Cela #7 (7)
CELRF (14)

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

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

Defendants.

COMMENTS ON PROPOSE
SETTLEMENT AGREEMEN

After review of the proposed settlement agreement, the Ecun cal Task Force (ETF), wishes to offer the following comments and obje tions at this time. We note, however, that although public comment v solicited pursuant to the dictates of 28 CFR §50.7, there was no supp ing data, testing results, or documentation filed with the Court for public review. It is our position that interested and qualified ind uals and organizations are unable to provide substantial input witho reasonable opportunity to examine the data upon which the settlement were predicated. It is therefore requested that such documentation made centrally available for public inspection, and that an opportun be given for additional comment after reasonable review of relevant data.

The parties to this action have advised the Court that imm settlement is advantageous because it would facilitate commencement

remedial action. While ETF is fully cognizant of the enviornmental haza associated with Hyde Park Landfill, a preliminary review of the proposed agreement, and consultation with our medical, technical, and scientific experts require our conclusion that the settlement terms proposed will r achieve effective isolation of the chemicals in Hyde Park Landfill from the surrounding environment. In addition, implementation of the proposa may significantly increase health risks to workers and residents in the communities surrounding the Landfill, Bloody Run Creek, the Hooker incin erator, and any segments of the public who use downstream portions of th Niagara River and Lake Ontario.

For the many reasons set forth below, we believe that the agre ment should not be ratified without material modifications, even if full litigation of the claims originally asserted results.

I. THE CONTAINMENT PROGRAM

1. There is serious question as to the viability of the containment program as it is set forth in Addendum I. The technology of perimeter capping the landfill (I-1, B(1)), is not "requisite" as define in the agreement (at Page 7, 4(b)), in that the remedial technology planned will not eliminate chemical migration into the surrounding environment. An independent assessment of the adequacy of the technology proposed by the parties was undertaken by Dr. Edward Kleppinger and is annexed, with his addendum, as an integral part of this commentary, (as Attachment "A"). It is Dr. Kleppinger's opinion that

a) The containment technology selected is fundamentally defective.

b) The Niagara Falls incinerator owned by Hooker Chemical & Plastics Corporation cannot meet destruction efficiency regulations, a so any representation within the agreement that destruction technology be used is illusory.

c) The duration and amount of financial responsibility Hook and Occidental accept bear no reasonable relationship to either the co involved in the proposed action, or the hazard life of the chemicals f which maintenance and monitoring will be perpetually required.

d) It appears that sufficient testing and analysis for iden fication and quantification of chemicals and migration routes has yet be done. A reasonable remedial plan cannot be devised prior to under- standing the full nature and extent of the problem.

2. In addition to Dr. Kleppinger's evaluation of the contai ment plan as a whole, additional questions with respect to certain pro sions and omissions in the containment and monitoring addenda were rai by John L. Kieffer, and are annexed herein as Attachment "B." Other p visions in Addendum I which provoked question included the following:

a) On what technical basis were 200' internals for soil sam determined to be adequate?

b) In boundary confirmation sampling, why was a soil survey level of 100 ppb selected for TCP and HCB when a 10 ppb level is indi for MCB and MCT? (I-4).

c) Why are no soil samples to be taken more than 5' below ground level? Couldn't sub-surface migration extend beyond surface m tion given the stratigraphic composition of the areas surrounding the landfill site?

d) Why are samples frequently composited prior to testing? Use of composites could cause inaccurate depiction of true chemical concentrations present at various soil sites. Also, only accurate individual sampling and testing would reveal specific migration pathways of various chemicals. (See I-3, C(1)).

e) Given the multiplicity of chemicals located in the Landfil isn't it true that certain chemicals may not be discernible in the field by visual and/or olefactory examination of "non-aqueous phase liquids?"

f) Isn't completion of piezometric and potentiometric surface measurements normally required before an adequate monitoring plan can be devised?

3. The agreement nowhere specifies where vast quantities of contaminated wastewater and leachate will be stored prior to treatment. It appears that no facilities beyond two lagoons present at the site hav been contemplated. It further appears that the lagoons currently in use are unlined and that their integrity is untested.

If these lagoons are used as storage facilities for untreated liquid wastes, it is imperative that each is first drained, dredged, and fully lined, preferably with HDPE (high density polyethylene). In addition, because of the extreme toxicity of many chemical parameters involved, and the volatilization characteristics of numerous organics, including PCB's, a bubble or dome should enclose the lagoons. It would be preferable, however, to require closed storage tanks and undertake closure of the open lagoons in accordance with federal regulations.

II. HEALTH AND SAFETY OF WORKERS AND RESIDENTS

1. After consultation and review of the proposed settlement agreement with Dr. Samuel Epstein, a toxicologist and cancer expert at the School of Public Health, University of Illinois (Chicago), and Dr. James Allen, an environmental pathologist who has extensively studied the affects of dioxins on primates (see annexed resumes), the ETF strongly urges that this Court withhold ratification of the proposed settlement agreement until the following issues are adequately resolved:

1. Full identification and disclosure of health risks from the existence of the Landfill and the proposed remedial activities, to workers and residents in the community, and personnel participating in the remedial program;

2. Correction of deficiencies with respect to monitoring for airborne contaminants;

3. Expansion of medical examinations to be provided for on-site personnel;

4. Complete health studies for affected residents and workers, as well as all on-site personnel participating in the remedial program;

5. Permanent (voluntary) relocation of residents.

2. It is basic that in a damage assessment action initiated to protect public health and the environment, standard items to be analyzed with respect to contaminants are the sources, pathways, and receptors. The United States Environmental Protection Agency clearly has the authority under §3013 of the Resource Conservation and Recovery Act to compel monitoring and testing. This testing would facilitate complete identifi-

cation of the nature and scope of contamination, and should be reasonabl completed prior to development of a remedial action. (See Attachment "(letter from Hugh B. Kaufman, United States Environmental Protection Age and specifically #6).

