom of the Rochester Formation.

4. A system designed to remove non-aqueous phase liquids directly from the landfill. ie leachate collection

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4/ Paragraph C(7)(b) of Addendum I at I-17-18.

Under the proposed Agreement, Hooker is required to address the off-site migration of the Hyde Park chemical wastes regardless of the depth to which they may have migrated, utilizing Requisite Remedial Technology.

NT only to Top of shale — Could be permeable shale

Paragraph 4 of the proposed Agreement defines the term "Requisite Remedial Technology." Under Paragraph 4(a), the term "Remedial Technology" refers to "engineering and construction practices used or accepted for use in landfill containment projects or other industrial projects which are applicable to the materials and hydrogeologic conditions found at the Landfill Site." This definition does not require a technology to be currently in use, but excludes those technologies which are merely theoretical or which are not accepted for use.

In determining whether a given Remedial Technology should be deemed "Requisite," the following factors are to be considered:

(1) the nature of the endangerment to human health and the environment;

(2) the extent to which application of the remedial technology would reduce such endangerment or otherwise benefit human health or the environment; and

(3) the economic cost required to apply the remedial technology. 5/

If, after consideration of the extensive data Hooker is required to submit as part of its Requisite Remedial Technology study, the parties are unable to agree concerning the technology to be applied:

> (c) Hooker shall be required to apply the Requisite Remedial Technology proposed by EPA/State in accordance with the terms and conditions of this Judgment, unless, upon the evidence, the Court determines:
>
> (i) that application of such technology is unnecessary to satisfy the goal described in subparagraph (a); or
>
> (ii) that, considering the factors described in subparagraphs (a) and (b), it would be arbitrary and capricious to require Hooker to bear the economic costs incurred in applying such technology. 6/

III. ARGUMENT

A. INTRODUCTION

The primary thrust of the Amicus Brief is that the Hyde Park Landfill has no natural "bottom" to prevent the vertical migration of chemical wastes from the landfill and that those wastes will inevitably leak out and eventually enter the Niagara River. Amicus Brief at 4-5. Amici claim that the proposed Agreement does not provide an adequate remedy for chemical wastes migrating vertically through the

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5/ Paragraph 4(b) of the Judgment at 7-8.

6/ Paragraph 4(c) of the Judgment at 7-8.

bottom of the site and that the Agreement should therefore not be approved by this Court. Id. at 6, 36. Amici insist that only total removal of the wastes and reburial in another landfill will adequately protect public health and the environment. Amicus Brief at 3, 36. 7/

Amici's attempt to scuttle the proposed Agreement rests upon a false premise - that the proposed Agreement is dependent upon the existence of a natural impermeable bottom to prevent the vertical migration of chemical wastes. The

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7/ Much of Amici's lengthy brief is spent arguing that which is not disputed for purposes of the proposed Agreement - the toxicity of 2, 3, 7, 8, tetrachlorodibenzo-p-dioxin (hereafter "dioxin"). The toxicity of dioxin has been a major concern of the United States throughout these negotiations and proceedings. It is precisely because of the extreme toxicity of dioxin and the other chemicals at the site that entry of the proposed Agreement and commencement of the data gathering and the remedial programs required therein is in the interest of the public.

Amici also attack the Agreement because it does not require the use of a particular type of GC/MS field unit (Sciex) to measure airborne contamination. Amicus Brief at 31. The proposed Agreement, however, requires Hooker to collect samples and analyze for airborne contamination during construction "as expeditiously as possible." Paragraph J(4)(a) of Addendum V at V-14. To accomplish that end, Hooker is required to submit to EPA/State plans, specifications and protocols which take into appropriate account the nature of the chemicals on site, including dioxin. Paragraph A(5) of Addendum V at V-2. It is at that juncture that it is most appropriate to choose the precise type of monitoring equipment that is most sensitive to the chemicals on site. At the appropriate time, EPA/State will consider the field unit proposed by Amici, as well as other appropriate equipment, to determine that which is best suited to the task. Locking the parties into a particular type of equipment at this point in time may not be the wisest course of action since more sensitive equipment may well be developed and available by the time construction commences.

Contradicts joint response of Govt to Public Comments

United States respectfully submits that even a cursory reading of the proposed Agreement reveals that the permeable nature of the landfill bottom is fully addressed.

Thus, the United States asserts that the Amicus criticisms of the proposed Agreement do not accurately represent the requirements of the proposed Agreement concerning the prevention of vertical migration of chemicals from the landfill site, are based on an incomplete understanding and study of the site, and are premature. The United States also asserts that the alternative proposed by Amici, excavation and removal to another landfill, is not at this time feasible or desirable from an engineering and public health point of view, and should not be seriously considered unless the remedies provided in the proposed Agreement prove to be ineffective.

Amici criticize the proposed Agreement because, in some instances, it requires Hooker to conduct further studies and implement Requisite Remedial Technology. Amici apparently want an agreement which is totally technology specific. However, any committment to specified technology, beyond that already in operation or provided for in the proposed Agreement, is premature in the absence of the studies and information required by the proposed Agreement. Because sound decisions concerning additional remedial measures are dependent upon an adequate understanding of the site, the United States entered into the proposed Agreement which requires Hooker to obtain all necessary information under the supervision of the governmental parties and this Court prior to the development and implementation of a complete remedial program. Yet the proposed Agreement does

not diminish Hooker's liability to remedy the endangerment; indeed it establishes Hooker's liability for purposes of remediation.

to what point?

Although the characteristics of the site and the chemicals deposited there must be fully determined prior to any committment to a complete remedial package, enough is known about the site to address, with specific technology, vertical migration of chemical laden groundwater through the first fifteen (15) feet of the Bedrock, and possibly also the migration of non-aqueous phase chemicals. See footnote 16, infra. When all the data is collected and evaluated pursuant to the proposed Agreement, additional technologies may have to be employed at this site. Thus, the proposed Agreement contains provisions which will require Hooker to supplement existing physical containment systems with whatever additional remedial measures are required to accomplish the goals and standards of the proposed Agreement . 8/

not true, new + existing technologies now not used because capital intensive - RRT allows cost-benefit analysis

