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July 28, 1988

Susana Cortina de Cardenas
Attorney-at-Law
Assistant Regional Counsel
Environmental Protection
Agency - Region I
John F. Kennedy Building
Boston, Massachusetts 02203

Re: Charles George Reclamation Trust
Landfill Superfund Site, Tyngsborough, Massachusetts

Dear Ms. Cortina:

Based upon your recent conversation with Susan Cooke, I understand that the U.S. Environmental Protection Agency is unable to locate the offer of settlement which the Charles George Site PRP Committee made to EPA by letter dated July 9, 1987, directed to Jamie W. Katz. Therefore, I am enclosing a copy of this letter for your convenience.

In the July 9, 1987 letter, the Charles George Site PRP Committee indicated that, as a group, it was prepared to contribute \$1.75 million toward the cost of implementing EPA's July 11, 1985 Record of Decision with respect to the Charles George Site. We believe that the proposed \$1.75 million contribution was an extremely generous one, since it constituted a multiplier of at least 166.66 over the entire volumetric contribution of hazardous substances (i.e., .06%) to the Charles George Site. Also, as we stated in our July 9, 1987 letter, this multiplier is likely, as a practical matter, to be substantially larger, given the fact that the members of the Charles George Site PRP Committee do not constitute all of the contributors of hazardous substances to the Site.

In light of SARA's policy of encouraging settlements at Superfund sites, the Charles George Site PRP Committee was most troubled by EPA's failure to respond in any way to this offer.

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CHARLES GEORGE LAND
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Although Mr. Katz confirmed verbally on several occasions that he had received the offer and that it would be reviewed and responded to by the Agency, no such response been forthcoming. It is now one year later, and we still have not heard a word from EPA regarding the offer.

I am also enclosing for your review a copy of another letter addressed to Jamie Katz which is dated May 15, 1986. This letter addresses the fact that the Charles George Site is fundamentally a municipal waste landfill and that its character as such must be taken into account if there is to be any reasonable settlement between EPA and the PRPs. It should be noted that, as is the case with respect to our July 9, 1987 offer of settlement, we have not received a response to the issues raised in the May 15, 1986 letter.

Unfortunately, EPA's failure to respond to our prior, long-standing correspondence, including our good faith offer of settlement, is merely symptomatic of the general lack of communication by the Agency with the PRPs with respect to this Site and the lack of due attention to carefully considered comments which have been submitted by the Charles George Site PRP Committee to EPA. This pattern of conduct is particularly troubling in light of the fact that we understand that EPA now proposes to issue its Phase III Record of Decision with respect to the Site prior to September 30, 1988, and we have seen neither a draft RI/FS nor any other information which would allow us to review and comment upon the data generated in the Phase III RI/FS and the remedial alternatives being evaluated by the Agency. To the contrary, a recently scheduled consultation meeting between representatives of your office and representatives of Charles George Site PRP Committee was called off, since it was felt that there was nothing significant to be discussed.

The above factors, combined with EPA's inability, notwithstanding its statement that it has been pursuing the matter for several years, to generate any meaningful information which would identify PRPs at the Charles George Site and provide a systematic volumetric ranking list, makes it virtually impossible for the Charles George Site PRP Committee to function effectively in communicating with the Agency and structuring a potential settlement at the Site. We have even provided to you extensive information regarding parties who sent waste to the site which was prepared at our expense by Clean Sites, Inc. Notwithstanding this information, it appears

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that EPA has not proceeded actively to notify additional PRPs who may then become participants in future discussions with the Agency.

We regret that EPA by its conduct has chosen to undermine the ability to deal constructively with the PRPs at this Site, particularly since the Charles George PRP Site Committee has been forthcoming and initiative-taking at each stage of the proceedings to date. Hopefully, this pattern will change and our long-standing offer of settlement will be considered favorably.

Yours sincerely,



Michael P. Last
ON BEHALF OF THE CHARLES GEORGE
SITE PRP COMMITTEE

MPL/rtf
cc: William Walsh-Rogalski, Esquire
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1985

July 9, 1987

BY HAND

Jamie W. Katz, Esquire
Office of Regional Counsel
Environmental Protection Agency-Region 1
J.F.K. Federal Building
Room 2203
Boston, Massachusetts 02203

Re: Charles George Reclamation Trust
Landfill Superfund Site

Dear Mr. Katz:

This letter is to convey to you an offer on behalf of the Charles George Site PRP Committee to pay for a share of the estimated cost of performing the source control remedial action described in the July 11, 1985 Record of Decision with respect to the Charles George Reclamation Trust Landfill Superfund Site (the "Charles George Site"). This offer is based upon EPA's estimated cost range of \$15 million to \$20 million to perform the remedy described in the Record of Decision, which includes the installation of a synthetic membrane cap and the related leachate collection system.