It appears, from the proposed settlement agreement, and from presentations by the parties to the Court on February 10, 1981, and to the public on February 19, 1981, that entire segments of the proposal merely incorporate plans for studies, monitoring, and testing and that health risks have not yet been defined or quantified, either in terms of the substance, or designation of exposed or affected populations.

It is the understanding of ETF that the terms of this agreemen will set a pattern for future settlements in actions brought because of imminent hazard to health and the environment. Therefore, public policy dictates that the affected public be afforded full disclosure of all kn probable and potential health risks from Hyde Park Landfill and from th proposed remedial program. In addition, because this action was brough to protect public health, any settlement approved by the Court should i clude adequate and specific provision for public protection from increa health risks from implementation of remedial action, especially given t severity of the consequences of exposure.

It is impossible for the parties to provide full disclosure either prior to or during the course of implementation of remedial acti since data has not been fully developed to date, and the monitoring pro sions as proposed will not measure most chemical levels of airborne con taminants.

3. In order to specify and quantify adequate testing paramete and detection limits for airborne contaminants, it is necessary to obtai a complete disclosure of all chemicals contained in Hyde Park Landfill. Dr. Epstein cautions that water solubility of chemicals is not an absol but rather is a question of degree. And, in a situation where organic materials (ie., solvents), are present in the water, solubility of ordi arily low solubility chemicals (ie., lindane), is increased. (See also Hart Study, "Addendum to Attachment I" at page 44, paragraph 2).

Our consultants warned that use of TCL and HCB as surrogates TCDD is only valid where <u>firm</u> experimental data shows that there is a constant ratio of those particular indicator agents to TCDD contained i the Landfill. Likewise, use of surrogates is in most cases only justif when there is a constant ratio of the indicator agents to all of the ot known chemicals contained in the particular landfill. The ETF wishes t examine any data indicating such a constant ratio which was utilized by the parties in selection of surrogate parameters.

A constant ratio situation seems highly improbable with respe to Hyde Park Landfill, when as the Hart Study (Addendum to Attachment 1 noted that:

> . . . because many of the contaminants are relatively insoluble, they become distributed in a heterogenous fashion in ground water and surface water. This means the concentrations of a given pollutant in surface or ground-water samples may vary dramatically over time, and from one location to another. In addition, the densities of the different pollutants vary, further contributing to their erratic distribution in aqueous media. Moreover, some chemicals may be relatively insoluble in water but are soluble in such solvents as toluene and benzene which are believed to be disposed at these sites.(30) Thus, the behavior of such contaminants in the ground water and surface water resources near the Hooker sites is unpredictable. (At page 22)

In addition, Hyde Park Landfill contains non-chlorinated c chemicals and heavy metals for which there are no indicator paramete be tested for evidence of migration.

4. Of particular concern are the provisions in Addendum V the section "Monitoring" for testing of airborne contaminants. Test only two parameters is planned for the presence of organic vapor lev There are numerous volatile chemicals in Hyde Park Landfill which ar highly toxic to humans at low exposures (ie., PCB's), and for which organic vapor levels will be measured. If additional parameters are tested, workers and residents will be subjected to unknown and unme incremental health risks.

In addition, detection levels set are much too high since trichloroethylene and benzene (as well as many others not monitored present a severe hazard to human health at significantly lower exp than the limits of detection to be monitored. The monitoring leve for benzene and TCE are not protective of human health, since thes are effectively higher than the levels of permissible occupationa ure. Even where OSHA standards are used, exposure time is calcul the basis of an eight hour/five day/per week exposure. Residents from remediation activities are exposed seven days per week/twen hours a day.

The Plaintiff United States in its Complaint against H et al., in this action sets forth the severe health impacts resu from exposure to trichloroethylene and benzene, and numerous ot cals contained in Hyde Park Landfill and found to be leaching i environment. (Paragraph 19, pp. 10-16).

Dr. Epstein, in The Politics of Cancer, notes that

> . . . .the primary route of entry [of benzene] into the body is inhalation with rapid absorption from the lungs into the blood. Benzene accumulates in various organs and sites of the body in proportion to their fat content. Most is rapidly metabolized, primarily by liver enzymes, to water soluble derivatives which are excreted in the urine. (At Page 132).

In addition, Dr. Epstein cites a study completed in the summe of 1977 by Dow Chemical Compnay involving extensive chromosome tests pe formed on workers who were exposed to "low" benzene levels believed to under ten parts per million. The Dow study confirmed the occurrence o chromosome damage in workers with average exposure levels of two to th parts per million to benzene. (At Page 133).

Studies exist for numerous chemical waste types contained in Hyde Park Landfill as cited at Paragraph 18 of the Federal Complaint i U.S. v. Hooker, Civil No. 79-989, which indicates acute and chronic tc health effects from low dosage exposure to each.

Therefore, it appears the levels being tested for trichloroe lene and benzene exceed levels at which exposure poses hazard to huma health, and that other chemicals of equivalent or greater toxicity wh are capable of volitalization are not being tested for at all.

Compounding these problems, both Dr. Epstein and Dr. Allen strongly that while each level cited is unacceptable individually, in case of Hyde Park Landfill and the planned remedial action, concurrer exposure to multiple chemicals is probable, so that additive and syne tic reactions in the body will likely occur.