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8/ From an engineering point of view, there is nothing that is totally impermeable. Amici concede this. See Kleppinger Affidavit at 9. In other words, everything leaks to some extent; so would the entombment vault proposed by Amici. The entombment vault proposed by Amici would have to be monitored and maintained for as long as, if not longer than, the Hyde Park Landfill. Because everything is permeable to some extent, engineers define permeability based on what is necessary to accomplish a given goal. The goal in this situation is to design a containment system that prevents the migration of chemicals from the landfill in concentrations constituting an endangerment to the public health or the environment. Although the proposed Agreement utilizes the Requisite Remedial Technology concept and does not always set forth specific remedial measures to prevent such migration, it does require Hooker to meet that goal by means to be approved by EPA/State.

oversimplifying + misleading

The remedial action proposed in the Amicus Brief - excavation of the Landfill site and reburial in another location - is opposed by the United States at this time for the reasons noted in part III D., infra. Any decision concerning excavation of soil and rock which contains highly toxic chemicals, such as dioxin, must carefully weigh the benefits of excavation and reburial in another landfill, if indeed one can be located and permitted, versus the increased risk to the public and workers from exposure during excavation, transportation, and reburial. Although excavation is not totally ruled out under the terms of the proposed Agreement, it would be, in the government's view, unwise in the extreme to select this remedy unless and until (1) other remedies have proven to be ineffective and (2) detailed information on the quantity of the soil and rock involved, the concentrations of chemicals in the soil and rock, the health and safety plan to be employed, and the design and the availability of an adequate landfill for reburial is obtained in accordance with the requirements of the proposed Agreement.

In the government's view, the Amicus brief reflects a fundamental misunderstanding not only of the proposed Agreement, but also of the necessity for additional information and understanding of the site so that final decisions concerning specific remedial programs can be informed and responsible.

quote Anderson & Hoppenger

B. The Proposed Agreement Provides Adequately for the Prevention of the Vertical Migration of Chemical Wastes from the Landfill

There is a sufficient amount of information presently available to permit the formulation of specific remedial measures to address the vertical migration of chemical wastes through the Overburden and the first fifteen (15) feet of the underlying Lockport Formation. Accordingly, the proposed agreement requires Hooker to undertake the following specific remedial measures.

1. Continue to operate the existing Overburden Tile Drain System. 9/

2. Install a new, deeper drain system in the Overburden. 10/

3. Install a system of purge wells to collect aqueous phase liquids from the top fifteen (15) feet of the Lockport Formation. 11/ The purge well system must be as capable of collecting aqueous phase liquids as a tile drain collection system. 12/ Prior to installation, Hooker must

contradicted allegd need for vagueness because of lack of info. why not look below top 15' (if BR key problem)

9/ Paragraph D(1) of Addendum I at I-21.

10/ Paragraph D(2) of Addendum I at I-21-22.

11/ Paragraph D(3) of Addendum I at I-22-23.

12/ Id.

conduct pump tests and other tests to determine the feasibility of purge wells at this site. 13/

4. Place a clay cap over all the chemical laden soil on the surface of the landfill. 14/

For below fifteen (15) feet into the Lockport Formation, Hooker is required to conduct studies to determine what Requisite Remedial Technology is required to prevent the migration of chemical wastes, if any, not addressed by the remedial systems described in 1-4 above. 15/ Hooker must also conduct a Requisite Remedial Technology study to clean up any chemicals that have already migrated off-site regardless of the depth. The proposed Agreement, then, does not rely upon the existence of a natural impermeable bottom, it requires Hooker to specifically address the absence of such a bottom. 16/

13/ Paragraph C(2-4) of Addendum I at I-11-14.

14/ Paragraph B(1) of Addendum I at I-1-4.

15/ Amici and their consultants attack not so much the concept of using purge wells at the Hyde Park Landfill, but rather the location of the purge wells as indicated on the conceptual view of the system contained in Figure 11 of the proposed Agreement. Amicus Brief at 2; Kleppinger Affidavit at 5; Anderson Affidavit at 8. Since the location of the purge wells as indicated on Figure 11 is conceptual only and will not be determined finally until the data required by Paragraph B (2-6) is collected and analyzed, Amici's criticism of the location of the purge wells is premature, if not totally unfounded.

16/ It should be noted that depending upon the actual physical conditions at the site and the plans and specifications for the purge wells, a bedrock purge well system is expected to provide the hydraulic equivalent of a physical "bottom" for aqueous phase liquids and could possibly provide the hydraulic equivalent of a physical "bottom" for non-aqueous phase liquids as well. Mason Affidavit at 5; Twedell Affidavit at 12, 18.

Moreover, if the technology selected by Hooker proves to be ineffective, based on monitoring data which the proposed Agreement requires Hooker to collect, Hooker must implement a study to determine what Requisite Remedial Technology is required to correct the situation. 17/ If nothing else works, it may be that excavation will be selected as a remedy by the government notwithstanding the risks and engineering difficulties associated with that technology, discussed infra at 19-22, and subject to the dispute resolution mechanisms discussed supra at 7.

Thus, while the proposed Agreement is not technology specific in all respects, it is result specific: chemical wastes deposited at the Hyde Park Landfill must be contained and cleaned up. To the maximum extent practicable, the proposed Agreement guarantees the result sought by Amici.

C. A Hearing or Review of the Adequacy of Remedial Technology is Premature; Until the Field Data Required by the proposed Agreement Collected and a Final Remedy Selected a Meaningful Review Cannot Occur.

The United States submits that Amici have failed to distinguish between the adequacy of the proposed Agreement and the adequacy of a specific technology. The former has been intensely scrutinized by this Court and the public for over six (6) months and a full and complete record has been made. The parties have made more than a sufficient showing of the adequacy of the Agreement in their oral and written

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17/ Paragraph C(8)(g) of Addendum I at I-19.

submissions to the public and to the Court. In the government's view, further proceedings or delay are not warranted. As to the adequacy of any specific technology required by the proposed Agreement, a hearing at this time would be premature. Only the actual field data required by the proposed Agreement will resolve any legitimate disputes which might arise between Amici's experts and the government's experts concerning appropriate remedial technology. For example, there is no way to resolve a dispute concerning the effectiveness of purge wells at this site, unless a specific purge well system design indicating the number and location of wells has been selected and data concerning permeabilities, pump testing and other factors are before the Court. Since that data will only be obtained pursuant to the proposed Agreement, it is premature to address the effectiveness of purge wells and other technologies at this time.

Discuss Montague

Hey ignore BK

It has been EPA's policy in complex groundwater contamination cases to require the defendants (1) to perform, under the supervision of EPA and the Court, the sampling and other testing necessary to determine the nature and extent of hazardous waste contamination and then (2) to study what remedial alternatives are available to address the problem. A legitimate dispute concerning appropriate technology may only arise after the data or study is obtained. To require the government to obtain the "absolute committment" sought by Amici with respect to specific technology would require

the government either to shoulder the burden of designing and implementing an investigatory program to determine what remedies are appropriate or to make such decisions in ignorance of site specific facts. The former alternative shifts the substantial resource burden of conducting an appropriate investigatory study from the responsible party to the government. In view of the government's limited resources, imposing the burden of conducting a complete investigatory program upon the government would seriously impede the government's ability to require the clean up of the numerous hazardous waste sites known to exist throughout the United States. The latter alternative invites erroneous decision making concerning highly toxic chemicals and therefore endangers the public health and the environment.

In the government's view, it is more efficient and equitable to require the responsible party to conduct such monitoring and studies as are necessary to select proper remedial measures. In the context of this agreement, the public is amply protected since the governmental parties, as well as this Court, retain the right to oversee the data gathering process and to review all actions taken by Hooker.

Amici suggest that needed data can be obtained under the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. Section 9601 et seq.

See Amicus Brief at 28. CERCLA, however, requires that no response measures can be taken by the government if "The President determines that such . . . remedial action will be probably done by the owner . . . or by any other responsible party." It would be contrary to the intent of Congress to use the limited funds available under CERCLA when the responsible party stands willing, and indeed has entered into an agreement, to undertake the necessary study and clean-up.

Amici's suggestion that the government obtain needed data through the administrative process outlined in the Resource Conservation and Recovery Act, 42 U.S.C. Section 3013, Amicus Brief at 27-28, is inefficient and duplicative. This suggestion would require the government to initiate an entirely separate proceeding to obtain the needed information. A separate enforcement proceeding would be required in this Court in the event that EPA did not obtain the desired results. Amici's suggestion simply does not make sense here where the responsible party is already before the court and stands willing to undertake a monitoring and study program here and now, without resort to a separate administrative and judicial enforcement proceeding.

During the present negotiations, the United States repeatedly faced the dilemma imposed by the desire for complete specificity versus an inability to determine precisely

what additional specific remedial requirements were appropriate. The proposed Agreement resolves this dilemma. Under its terms, the necessary information will be obtained by the responsible party. Following the investigatory program required by the proposed Agreement, the governmental parties will oversee the design and implementation of such additional specific remedial programs as are necessary. If the parties are unable to agree concerning additional specific remedial programs, the dispute resolution provisions of the proposed Agreement are available to resolve such disputes. Thus, under this Agreement, (1) the burden of obtaining necessary information is placed where it belongs, (2) adequate information will be obtained before additional specific remedial measures are proposed or implemented, and (3) the proper design and implementation of such additional remedial technology as is necessary is ensured by two levels of review: EPA/State's and this Court's. Under the site specific facts of the present case, the requirements of the proposed Agreement are appropriately protective of the public interest.

Deferring a final decision on additional technology to a time when all relevant information is available does not prejudice Amici. Once additional specific technology is proposed, Amici may bring to this Court's attention any alleged deficiencies in the technologies selected and may present its alternatives in the

Improperly too great a burden on public

face of a fully developed scientific record. In the meantime, the government has obtained the "absolute commitment" that counts - a legally enforceable agreement on the part of Hooker to contain and clean up the Hyde Park Landfill.

NO

D. Excavation May Not Be Technologically Feasible at This Site and May Present A Substantial Risk of Harm to Public Health and the Environment.

Without benefit of adequate data, 18/ Amici recommends excavation of the Hyde Park Landfill and reburial in a yet to be constructed, new landfill. Although as indicated previously,

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18/ The government's experts, who have studied the site for over two years, candidly admit that they are partially hamstrung by the absence of adequate information in the formulation of additional specific remedial measures to address the migration of hazardous wastes below the first fifteen (15) feet of the Bedrock. Amici's consultants are handicapped by the same lack of data and are further constrained by a lack of site specific experience. Yet Amici's consultants propose the Draconian remedy of excavation and reburial based on generalized information, e.g., a misunderstood telephone conversation with Richard H. Johnston, Kleppinger Affidavit at 7, other conversations, id at 7, investigations of other Hooker sites, id at 9, and incomplete information about the site, some of which both Amici's experts, see, e.g. Anderson Affidavit at 3,6, and the government's experts, see, e.g, Twedell Affidavit at 6, believe to be incorrect.

The fallacy of drawing site specific conclusions from generalized information is pointed out by Mr. Johnston in his affidavit. As Mr. Johnston correctly observes, general information concerning groundwater movement cannot be used to make "site specific evaluations of complex problems such as leachate migration via groundwater." Johnston Affidavit at 2. Indeed, Amici's improper use of generalized and misinterpreted information obtained from Mr. Johnston has so disturbed him that he has submitted his own affidavit to "correct errors" made in Amici's submissions. Johnston Affidavit at 2.

it is premature to make any final decisions concerning appropriate remedial technology, it is important to note the substantial difficulties and risks associated with excavation of hazardous wastes.

The magnitude of the task of excavating the Hyde Park Landfill is apparent from a brief consideration of the geology of the site and the extent of known chemical migration. From existing well data, it is believed that non-aqueous phase liquids have migrated at least 50 feet into the bedrock and 500 feet into the landfill.

Excavation of only part of the non-aqueous phase contaminated soil, as proposed by Dr. Kleppinger, may leave behind a potential source of additional contamination. For example, groundwater flowing through non-aqueous phase contaminated soil and rock left behind under Amici's partial excavation proposal could itself become contaminated. In order to remove all possible sources of contamination, Dr. Mason estimates that at a minimum 1,860,000 tons of soil and 870,000 tons of rock would have to be removed. To remove all contaminated soil and rock would, according to Dr. Mason, require blasting and the use of heavy earth moving equipment. Such excavation would require the evacuation of nearby residents and would shut down nearby businesses as well as Niagara University. Mason Affidavit at 7. Dr. Kleppinger acknowledges the need for relocation even under his proposal for partial excavation. Kleppinger Affidavit at 10.

use of purge wells in area after removal discussed specifically to address this

Even if excavation and reburial are feasible from an engineering and public health point of view, all that it accomplishes is the creation of another hazardous waste landfill with its own site specific containment and treatment problems.

Amici's new landfill and its wastes would have to be monitored, treated and maintained for as long as, or longer than, the Hyde Park Landfill. Even if the Hyde Park wastes were reburied in a "clay containment vault," ~~migration would~~ not be prevented, only impeded. 19/ Thus, reburial at another site would not prevent migration of chemical wastes, it would merely spread it out over a very long period of time. 20/ Amici's suggestion would solve the Hyde Park dilemma by creating a new one in another neighborhood.