Multiple exposure to highly toxic organic chemicals create

situation where one or more compounds can potentiate the effect of other chemicals, (ie., PCB's and dioxin), so that the toxic impact within the body is greater than one would expect from the presence of each individually. Also, exposure to multiple toxic chemicals tends to create a greater physiological susceptibility to illness than equivalent total exposure to any one chemical. Also, many chemicals follow the identical routes of concentration in the body and attack the same organs. There is evidence that TCDD, probably the most toxic chamical in the Landfill, is hazardous to human health in parts per trillion where prolonged exposure occurs.

The GC (gas chromatograph), equipment planned for use in testing organic vapor levels would be inadequate if the required level of detection is significantly lowered. In that even, GC-MS (gas chromatography-mass spectroscopy), equipment would be necessary.

5. Airborne contaminants include particulates, gaseous vapors and aerosolized chemicals and exposure will occur through inhalation, ingestion, and direct absorption into the skin. Therefore it is necessary to test for the presence of each chemical in order to accurately advise workers or residents of exposure and attendant health risks. Testing and analysis for MCT, MCB, TCP, and HCB content in particulates is grossly inadequate for the same reasons set forth above. There are many other chemicals, organic and inorganic, for which exposure may occur, which will not be measured by testing of indicator parameters.

Adequate placement of ambient air monitoring stations (up and down wind of the landfill site and remedial work areas), cannot be planned without determining or designating potentially affected populations,

selecting proper equipment, and testing for adequate parameters at suff
iently low detection levels.

6. The provisions for medical examinations of on-site perso
are inadequate with respect to duration and scope. The agreement (at V
C(1)), states that the final medical examinations of on-site personnel
shall occur one year after termination of employment. Ongoing screeni
for the lifetime of the worker is necessary since many of the most seve
health impacts are revealed after various periods of latency, (ie., fi
to twenty years).

The medical tests listed (in 2(a) and (b)), will in many cas
not register early changes or chromosomal abnormalities which frequent
show later than one year subsequent to exposure. Only if high dosage
posure occurs during employment would acute symptoms be likely to be
strated in early examinations (ie., neurological or bone marrow damag

Also, women impregnated by men working on-site are potentia
at permanent risk of increased incidence of miscarriage and increased
of bearing children with birth defects. This is related to chromoson
damage to sperm, for which no testing provisions are included. It is
opinion of our experts that screening for chromosomal abnormalities
lymphosite cultures), should be performed prior to, during, and subs
to employment for all workers involved in the remedial program. Thi
is important since many chemicals which cause chromosome damage also
cancer.

The planning and implementation of tests designed to meas
the presence of chemicals in the body, or to diagnose illness relat

chemical exposure is a difficult and complex undertaking, which requires a physician knowledgeable in occupational or environmental medicine.

Since many halogenated hydrocarbons follow specific metabolic routes in the human body, it is necessary to identify the chemicals to which exposure has occurred, in order to properly select tests to determine their presence. In addition, problems arise with the detection lin of chemicals which may show in parts per trillion in the blood, but concentrate in the adipose tissue or in specific organs in parts per millic In order to measure the risk of specific long-term health impacts, it is necessary to know where in the body to look for each chemical.

The six compound chemicals to be tested for metabolism in the body are insufficient for protection of workers. Additional parameters should be included. A determination should be made with respect to eac parameter whether it is the parent compound or the metabolite which sho be searched out as the injurious substance.

No physician employed by or associated with Hooker should be involved in the planning or performance of medical examinations since there is a potential future conflict of interest and possible impairmen of privacy rights of persons being tested.

7. It is the opinion of our medical consultants that because of acute and chronic toxicity of the chemicals contained in the Hyde Pa Landfill, and the probability of increased health risk during implement tion , all residents within a properly designated radius from the Landf and remedial construction area must be removed before any activities begin. (See Kaufman, Attachment "C," at #1. Epstein and Allen complet concur).

It was represented at the February 19, 1981, meeting that if "catastrophe" occurred there would be immediate evacuation of residents The question then arises whether preventable exposure to multiple chemi cals capable of causing cancers, genetic damage, birth defects in off- spring of those exposed, and numerous other adverse health impacts, rep sents a catastrophe, and at what risk and/or exposure limits? In other words, how many residents will be placed at risk, and to what degree of hazard must they be subjected before the ambiguous language in the pro- posed agreement will require relocation? Since many of the most seriou health consequences of exposure to these chemicals are not immediately ascertainable, a situation is created where residents act as human guin pigs.

It is provided in the proposed agreement (at V-14), that dail particulate samples will be collected and tested. However, only four indicator parameters are tested, and teh monitoring levels are not sufficiently low to protect human health. The conditions under which Hooker must suspend activities are also not sufficiently specific or stringent to protect the health of residents. The margin of error shou be on the side of caution where the most basic rights and health of the public are at issue.

It appears that Hooker has discretion to decide when "special construction activity" precludes use of property so as to require tempo ary relocation. Hooker is a private entity responsible to its shareho and has a prevailing self-interest which does not coincide with the affected residents at risk. Yet there is no decision-making control by governmental bodies responsible for protection of public health.

Also, particulates not exceeding "background" for fifteen minu intervals, and not requiring suspension of construction activities could still over time create repeated and multiple hits (exposures), of known carcinogens, mutagens, and teratogens which will place surrounding commu ities within a certain distance from Hyde Park Landfill at an undetermin but certainly increased health risk.