Amici's proposal assumes the availability of a permitted landfill for disposal of the chemical wastes presently contained in Hyde Park. However, the difficulties of obtaining and permitting such a landfill, all too well known to the governmental parties, may present an insurmountable practical obstacle to Amici's proposal.

19/ As the Kleppinger Affidavit acknowledges, "clay is not impermeable. It is simply less permeable than other materials." Kleppinger Affidavit at 9.

20/ EPA has chosen a remedy which leaves the hazardous wastes in place (dioxin readily absorbs onto clay colloids thereby impeding migration, Mason Affidavit at 7), and removes the chemicals through tile drain systems, purge wells and, if necesary, Requisite Remedial Technology without the major environmental upset associated with excavation.

The most serious government objection to the wholesale excavation of the Hyde Park Landfill is the increased risk of exposure (and therefore harm) to residents and workers during excavation, transportation and reburial of the Hyde Park chemical wastes. The government affidavits amply document EPA's long standing concerns regarding the dangers to workers and to the public health presented by excavation. Mason Affidavit at 7-8; Lindsey Affidavit, passim; Wyer Affidavit, passim. At least on the present data and until other remedies have been ruled out, the remedy proposed by Amici should be rejected. 21/

Some argument used in Wilsonville

IV. CONCLUSION

Amici accuse the governmental parties of ignoring the absence of an adequate natural bottom to the landfill. The truth of the matter, however, is that all parties have recognized throughout the negotiations and these proceedings that the upper portion of the Lockport Formation is permeable

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21/ Because of the difference in the quantity of rock and soil to be excavated, there is no inconsistency between EPA's present rejection of excavating the entire Landfill and the proposed Agreement's preservation of that option in connection with Bloody Run. Obviously, the greater the quantity of rock and soil to be excavated, the longer the period of excavation, the greater the number of vehicles transporting the waste, the greater is the risk of accident and exposure. In the case of the Bloody Run area, it is conceivable that when adequate information has been obtained, the benefits of excavation will outweigh the risks. For now, all that the proposed Agreement does is to preserve that option until adequate information has been obtained so that an informed decision can be made.

we believe agreement does not preserve the option

and that there is no natural barrier beneath the landfill to prevent the vertical migration of chemical wastes. This is precisely why the proposed Agreement provides for Requisite Remedial Technology to supplement the specific remedial measures discussed at 6-7, supra, if necessary to fully address the vertical migration of chemicals below the top fifteen (15) feet of Bedrock. If remedial technology is not always specified in detail, it is because responsible decisions concerning the complete technology package that would best contain the Landfill cannot be made until all appropriate information is collected and evaluated.

The Amicus Brief correctly notes that the federal government has chosen to contain this landfill and treat the wastes as they are collected. As a matter of policy, the federal government believes that the safest place for these chemicals at this time is underground until they are treated pursuant to a legally enforceable consent agreement. The government believes that the alternative offered by the Amicus Brief (excavation) is not at this time feasible and may create greater risks to the public health than it purports to remedy. The United States respectfully submits that entry of this proposed Agreement is in the public interest and urges an expeditious decision on this matter so that remedial action can commence.

Respectfully submitted,

United States of America by

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ATTACHMENT A

UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF NEW YORK

UNITED STATES OF AMERICA, THE STATE OF NEW YORK Plaintiffs, v. HOOKER CHEMICALS & PLASTICS CORP.; OXY CHEMICAL CORPORATION; HOOKER CHEMICAL CORPORATION; OCCIDENTAL PETROLEUM INVESTMENT CO.; THE TOWN OF LEWISTON; THE TOWN OF NIAGARA, (Hyde Park Landfill). Defendants.	Civil Action No. 79-989 AFFIDAVIT OF BENJAMIN J. MASON

STATE OF VIRGINIA)
COUNTY FAIRFAX) ss.
CITY OF SPRINGFIELD)

Dr. Benjamin J. Mason, being duly sworn, deposes and says:

1. My office is located at 7606 Long Pine Drive, Springfield, VA 22151.

2. I am a private consultant and the principal of Ethura, an environmental consulting firm.

3. I am a soil scientist by profession and am certified by the American Registry of Certified Professionals in Agronomy, Crops and Soils (Certificate No. 1271).

4. I have a Doctor of Philosophy in the field of soils from Oregon State University where I served as a full time researcher on the staff of the Soils Department.

5. Since completion of the PHD degree in 1967, I have served as a research scientist and consultant in the environmental field specializing in pollutant migration, the effects of pollutants and risk assessment.

6. Prior to starting my own consulting business, I worked as Principal Scientist for Geomet Technologies, Inc. where I carried out research and managed contracts dealing with environmental carcinogenesis, hazardous waste assessment, and landfill evaluations. In this capacity I served as the Project Manager and Soil Scientist for an environmental study conducted by the EPA Office of Research and Development at the Love Canal Landfill in Niagara Falls, New York. I was responsible for collecting and examining approximately 250 soil cores from the area.

7. Since April 1979, I have been working closely with the U.S. EPA and U.S. Department of Justice regarding the Hyde Park litigation. I have participated in most of the technical negotiating sessions held between the governmental parties and Hooker, and have provided technical support in the area of soils and environmental monitoring. I have examined all of the data concerning the Hyde Park Landfill as well as numerous soil and rock cores from the Niagara Falls area.

8. The primary objective of this affidavit is to clarify those provisions of the Stipulation and Judgment Approving Settlement Agreement which have been misinterpreted

by two consultants, Mr. Grant Anderson and Dr. Edward W. Kleppinger, who provided statements for the Amici Brief dated June 30, 1981.

9. The remedial concept proposed in the Settlement Agreement was believed to be the only viable alternative. It was selected from the following alternatives: entombment in place, excavation, grout certain walls, incineration, and purge well systems.

10. Two choices were open to the negotiating team: (1) to design the entire remedial system in the Settlement Agreement, or (2) to develop the basic concepts of the remedial system but delay the final design until adequate data were acquired under court and EPA supervision. The latter approach was chosen by the team in order to expedite the development of the design of the proposed remedial system and to obtain data that we believed would ultimately be more reliable than data acquired by any other legal mandate.

11. The monitoring program encompassed in the Settlement Agreement provides for a well system designed to determine the distribution of chemicals, the concentrations of key marker chemicals and the hydraulic characteristics of the area. Without this data, it would be impossible to design a meaningful containment system.

12. The negotiating team believes that the nature of this site is such that there is a strong possibility that the chemical wastes were placed in direct contact with the Lockport Formation.

13. The data available to the negotiating team indicated the presence of chemicals in well OW-18-79, which is approximately 500 feet to the west of the northwest corner of the Hyde Park Landfill. The most likely route of migration for the chemical was in the highly fractured upper layer (approximately 15 feet thick) of the Lockport Formation. Any chemical reaching this fractured zone will migrate in the direction of groundwater if it is in an aqueous phase, and along the dip of the bedding planes if it is in a non-aqueous phase. The rate of migration depends not only upon the hydraulic gradient of the groundwater, but also upon the fluid dynamics of the non-aqueous phase chemicals, which appear to act contrary to the water flow patterns at times.

14. Dr. Kleppinger and Mr. Anderson both note that the piezometric head in the Lockport Formation lies above the top of the bedrock, thus indicating an artesian effect at some points. This effect, however, which would cause water to rise above the top of the bedrock in some wells, does not alter the fact that the hydraulic gradient is steeply downward. This downward gradient is also strongly influenced by the tight lower layer of the Lockport Formation and ultimately, the underlying Rochester Formation which is a very tight shale.

O.K.

Anderson clearly states that

15. The highly fractured zone of the Lockport Formation lies between a tight portion of the Lockport Formation below and a relatively tight layer of clay or till above. This stratigraphy creates the equivalent of a French Drain below the site. Such a drain system can be dewatered through the use of purge wells, creating a cone of depression extending down to the bottom of the fractured zone. This in effect would collect any aqueous phase chemicals which have migrated into the fractured zone thus creating the equivalent of a "bottom" on the landfill. It is possible that this system could also provide a "bottom" for the non-aqueous chemicals as well.

16. The technical team designed the monitoring and survey system in a way such that of the distribution of chemicals from the surface down to the Rochester Formation will be identified. If chemicals are found in the Lockport Formation, Requisite Remedial Technology will be used to determine how to contain the chemicals at these lower depths, if possible.

17. Dr. Kleppinger suggests that the hazardous wastes should be excavated from the landfill. His concept of digging up this site reflects a lack of understanding concerning the complexities and hazards of handling such materials.

18. The following will help put his proposal into perspective. Assuming that chemicals have moved a minimum of 500 feet to the west, northwest and north through the fractured zone of the Lockport Formation and migrated into the fractured zone of the Lockport Formation, the following volumes of soil and rock would have to be excavated:

Location	Soil (yd^3)	Fractured Rock (yd^3)
Elevated portions of landfill	490,000	--
Area below landfill	400,000	310,000
Total landfill excavation	890,000	310,000
Area off of landfill site	970,000	560,000
Total excavation volume	1,860,000	870,000

Removal of at least this volume of material would be essential if Amici's arguments regarding TCDD are correct. In fact, one could assume that all contaminated rock between the surface and the Rochester Formation would have to be excavated at least within the immediate vicinity of the site. This would increase the volume of materials to be reburied from 2.7 million cubic yards to approximately 6 million cubic yards and would require a major quarry operation complete with blasting and heavy earth moving equipment.

19. Any attempt to blast the rock would inject toxic materials into the air at levels far exceeding any levels likely to be encountered as a result of the remedial concept proposed in the Settlement Agreement.

NT (see p5 Countermem)

20. Excavation would require the evacuation of homeowners, students at Niagara University, and workers at Tam Ceramics, Grief Brothers, Home Oil Company and Niagara Steel Finishing until the work was completed and the resulting hole filled in with clean materials.

21. The questions raised in the Amici Brief with regard to TCDD were raised and discussed extensively on numerous occasions during the negotiations. As was stated, in the Amici Brief, TCDD is one of the most toxic chemicals known to man. Data in the literature, however, indicate that this chemical readily adsorbs onto clay colloids and remains there unless exposed to ultra violet light or some other radiation source. We chose to leave the chemical in place rather than risk resuspension of the materials in Bloody Run Creek and the potential for releasing large quantities of TCDD in the air if the hazardous wastes were excavated.

22. Reburial of the materials is not an easy task nor is it safe. Dr. Kleppinger appears to contradict himself by pointing out the weakness of the proposed clay cap because

only shows that M+M necessary given w/ good containment

of its potential to transmit water, while proposing the creation of a containment vault constructed of clay to store the chemical-laden soil and rock excavated from the Hyde Park Landfill some material. As Dr. Kleppinger correctly notes, even clay is permeable to some extent and a clay vault would therefore release the chemicals at a very slow rate over thousands of years with no assurance that they would be collected after they leave the site where they are entombed.

23. The purge well and leachate collection systems proposed in the Settlement Agreement allow the chemicals to be removed over a relatively short period of time without the major environmental upset and risk of harm that would result from the excavation of a very large volume of contaminated material.

24. An additional area where the Amici Brief appear to have misinterpreted the data is that of groundwater flow patterns. There is in fact a recharge area to the east of the landfill as was noted by the Amici. However, this recharge area is bordered by a groundwater divide that is created by the flow of water to the west of the PASNY conduits and to the east under the landfill. This divide precludes the chemicals from reaching the conduits. The flow patterns at

the site are from this recharge area towards the northwest and possibly to the west. Monitoring wells proposed in the Settlement Agreement will provide the additional information regarding flow patterns needed to plan the containment system. If new data indicate the need for additional purge wells, they will be included in the plans and specifications before the remedial program is approved.

25. The misconceptions resulting from Dr. Kleppinger's conversation with Mr. Richard H. Johnston during which he asked generalized questions about the geology at the site, are not only misleading but are indicative of poor science. Any soil scientist or hydrologist knows that any area must be investigated on a site specific basis before any conclusions can be reached regarding the direction of fluid movement through the soil and rock layers. Dr. Kleppinger does not appear to have done this and his opinions should be treated accordingly. The generalized flow patterns outlined in Mr. Johnston's book cannot be used to define what is happening at the Hyde Park Landfill site.

Kleppinger did-n't read IT 1977- prepared extensive study of site

26. I personally believe that had Mr. Johnston been given an opportunity to examine the data available to the negotiating parties, he would arrive at similar conclusions. His treatise, Groundwater in the Niagara Falls Area, New York, was used extensively throughout the negotiations.

totally irrelevant

27. I am personally convinced that the Settlement Agreement as presented to the court provides safeguards to the public, avoids major environmental impacts, protects nearby residents, three industries and a university from major disruption, and is scientifically sound given the constraints of existing data. The Settlement Agreement was developed to obtain the needed data under court and EPA supervision before a total remedial concept is selected and designed with adequate safeguards to insure its effectiveness. Any delay in implementing this Settlement Agreement only further exasperates the final solution.

even Court brief wouldn't make such broad-sweeping representation

Benjamin J. Mason

Benjamin J. Mason

Subscribed and sworn to before me
this 23rd day of July, 1981.