By the time sampling is taken, testing occurs, sampling result are reported to State and Federal agencies, appropriate officials confer with Hooker as to the necessity for relocation, and agreement is then reached as to what should be done and who should be included, the damage has long since occurred. It is entirely likely that repeated exposures will occur which will, under the terms of this proposal, necessitate no action.

The ETF learned in providing assistance to residents and State officials involved with Love Canal relocation that temporary relocation creates severe social and psychological impacts upon its victims, incluc ing disruption of family routine, increase in marital dissolution, inter ruption of schooling of children, and loss of the sense of security and community to both children and adults. Given the massive amount of remc ial work required at Hyde Park Landfill, temporary relocation could be intermittently necessary for a period of up to five years. It is inequi able to require innocent members of the affected public to be twice innc cent victims, once of exposure to hazardous chemicals, and secondly to suffer uprooting from community and uncertainty as to future to accomod: Hooker's remedial responsibilities.

The provision for "sealing" of dwellings is impractical, sinc complete sealing is almost impossible, and contaminants settle in grass soils, and upon the outer structure of homes and garages.

While our experts cannot definitively suggest what protocols, testing parameters, and preventive actions are absolutely necessary for the protection of public health without review of underlying data, ther is clear agreement that what has been proposed is absolutely inadequate even with the very limited information at their disposal.

8. Health studies, and a complete health monitoring program, shoudl be implemented for the benefit of exposed workers and residents within a properly designated radius from the Hyde Park Landfill.

Many adverse health impacts resulting from exposure to contar inants contained in Hyde Park Landfill are still unknown or unproven, especially those involving health effects on offspring of affected ind uals. It is clearly in the public interest to develop a tracking syst which will provide additional data regarding causal relationships betw exposure and health impacts.

Most important, those portions of the public which have been involuntarily placed at increased health risk, should be tested and mo tored to facilitate early diagnosis of chemical-related illness and ob early treatment.

The Ecumenical Task Force of the Niagara Frontier, in this commentary, has set forth some basic concerns with respect to the adec of the remedial program and provision for community health and safety the consideration of the Court and the parties.

Respectfully submitted,

BARBARA MORRISON

EWK CONSULTANTS INC.
ENVIRONMENTAL MANAGEMENT SPECIALISTS
407 "N" ST., S. W., WASHINGTON, D. C. 20024
TELEPHONE (202) 488-1015

March 6, 1981

Barbara Morrison
Attorney at Law
1032 Ellicott Square
Buffalo, New York 14203

Re: Preliminary Review of Proposed Settlement Agreement on Hyde Park Landfill

Dear Ms. Morrison:

I am forwarding this preliminary response to the request of the Ecumenical Task Force for my professional evaluation of the technological viability of the containment plan proposed for Hyde Park Landfill.

The assessment and control of past hazardous waste disposal practices is currently one of our most complex and difficult environmental problems. Of particular concern is the fact that resolution of any hazardous waste disposal problem can involve a multitude of disciplines. I have directed and coordinated the use of these disciplines in order to determine proper remedial action for particular hazardous waste disposal problems. My expertise is broad-based in developing a team of specialists and integrating their collective knowledge to plan remedial strategies. This capability is especially critical in this particular field where we are confronted with new and complex problems.

Although I have read the proposed settlement agreement and possess specific additional knowledge of that particular site, it is impossible to responsibly prepare a comprehensive analysis of the adequacy of remedial techniques proposed without a review of hydro-geologic, engineering, and chemical analytic data.

As I have previously indicated, should the Court require the parties to produce all relevant data for inspection, only then can a complete evaluation be undertaken. Therefore, all statements and opinions expressed in this letter must be qualified by my lack of data and my intent to only generally acquaint the Court with some of the more fundamental conceptual flaws contained in the proposal.

In my opinion, the Court should be strongly encouraged to refus to approve the settlement without prior independent and objective judicial scrutiny of the scientific and technological components of the agreement for two reasons:

1. It is my understanding that the Hyde Park Landfill contains the largest deposit of TCDD (dioxin) in the world.

2. On the basis of my limited data, I believe that the contain ment technology proposed by the parties in this case will not work.

Given the qualifications and limitations stated above, I believ that my particular background uniquely qualifies me to address techn logical problems involving the Hyde Park Landfill, since my extensiv experience with both private industry and the Environmental Protecti Agency has intimately familiarized me with practical, technical, and regulatory problems associated with hazardous waste disposal and cleanup, and specifically with Hyde Park Landfill.

As you are aware, I am by education a chemist with expertise i the field of hazardous waste. I taught chemistry at the university level after receiving my Ph.D. in 1965, and subsequently served as Director of Laboratory Services at the York Research Corporation (environmental testing and research company), as Director of Envirc mental Control at Celanese Corporation, and as Director of Environ- mental Quality at International Telephone and Telegraph. At both Celanese and IT&T, I was responsible for developing policies and procedures and implementing corporate pollution control programs. In 1976 I managed a hazardous waste treatment and disposal facilit which handled waste streams from over one hundred generators.

From 1977 I have acted as a private consultant to both indust and the federal government, and I am President of EWK Consultants Inc., located at 407 "N" Street, S.W., Washington, D.C., 20024.

I participated in the development of RCRA (Resource Conserva and Recovery Act) regulations for the handling of hazardous waste This included participation in internal EPA working groups defini hazardous waste and standards for generators, transporters, treat storers, and disposers. In addition, I have acted as a technica consultant to the United States Attorney and EPA in evaluating t viability of proposed control technology in the first applicatio RCRA's §7003 imminent hazard authority. I was involved on behal EPA in evaluating stabilization technology for Love Canal and fc the Salisbury Laboratory hazardous waste disposal site in Iowa.