Brenda F. Hurst

My Commission expires: Nov. 14, 1981.

ATTACHMENT B

WMH-20

UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF NEW YORK

UNITED STATES OF AMERICA, THE STATE OF NEW YORK Plaintiffs, v. HOOKER CHEMICALS & PLASTICS CORP.; OXY CHEMICAL CORPORATION; HOOKER CHEMICAL CORPORATION; OCCIDENTAL PETROLEUM INVESTMENT CO.; THE TOWN OF LEWISTON; THE TOWN OF NIAGARA, (Hyde Park Landfill). Defendants.	Civil Action No. 79-989 AFFIDAVIT OF DR. DAVID TWEDELL

DISTRICT OF COLUMBIA) ss.

Dr. David Twedell, being duly sworn, deposes and says:

1. My office is located at 8400 Westpark Drive, McLean, Virginia, 22102.

2. I am the Program Manager of the Geotechnical Assessment Program for JRB Associates, an environmental consulting firm, under contract to the U.S. Environmental Protection Agency's Hazardous Waste Task Force.

3. I am a hydrologist by profession, with a Bachelor of Science and doctoral degrees in geology from the University of Houston, Clear Lake City, Texas. I have also taken graduate level courses in hydrology as part of my educational training.

4. I came to JRB Associates in 1979 to head up their newly formed hazardous waste Geotechnical Assessment Program. Since that time, we have conducted over 40 hazardous waste site investigations across the U.S., including a complete geotechnical study at the Love Canal in Niagara Falls, New York. My group is also responsible for several documents directly related to hazardous waste disposal including a best available technology document entitled, "Remedial Actions at Hazardous Waste Disposal Sites," and "A Methodology for Rating the Hazard Potential of Waste Disposal Sites."

5. I have been involved for the past 20 months as a consultant to the U.S. EPA in the evaluation of four Hooker landfills in the Niagara Falls, New York area. These include the Hyde Park, S-Area, 102nd Street, and Love Canal sites. I provided technical support for the negotiations concerning the Hyde Park Landfill suit.

6. I have reviewed all hydrogeologic data submitted to the EPA and the State of New York by Hooker on the Hyde Park Landfill. In addition, I have personally supervised the drilling of over 170 groundwater monitoring wells at the Love Canal site. These monitoring wells were drilled into the same geologic formations that are found at the Hyde Park Landfill. I have also personally examined rock cores from three of the four Hooker landfills, including Hyde Park.

7. Based upon my interpretation of all the current data available, there is little to no upward movement of groundwater from the lower bedrock aquifer into the upper overburden aquifer. The present condition of the hydrologic system is such that chemicals are moving downward through the overburden into the bedrock as witnessed by groundwater quality in well OW-18.

8. The peizometric head recorded at wells drilled into the bedrock aquifer (OW-13, OW-4, OW-7) shows the head in the bedrock aquifer to be at a level above the overburden-bedrock interface, indicating that the bedrock aquifer at these locations is in a confined state, such that groundwater movement would be upward into the overburden from the bedrock. However, in wells OW-1, OW-18, OW-11, OW-22, and OW-20, the piezometric head in the bedrock aquifer is below the overburden-bedrock interface, indicating unconfined conditions and a net downward movement of groundwater from the overburden to the bedrock.

9. Based upon the information presented in paragraph 8 above, the Lockport Formation, in my opinion, will not act as a bottom seal against chemical migration downward into the bedrock system. However, additional data will be required to measure the effects of the proposed remedial system on this highly complex aquifer system.

10. In order to develop the proposed remedial system for the Hyde Park Settlement Agreement, I carefully examined the groundwater quality data presented and combined this information with my own knowledge of the Lockport Formation gained as a result of my work at Love Canal.

11. In all of the wells I have drilled into the Lockport Formation in the Niagara Falls area, the upper 10 to 15 feet of the bedrock has been highly fractured. This highly fractured area can act as a pipe or conduit for chemical migration off-site and eventually to the Niagara River. Based upon the water quality analysis of the Hyde Park monitoring wells, major chemical migration has occurred through the upper 14 to 15 feet of the Lockport Formation.

12. With these facts in mind, we proposed a remedial system designed to cut off chemical migration to a depth of 15 feet below the top of the Lockport Formation. This will be done through the use of a hydraulic containment system installed in the overburden and the upper 15 feet of the Lockport Formation.

13. However, the EPA technical team is still very uncertain as to the exact hydrology of this site. We have not totally accepted Hooker's interpretation of the hydrogeology at the Hyde Park Landfill. The Settlement Agreement requires Hooker to gather the additional information needed to fill the existing data gaps, including a complete profile of the extent of contamination within the bedrock system.

14. After evaluation of this data, it may become necessary for EPA and the State of New York to require Hooker to modify the proposed remedial system so that chemicals are collected throughout the entire Lockport Formation, relying on the Rochester Formation as a physical bottom for the technology employed.

15. I believe that after Hooker has gathered the data required in the Settlement Agreement, the proposed remedial system will more than likely have to be modified to reflect a more precise definition of chemical migration from the Hyde Park site.

16. I am not convinced that the exact groundwater flow patterns from the site exist as they have been presented by Conestoga-Rovers in several of their reports. Additionally, I cannot draw any conclusion from the regional groundwater flow patterns in Richard Johnston's report on the hydrogeology of the Lockport Formation which were relied upon by Dr. Kleppinger and Mr. Anderson. Site specific data is necessary before any final conclusion can be made regarding groundwater flow patterns at the Hyde Park site. The data reviewed up to this time, however, indicate to me that groundwater probably flows in northwesterly, westerly, and southwesterly directions (e.g. the directions of flow of the Niagara River).

re what we said.

not relied upon only one small part of future investigation

17. Until we receive the data which Hooker is to produce as part of the Settlement Agreement, it is not possible to totally accept or reject any remedial program. However, based upon present information, I would not recommend excavation.