I have since conducted a number of investigations for EPA to determine the existence of imminent hazard under RCRA. Also, I have evaluated the acceptabilty of applications of incinerators for combustion of PCB's and have conducted PCB inspections with respect to the NEWCO and SCA landfills in Niagara County for Region II EPA.

In October of 1980, EPA requested that I participate in a seminar prepared for the benefit of the Indian Government on environmental impact assessment, and the topic which I was asked to address was health impact assessment.

Also, my private consulting activities have included technical (environmental) investigations of companies, including chemical plants, hazardous waste disposal firms, and rolling mills, which apply for pollution insurance, (ie., for slow and sustained release from a facility causing off-site damage), not available through any general liability policies and unobtainable without prior engineering surveys of applicants.

My environmental investigative work also includes due diligence investigations of corporations which may be involved in merger or acquisition procedures. In general, the federal securities laws require a determination that a fair exchange with respect to stocks or funds offered in a corporate acquisition situation is being tendered after full disclosure of assets and liabilities. In an highly technological society, it has become necessary to include a technical component to many such investigations to determine whether an acquiring company or a company to be potentially acquired, has significant environmental and occupational safety and health problems (potential or actual liabilities) which have not been disclosed.

I have participated in a number of merger due diligence evaluations to determine undisclosed environmental problems, the classic example of which is perhaps the takeover battle between Mead Corporation and Occidental Petroleum. During fulfillment of my responsibilities to Mead's attorneys, who were managing the investigation, I became specifically familiar with the Hyde Park Landfill, which was only one of Hooker's many disposal sites for which undisclosed liabilities were possible because of past disposal practices. My investigation of Hyde Park Landfill included discussion with residents, scientists, State and County officials, and evaluation of internal documents from Occidental Petroleum which were obtained through legal discovery. All such documents were later publicly released by the Securities and Exchange Commission and NYDEC Interagency Task Force on Hazardous Waste Disposal in Erie and Niagara Counties.

In addition, I coordinated and directed the work of several engineering firms involved in the investigation, including the firm of Fred C. Hart & Associates, which prepared a report on Hyde Park Landfill, which is enclosed and to which I refer below. I point out here that my familiarity with Hyde Park Landfill data ends as of January 1979, when my services were completed. However, I can at this point make the following observations.

The Hyde Park Landfill is a unique site. It contains vast quantities of a complex and highly toxic mixture of organic chemicals, primarily chlorinated organic chemicals, which are among the most dangerous in the chemical business. As one example, the man made compound which is reported to be the most toxic of all non-naturally occurring compounds, TCDD, (dioxin), is in Hyde Park and back calculations indicate the presence of almost two thousand pounds. As a frame of reference, the TCDD in all of the agent orange sprayed upon all of Vietnam during the entire war is reported to be no more than one hundred thirty pounds.

In addition, based on 1953 aerial photography and documents obtained from regulatory agency files and later released by congressional investigating committees, there was no preparation of the land before Hooker began disposing of wastes. Indeed it would appear that excavations were made to bedrock. I have no present information about the extent of contamination in the bedrock. However, the Lockport Dolomite is an unique geologic formation in that the limestone does contain significant amounts of groundwater which move in vertical fractures as well as horizontal bedding plains. The aerial extent of these bedding plains is in the neighborhood of miles. They can act as pipelines, and the potential is for large quantities of contaminated leachate to move long distances in these bedding plain aquifers. This is unlike a typical situation where the contamination moves in a more consistent and coherent plume fashion through an aquifer.

In any hazardous waste situation, there are only three general alternatives. One is to allow the hazardous waste to continue to move and seep into the general environment. The second is to attempt to contain the hazardous waste site, as a temporary expedient which I term stabilization, (ie., Love Canal), or as a more permanent encapsulation and monitoring of a site as has been undertaken with numerous "secure" hazardous waste landfills. The third technique for handling a hazardous waste situation is to destroy the hazardous waste. In general, this is the best strategy. This removes the material from the environment and relieves future generations of the need to perpetually watch over the hazardous material. In order to devise an appropriate control strategy and technology for this particular site, data relating to the type, extent, amount of contaminants and geohydrological information is needed. It is difficult, if not impossible, to develop an appropriate control technology until knowledge is acquired as to how far and in what media and what kinds of contaminants have spread at what concentrations.

Containment is long-term storage and must be viewed as long-term storage. It is not disposal. Thus, if one chooses the containment option, it is necessary to provide long-term care and monitoring for the life of the hazard. In the case of Hyde Park Landfill, it would appear that the materials contained in the landfill and which are leaching into the environment are materials which have an infinite hazard life. They are not materials such as radioactive materials which have a definite halflife. It appears from the proposed consent decree that the parties have selected in the case of Hyde Park to implement a containment-type strategy. From my knowledge of the site, the strategy chosen to be implemented is inadequate. Basically, this flows from the following analysis.

In order to contain something, one must have and construct a box. The box must have a top, sides, and a bottom. Otherwise, the materials placed inside cannot be contained.

In the case of the Hyde Park Landfill, it appears that there is no bottom. That is to say, based on available evidence, it appears that the landfill was installed on the top of the bedrock, and the bedrock is highly fractured. Therefore there is no solid bottom to the box. Technically, there is no way in this case to install a solid bottom to the box. This is why in the cases where the material is highly hazardous and it is necessary to keep it isolated from the environment, it is necessary to remove it and replace it into a well prepared and constructed box. This is being done in the case of the Hooker Chemical Facility in Montague, Michigan. The wastes which were disposed of to the ground have been required by the Department of Natural Resources in the State of Michigan to be removed and installed in a secure clay vault. This vault has a bottom, sides, and top constructed out of relatively impermeable clay.

Again, I wish to point out that if one chooses a containment strategy, an inescapable part is to make certain that the containment system is maintained for the life of the hazard. If there is no such provision, then the containment strategy will fail at some point in the future. My experience indicates that provision for long-term perpetual care and maintenance of hazardous waste landfills is usually the most expensive feature of containment technology.

If one compares the cost involved in utilizing containment technology at Hyde Park (including creation of containment device along with monitoring and maintenance), with the cost of waste destruction in a thermal incinerator, they are approximately equal. That is to say that the destruction technology has a higher capital intensive cost, but the wastes are destroyed and gone forever. Whereas, the containment technology has a lower initial cost, but the cost of monitoring and maintenance for the hazardous life of the chemicals (forever in the case of Hyde Park), equalize total investment. (See Addendum entitled Assessment of Extent of Environmental Problems Posed by Hooker Chemical Dumps in Niagara Falls . . ., prepared by Hart - January 8, 1979; see specifically pp. 40-69).

It would appear that the techniques that are proposed by the parties for a bottom to the Hyde Park Landfill, and I refer specifically here to the barrier collection system, are inadequate to control the flow of leachate from the site. This is because the Lockport Dolomite is highly fractured and movement in the bedding plains tends to be random in a "pipeline fashion." Even if the barrier protection system was completely effective, it would require operation for the life of the hazard. This is in part because there will be a constant infiltration of rainwater into the Hyde Park Landfill even through the relatively "impermeable" clay cap. The landfill covers fifteen acres and when small amounts of infiltration are extrapolated over fifteen acres, large amounts of water are collected within the landfill, in the nature of tens to hundreds of thousands of gallons a year.

Even after clay capping was placed in the Hyde Park Landfill in 1979, the landfill was evidently still generating almost two million gallons a year of leachate as reported by Hooker Chemical Company to EPA in its RCRA application. The point is that even where a containment technology selected is perfect, the monitoring and control and treatment of leachate must go on for the life of the hazard.

It appears that Occidental Petroleum's liability for this treatment and monitoring expires after thirty-five years, (or five or ten million dollars, whichever comes first). Yet the cost of treating the million eight hundred thousand gallons a year of waste water which is now being generated can be estimated at three hundred thousand dollars in present day dollars per year. I assume that the five million and ten million dollar guarantees are fixed dollars rather than 1981 dollars. So as the cost of the treatment escalates from three hundred thousand a year by as much as ten percent or twenty percent each year, the five to ten million dollar guarantee will be consumed. And perhaps even more important, treatment constitutes only one small cost of maintaining a multi-process, complex, and expensive containment system.

In summary, the two issues which I have chosen to address are as follows:

First, the parties have chosen a containment route which is defective in this situation in that they have tried to contain a site that doesn't have a bottom. That in my judgment cannot be done at this site. Secondly, even if it could be done at this site, they have chosen not to provide adequately for perpetual, and I do mean perpetual, erosion control, leachate treatment, concentrated organic leachate treatment, monitoring costs, monitor well construction, redevelopment, and operation of the barrier collection system. The Court should note that the million, eight hundred thousand gallons of leachate is evidently being generated

without use of the barrier collection system and is not clear how much additional waters will be generated with the barrier collection system.

The successful use of the barrier collection system is predicated upon the ability of the technology to intercept all of the contaminated groundwater and pump it up for treatment. It should be pointed out in order to be totally effective, the barrier collection system must inevitably intercept large quantities of non-contaminated groundwater which becomes mixed with the contaminated groundwater, diluting it, thus making treatment more expensive.

If a destruction technology is to be applied to this site, the most reasonable choice would be incineration technology. However, this most logically would necessitate construction of a new incinerator near the Hyde Park Landfill since the current incinerator appears to be relatively small and not equipped to handle solids. It could not handle the volume that would have to be incinerated in order to destroy the materials at the Hyde Park site on any reasonable time basis. Based on 1976 Hooker data which was supplied for my review, the destruction efficiency of the Hooker incinerator falls far short of that required by applicable Federal Regulations.

I hope these comments are useful with respect to your review of the proposal.

Sincerely,

Dr. Edward W. Kleppinger

EWK:wk

Enclosure

In response to your earlier question, the phrase "requisite remedial technology" is one which appears to have been specifically developed for this proposed settlement decree. I have never encountered it before.

College of Engineering and Science 4001 W. McNichols Road, Detroit, Michigan 48221 Telephone: (313) 927-1216

March 3, 1981

Ms. Barbara Morrison
Attorney at Law
1032 Ellicott Square
Buffalo, NY 14203

Dear Miss Morrison:

This letter is an evaluation of the agreement (civil action no. 79-989) between UNITED STATES OF AMERICA, THE STATE OF NEW YORK, Plaintiffs, v. HOOKER CHEMICALS & PLASTICS CORP.; OXY CHEMICAL COPORATION; OCCIDENTAL PETROLEUM INVESTMENT CO.; OCCIDENTAL PETROLEUM CORPORATION; THE TOWN OF LEWISTON; THE TOWN OF NIAGARA, (Hyde Park Landfill), Defendants, pursuant to the request of the Ecumenical Task Force of Niagara Frontier with the understanding that it will be submitted to the Honorable John T. Curtain for his information.