18. In conclusion, I do not agree with all of Hooker's interpretations of the hydrogeology at the Hyde Park site. I feel that serious data gaps exist that must be filled prior to any final selection of a remedial program for the Hyde Park site. In my opinion, the Settlement Agreement provides for the acquisition of the necessary data, and the re-configuration of the remedial program to reflect such data. As initial or interim remedial measures, an integrated hydraulic containment system using overburden tile drain systems complimented by a purge well system has been and will continue to be utilized at the Hyde Park Site to collect chemicals from the overburden and upper 15 feet of the bedrock and to prevent further leakage of the chemicals from the landfill. Hooker has agreed to study and address the chemical migration from the site to the satisfaction of both the EPA and the State of New York. I believe, through my involvement in these negotiations, neither EPA nor the State of New York will accept any final remedial program that does not effectively cut off the flow of chemicals from the Hyde Park Landfill.

Dr. David Twedell
DR. DAVID TWEDELL

Subscribed and sworn to before me
this 23rd day of July, 1981.

Bernard F. Hurst
Notary Public
My Commission expires November 14, 1981

ATTACHMENT C

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

UNITED STATES OF AMERICA,
THE STATE OF NEW YORK

Plaintiffs,

- vs -

Civil Action No. 79-989

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

AFFIDAVIT OF
RICHARD H. JOHNSTON

Defendants.

STATE OF GEORGIA)
COUNTY OF FULTON) ss.

Richard H. Johnston, being duly sworn, deposes and swears on the basis of personal knowledge that:

1. My office is located at Suite 772, Richard B. Russell Federal Building, 75 Spring Street, S.W., Atlanta, Georgia 30303.

2. I am employed as a hydrologist with the United States Geological Survey (USGS) and am currently the Chief of the Southeast Limestone Aquifer Group. I have been employed by USGS since 1959.

3. During my employment with USGS in 1960 and 1961, I conducted studies in the Niagara Falls area and subsequently prepared two reports, one of which was entitled "Ground Water in the Niagara Falls Area, New York with Emphasis on the Water-Bearing Characteristics of the Bedrock."

4. By an Affidavit of Edward W. Kleppinger dated June 30, 1981, reference was made to the above mentioned report authored by me and reference was also made to a certain conversation which we had by telephone on or about June 9, 1981, concerning the ground water in the Niagara Falls area.

5. In order to correct errors made in that affidavit and clarify the scope of my report and its use in these proceedings, I offer the following statements.

THE REPORT

6. My report (GW-53) is a regional description of ground water resources in the Niagara Falls area. In most of the area, this could be considered a reconnaissance study.

7. However, at the time of the field investigation (1960-1961), extensive excavations and test borings for the Niagara Power Project were available to me. This enabled me to make a more quantitative study of the water-bearing characteristics of the Lockport Dolomite (principal aquifer in the area). My work involved description of the water-bearing openings and hydraulic properties as discussed in detail in the report.

8. Since 1962 I have not been in the Niagara Falls area and am unaware of the recent test drilling and studies related to toxic waste disposal sites except by hearsay from consultants.

9. Therefore, I cannot comment on the suitability of existing data for making site-specific determinations of ground-water movement and certainly would not want to comment on leachate migration or techniques of containment.

10. In summary, my report is useful to someone wishing to understand the general principles of ground-water occurrence and movement in the area. However, I do not believe the report can be used to make accurate site-specific evaluations of complex problems such as leachate migration via ground water.

THE AFFIDAVIT

11. On or about June 9, 1981, I was called by a Mr. Kleppinger who said he wished to discuss ground water in the

Niagara Falls area as described in my report. I considered this an informal discussion and at no time did Mr. Kleppinger advise me that he was seeking information for a legal statement. I regarded our conversation as "off the cuff." Therefore, I am concerned at the reading of his affidavit and wish to clarify several items in it. Each of my comments is preceded by a bracketed number which refers to the numbered paragraph of his affidavit.

12. (40) I was not aware my professional judgment was being sought and considered our talk as informal.

13. (41) The location was not adequately described. Through a misunderstanding, I was led to believe that the landfill site was one-half mile east of the buried conduits of the Niagara Power project. Actually, I learned later from EPA that the site is one-half mile east of the Niagara River gorge. This misunderstanding as to location makes some of my statements to Mr. Kleppinger invalid.

14. (43) More or less true, however, I doubt I said "absolutely."

15. (44) Incorrect. (See comment on paragraph 41.) Had I known the correct location of the landfill, I would have stated that ground water probably moves from the landfill to the gorge.

16. (45) Based on my memory, this is correct but should be verified recited by PASNY.

17. (46) Hard to follow this statement. Figure 7, p. 24 of my report shows seepage from joints along bedding planes due to precipitation of mineral matter from ground water - not ice. It is correct that a monitoring well could penetrate a bedding joint where it is "tight" and that the well would not produce water (or contaminants) whereas a nearby well might produce water (and contaminants) from the same bedding joint.

18. (47) It is correct that the 4-mile long conduits act as drains for the Lockport Dolomite. The 6 foot head loss is my recollection but should be checked with PASNY.

19. (48) Not true for the Hyde Park landfill because of its location - see comments to paragraphs (41) and (44).

20. (49) My statement "dig it up and haul it away" was certainly not meant as a recommendation. I cannot recall my exact words; however, my intention was to pose the question: What will they have to do -- dig it up and haul it away? Again, this was part of an informal discussion and not intended as my recommendation for remedial action.

Richard H. Johnston

Richard H. Johnston

Sworn to before me
on this 20th day of
July, 1981.

Jacqueline A. Strawn

NOTARY PUBLIC

a/k/a Jacqueline L Strawn

Notary Public, Georgia, State at Large
My Commission Expires April 26, 1985.

ATTACHMENT D

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

UNITED STATES OF AMERICA,
THE STATE OF NEW YORK

Plaintiffs,

- vs -

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

Defendants.

Civil Action No. 79-989

AFFIDAVIT OF
ALFRED W. LINDSEY

DISTRICT OF COLUMBIA) ss.

I. INTRODUCTION

1. I am Deputy Director, Hazardous and Industrial Waste Division, Office of Solid Waste and Emergency Response United States Environmental Protection Agency ("EPA" or "the Agency"). My business address is 401 M Stret, S.W., Washington, D.C. 20460.

2. Pursuant to the Resource Conservation and Recovery Act of 1976 (" RCRA"), 42 U.S.C. §§6901 et seq., EPA is developing national standards and a national program for hazardous waste disposal. In carrying out this Congressional mandate, EPA has done extensive research on the nature and scope of the hazardous waste disposal problem in the United States and has developed significant technical expertise in solid and hazardous waste management.