CONTAINMENT PROGRAM: GENERAL COMMENTS

- On page 5 of the agreement, it states, "groundwater occurs .... in the Lockport Bedrock Zone, groundwater occurs in fractures or points which are parallel to the bedding planes, in other fractures or joints which cut across the bedding planes approximately at right angles to the bedding, and in cavities formed by the solution of minerals from the rock." With these "fractures and joints" and "by the solution of minerals from the rock", there is no assurance that there is not leakage of aqueous or non-aqueous liquids out of the bottom of the Hyde Park - Bloody Run area. There is no liner on the bottom of the site, and no wells removing seepage at the lower depths of Lockport Bedrock Zone nor from the Rochester Shale Zone.

- The distance between the purge wells of the Bedrock Barrier - Collection System is too great to assure that aqueous and non-aqueous liquids will not escape through the "fractures and joints" of the sides of the landfill site. On the west side, these wells are about 100 feet apart, Figures 11 and 12; on the north and south sides, they are about 200 feet apart as seen in Figures 7, 8, 9, and 10.

- There are no treatment facilities planned for contaminated ground water.

- "Requisite Remedial Technology" needs to be defined more completely.

ATTACHMENT "B"

MONITORING PROGRAM: GENERAL COMMENTS

- The monitoring wells for the Overburden Barrier - Collection System and the Bedrock Barrier - Collection System, Figures 22, 23, and 24, are not placed close enough together to verify that the collection of liquids leaving the landfill has been achieved. "Fractures and joints" could exist between these sample wells through which these liquids could escape undetected. The "chemical loading" calculations would not detect these losses.

- The monitoring activities, the sampling procedures, and the analysis procedures are not specified and in subparagraph C(8)(f) of Addendum I are only stated to be under "Requisite Remedial Technology".

- There are no "chemical loading" studies specified for the Rochester Shale Zone.

- Five piezometers are not sufficient to monitor 15 acres for the water table. Also, there are no monitoring wells in the entire 15 acres

ENVIRONMENTAL HEALTH AND SAFETY: GENERAL COMMENTS

- The neighbors of the Hyde Park-Bloody Run area should be moved before any work at the site begins. The danger from both the particulates and the vapors that could escape during the work when the present cap is broken is too great to allow unprotected people within reach of these dangerous materials. To only warn these people after something has escaped does not seem to be the proper course of action to achieve the safety of these people.

CONTAINMENT: SPECIFIC COMMENTS

- In Addendum I, p. I-6, why, in the identification of Swales Alpha and Beta, as shown on Figure 3, shall the excavation or sampling of soil more than five feet below ground level not be required, and in the identification of Swales Gamma and Delta, as shown on Figure 3, shall the excavation or sampling of soil deeper than one foot below the interface of fill material and the soil beneath it not be required? What is the basis of this criteria on the depth of the excavation?

- On p. I-10, why is Hooker not required under this paragraph to submit to EPA any TOC and TOH data?

- On p. I-15, what are the criteria for determining that three wells be installed to the top of the Rochester Shale Zone adjacent to the western boundary of the Landfill Site? On p. I-16, what are the criteria for determining the "appropriate number of observation wells" that shall be installed? When the extent of the plumes is being determined, why is the weathered zone not considered?

- On p. I-23, why shouldn't the installation of a Bedrock Barrier - Collection System be designed to collect liquids more than 15 feet below the top of the Lockport Bedrock Zone? There could be joints and fractures to a greater depth.

- On p. I-27, on the effluent samples, why is the pH treatment level so wide, 5 to 10? This could disrupt the operation of the publicly owned treatment plant that receives this waste.

- On p. I-28, it seems two consecutive weeks is too long to wait for Hooker to notify EPA/State when the effluent analysis reveals any parameter in excess of the treatment levels described in sub-paragraph 2(a).

- On p. I-33, (8)(b), it does not seem reasonable to store additional liquids in the existing lagoons, when it has not been determined that they securely hold the liquids that they already contain.

- On p. I-34, (ii) it does not seem that "four Overburden monitoring wells" is sufficient to monitor the tracer and seepage from the lagoon. Subparagraph (c) does not say anything about checking the seepage from the bottom of the lagoon.

- On p. I-40, (d), how will "a base layer of moisture sorbent material", be able to handle flows that may continue in the area?

- On p. I-47, why is there not a criteria for TCP and HCB for the wash water also?

- On p. I-50, could the "reopening" and "depositing" of "soils or other solid materials" cause a disturbance of the landfill site and cause new waste leakage problems?

- On p. I-51, under "Off-site Particulate Migration" only "airborne particulates" is mentioned, it seems that vapors should also be considered, since they could also escape.

- On p. I-52, it states that "Hooker shall initiate corrective action as soon as possible" if migration of airborne particulates "constitutes an endangerment to human health and the environment in or near the Hyde Park - Bloody Run Area". It seems reasonable that the people in this area should be moved before such an "endangerment" occurs.

MONITORING PROGRAM: SPECIFIC COMMENTS

- In Addendum II on p. II-2 under "Barrier-Collection Systems Monitoring", the criteria for determining the number of monitoring wells and piezometers should be specified. The numbers specified do not seem to be sufficient to monitor such a large landfill. Criteria for determining the location of these wells should also be specified.

lishments will be sufficiently protected from particulate and vapors that could migrate from the landfill site during Special Construction Activity, if these workers remain at their Working site during such activity.

These conclude my comments on the Agreement.

Sincerely,

John L. Kieffer

John L. Kieffer, S.J., P.E., D.Sc.

/vsc

There are no wells indicated for the Rochester Shale Zone and there should be.