3. I have a B.S. in pulp and paper technology (a degree very similar to one in chemical engineering) and have done graduate work in environmental engineering. I worked in industry for eight years in technical, managerial and pollution control positions. I have been at EPA for nine years working in the area of solid and hazardous waste management. My current duties include responsibility for managing development of technical regulations for identifying hazardous wastes and for treatment, storage and disposal facilities. I have previously been responsible for overseeing economic evaluations of the impacts of EPA's hazardous waste regulations and for policy matters such as the acceptance of sites by citizens.

4. In this affidavit I will discuss the potential problems associated with finding a suitable site to dispose of material exhumed from a hazardous waste landfill, and some environmentally protective alternatives to exhumation.

II. ALTERNATIVES TO EXHUMATION

1. There are procedures which can help ensure that wastes deposited in a landfill will remain securely stored. Moreover, there are a number of methods for determining whether any constituents of any waste are migrating from a landfill.

2. Proper closure of a site, which includes capping with an impermeable membrane or with low permeability material and proper sloping and grading, will reduce liquid infiltration into the site and thus little leachate and no hydraulic head (which is the force which drives hazardous constituents out of a landfill) would be formed. A properly designed leachate collection system can further reduce the potential for migration of wastes from a site.

3. Groundwater monitoring wells at a site can generally detect any migration of waste constituents from a landfill. To augment this, any nearby springs, streams or wells also can be monitored for contamination.

4. Contingency plans and systems capable of being implemented quickly to protect against the spread of any contamination (if it occurs) can be designed for most situations. These plans, if properly executed, should ensure the prevention of migration of hazardous substances before danger to human health or welfare occurs. The most common approach is to counterpump any contaminated groundwater.

but not this one

contradicts Dr Tweedell

only applied after GW flow

III. LOCATING AN ALTERNATIVE SITE

1. Based on my knowledge of the hazardous waste disposal industry in the United States, I believe that it will be very difficult to find a site or sites which would accept all of the waste exhumed from the Hyde Park Landfill. I believe that most reputable operations, fearing opposition from the local populace, would hesitate to receive such highly publicized and highly politicized waste.

2. One example which shows how strong and how widespread such local opposition can be is the failure of EPA's demonstration grant to the State of Minnesota for development of a hazardous waste management facility. Local citizen opposition succeeded in preventing all attempts to site a facility with the State. Minnesota returned the demonstration grant money to EPA in 1978 after three years of effort.

Alfred W. Lindsey

Sworn to before me
on this 23 day of
July, 1981.

Lillian E Ross
NOTARY PUBLIC District of Columbia

My Commission Expires April 14, 1986

ATTACHMENT E

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

UNITED STATES OF AMERICA,
THE STATE OF NEW YORK

Plaintiffs,

- vs -

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

Defendants.

Civil Action No. 79-989

AFFIDAVIT OF
RUSSELL H. WYER

DISTRICT OF COLUMBIA) ss.

Russell H. Wyer, first being duly sworn, deposes and says:

I. INTRODUCTION

1. I am Acting Director, Hazardous Site Control Division, Office of Emergency and Remedial Response, United States Environmental Protection Agency ("EPA" or "the Agency"). My business address is 401 M Street, S.W., Washington, D.C. 20460.

2. I have a B.S. degree in Civil Engineering from the University of California, Berkeley, and have done graduate work in sanitary engineering. I have also received training in the public health aspects of chemical, biological, and radiological warfare. I have served in the U.S. Public Health Service for five years, have been a consulting engineer, and for the last sixteen years have been employed by the U.S. Environmental Protection Agency and its predecessor agencies. I have been in my present job for eleven years working in the area of oil and hazardous materials control.

3. In 1977 I served as EPA Coordinator on Project Pacer HO in which 2.6 million gallons of toxic wastes containing 2,4-D, 2,4,5-T and dioxin were destroyed at sea on board the incinerator ship VULCANUS.

While serving in this capacity, I supervised the de-drumming, loading and vessel transport of chemicals, high temperature incineration and vessel decontamination.

II. CLEANUP AND REMOVAL OF HAZARDOUS SUBSTANCE

A. Human Health and Environmental Problems Associated with Cleanup of Hazardous Substances

1. There are potential human health and environmental dangers associated with the cleanup (including exhumation) of hazardous chemicals or wastes. With proper care and procedures, these dangers can be reduced, but never completely eliminated.

2. Before undertaking any cleanup action at a hazardous spill or waste site, EPA examines the entire site and surrounding area for any actual or potential hazards. EPA (usually in conjunction with a state pollution control agency) then weighs the relative risks among all possible courses of action.

3. Hazardous waste which has been buried in drums generally must be exhumed very carefully, because heavy machinery may damage barrels thereby releasing wastes which can create gaseous emissions, reactions and the potential for fire and explosions.

4. There is always danger to workers cleaning up hazardous waste from direct contact with toxic or corrosive wastes, although these dangers can be reduced by wearing protective clothing. That clothing, however, is very cumbersome and can contribute to fatigue and accidents.

5. There is also the danger to workers from inhalation of toxic gases during cleanup of hazardous chemicals and wastes. These dangers can be reduced by wearing self-contained breathing apparatus, but some of the same problems associated with the bulkiness of protective clothing are associated with the weight of the self-contained breathing apparatus.

6. Emissions of vapors from hazardous volatile waste can result if corroded or damaged drums are unearthed. Gaseous emissions may also be caused by reactions among incompatible wastes.

7. Gaseous emissions, fires and explosions also may endanger any people in the area around the site, as well as the workers at the site.

Stuttz general - does what does this do w/ HP

8. For each barrel with unknown contents, the contents must be sampled and analyzed. Drums may need to be opened and those which have a badly rusted bung or which cannot be opened, may need to be sampled with a hydraulic penetrating device.

Use K on those already rusted - need w/ soil- easier to sample

B. Human Health and Environmental Problems Associated with Repackaging and Transport

1. All material in damaged barrels must be repackaged. Such repackaging can be one of the most dangerous operations for workers because it is difficult to accomplish without spilling the waste. Spillage raises the risks of gaseous emissions, reaction, fires, and explosions.

2. Whenever hazardous waste is transported, there is always the possibility of an accident or spill. This then may expose another populace to all the dangers associated with the particular waste.

Russell H. Wyer, P.E.

Sworn to before me
this 23 day of
July, 1981.

Lillian E Ross
NOTARY PUBLIC

District of Columbia

My Commission Expires April 14, 1986