- On p. II-4, (4), extra "water table elevations or potentiometric surface measurements" should be taken during extended rainy periods and during extended dry periods, in addition to the regularly scheduled readings, since different flow patterns can develop.

- On p. II-10, L., what is the criteria for stating that "five piezometers" is sufficient to check the whole landfill site?

- On p. II-10, M, what is the criteria for determining the number "four" for the monitoring wells for the Bloody Run. It does not seem to be sufficient. In addition, why are not the Weathered Zone and the Overburden or Soil Zone monitored?

- On p. II-11, P, what is meant by the statement, "Such analysis shall take appropriate account of the impact on such measurements of the chemicals which were present in the area prior to completion of the Containment Program relating to Bloody Run." Does this relate to subtracting the background data? How will this be done? And, what are the background data?

- Also, in P, for Hooker to wait "four consecutive sampling periods" to advise EPA/State when "chemicals migrating from the Bloody Run basin are observed at concentrations above the Bloody Run Monitoring Levels" is too long. It could be 1, 2, or 4 years, since sampling could be only once a year.

ENVIRONMENTAL HEALTH AND SAFETY PLAN: SPECIFIC COMMENTS

- On p. V-8, under "Particulate Dispersion Control", why is only particulate dispersion controlled and not vapors also? Vapors could also escape from the site.

- On p. V-18, it states that "such corrective action shall include, without limitation, immediate notification to the residents of such properties that Hooker shall provide temporary relocation of such residents and shall take actions incident thereto as described in Paragraph L". This notification will come only after the migration of hazardous particulates and possible damage to the health of the people nearby. It, thus, seems reasonable that these people be moved before this damage occurs.

- On p. V-21, L.(1)(a), it states "when Special Construction Activity precludes the use of such property". It is not clear when this is nor what are the criteria when the use of such property is precluded.

- On p. V-22, it does not seem, under (2), "with regard to any commercial establishments", that the workers in these commerical estab-

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

March 7, 1981

arbara Morrison
torney at Law
032 Ellicott Square
uffalo, New York 14203

Re: Hyde Park-Bloody Run

ear Ms. Morrison:

Thank you very much for your letter of February 27, 1981. As you luded to in that letter, you are asking me to provide you with my insights on the U.S./Hooker consent agreement at Hyde Park Landfill because f my unique experience in the federal government in starting and managing he federal program which these cases are based on. Obviously you are ware that the federal government, for whom I am employed, should try to se the laws available to it to minimize the health and environmental risks rom hazardous waste in these cases. Because the issues involved in the yde Park Landfill settlement are precedent setting for this type of case nd because, upon reading the consent agreement, I do not believe that he health risks inherent in the Hyde Park Landfill case have been diminished will try to answer to the best of my abilities the questions you have osed.

Question #1: Based on my experience, I do not believe that the consent agreement will minimize health risks to the communities involved. here are health risks at the site because of the nature of the wastes nd the current methods of management. In fact, I believe that the settlement as constituted will increase the health risk to the communities involved. Specifically, because of the highly toxic nature of the wastes at yde Park Landfill (e.g. Dioxin), and because of the potential for contamination through air, soil, and water of these materials, the health risks to he community could increase significantly during and after implementation f the proposed consent agreement. However, there is no way to quantify r identify health risks without monitoring and testing, neither of which as been done to my knowledge.

Question #2: The EPA policy for bringing cases to the court under CRA §7003 was to enable the courts to set regulatory precedents for rotection of the public health and environment from hazardous waste ractices. The first cases brought were cases in which we hoped to btain the courts' assistance in setting a bottom line for environmental nd public health protection. This proposed consent agreement does not ffectuate that policy. I believe the change of policy occurred because f the pressures of the Presidential election of 1980, which would have

predisposed the White House to soften the government's actions against companies with potentially large financial liabilities as a result of their hazardous waste management practices.

Question #3: The proposed consent agreement does not comply with EPA's proposed standards for hazardous waste management.

Question #4: It is clear to me that the court should determine whether the proposed activities required by the consent agreement involve the treatment, storage, and disposal of hazardous waste.

Question #5: Adherence to RCRA hazardous waste regulations alone, even if complied with, would not adequately protect the Hyde Park community in this unique case.

Question #6: No remedial action program can be developed until adequate monitoring and testing has occurred. This is true because an environmental and public health profile is required prior to design of any remedial action. This is why §3013 of RCRA was modified last year to enable EPA to require such monitoring and testing prior to remedial action development.

With respect to your supplemental inquiry, based on my engineering experience in the hazardous waste field, the state of the art has not developed to a degree where the term "requisite remedial technology" has any basis in science or engineering. Because of this fact, it appears from my reading of the consent agreement that Hooker could use any technology it chooses at a minimal cost and simultaneously be absolved from further liability from government suit for all damages past, present, and future to public health and the environment.

I hope that my forthright answers to your questions will be of use in aiding the citizens around Hyde Park Landfill to obtain the protection that the Congress intended them to have when they passed the Resource Conservation and Recovery Act. If I can be of any further help as this case develops, I will be happy to submit any additional written or oral information.

Sincerely,

Hugh B. Kaufman
Assistant to the Director
Hazardous Waste Site
Control Division

HBK:ss

ERRATA SHEET

Hyde Park Landfill
Preliminary Comments of the ETF

P. 2, L. 1:	Enviornmental should be "environmental."
P. 4, L. 19:	Lines should be "lined."
P. 5, L. 5:	Affects should be "effects."
P. 7, L. 9:	TCE should be "TCP."
P. 11, L. 20:	Lymphosite should be "lymphocyte."
P. 13, L. 15:	Teh should be "the."