As you know, the Charles George Site PRP Committee has raised concerns relating to both EPA's proposed technical remedy for the Charles George Site and the potential allocation of responsibility among contributors to the site. Most recently, the Committee sent you a letter dated June 9, 1987, expressing our strong objection to EPA's selection of an experimental, synthetic membrane for use in capping the Charles George Site. Our concerns with respect to the cap design have been consistent and well-articulated. These concerns include the vulnerability of the synthetic membrane to expected subsidence at the site; the difficulties associated with reliable installation (including sealing of miles of seams) of the synthetic membrane; the extreme difficulty (if not, impossibility) of identifying leaks or breaches in the synthetic membrane; the high cost associated with repairs to the synthetic membrane cap; and the comparative, significant advantages of the glacial till cap as opposed to the synthetic membrane cap.

Jamie Katz, Esquire^{*}
June 17, 1987
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We continue to believe that EPA's proposed technical remedy has serious, inherent problems. Despite our significant objections to the remedy, however, we have consistently evidenced our interest in cooperating with EPA to the maximum extent possible. The Charles George Site PRP Committee's offer of settlement reflects this cooperative spirit.

This offer is being made on behalf of the alleged generators of waste to the Charles George Site who have been notified of their potential responsibility for the Site and are members of the Charles George Site PRP Committee. As a group, we are prepared to contribute \$1.75 million toward the cost of implementing EPA's Record of Decision. This offer represents 10% of the midpoint of the range of expected costs (i.e., \$15 million to \$20 million) for the source control remedy described in the Record of Decision. We understand that the proposed source control measures do not include leachate treatment, nor do they address off-site remediation efforts. Therefore, our offer does not address these costs.

In connection with this offer, we note that, while the Comprehensive Environmental Response, Compensation and Liability Act, as amended by the Superfund Amendments and Reauthorization Act of 1986 ("SARA"), imposes joint and several liability upon responsible parties, the courts have clearly indicated that in those cases involving small volumetric contributors the equitable impacts of this doctrine should be taken into account in determining liability. EPA has placed approximately fifty-five waste generators on notice of their potential liability at the Charles George Site based upon their alleged contribution of hazardous substances to the Site. It is, therefore, most significant that the Record of Decision estimates that of the approximately 4,000,000 cubic yards of refuse contained on the Charles George Site, only 2,500 cubic yards (or .0624% of the total waste) constituted hazardous substances. This estimate has been subsequently confirmed by the much more complete review of the data performed by Clean Sites Inc. on behalf of the Charles George Site PRP Committee. Clean Sites' review indicates that approximately 6,000,000 cubic yards of refuse was disposed of at the Charles George Site, of which approximately 3,600 cubic yards (or .06%) constituted hazardous substances. While the total figures differ somewhat between EPA and Clean Sites, the relative proportion of hazardous substances to other types of normal municipal landfill waste is virtually identical. Therefore, it

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reliably appears that 99.94% of the waste sent to the Charles George site is typical of waste generally sent to municipal landfills for disposal.

The equitable considerations mitigating the harsh effects of joint and several liability in situations where the contribution of hazardous substances to an NPL site is extraordinarily de minimis has also been reflected both in EPA's settlement policy and in the context of the provisions added by SARA which govern de minimis settlements and authorize mixed funding. Section 122(g) of CERCLA, as amended by SARA, expressly acknowledges that de minimis parties should be permitted to cash out early given their minimal contributions to a site, while Section 122(b)(1) authorizes mixed funding, thereby acknowledging that it is appropriate to utilize money from the Fund in certain situations. EPA's evolving policy has identified predominantly municipal-type landfills at which much of the remediation effort relates to the municipal waste contributions as constituting one situation which is clearly appropriate for mixed funding.

Given the foregoing facts and the legal and policy considerations described above, the Charles George Site PRP Committee believes that its proposed \$1.75 million contribution toward the cost of implementing the Record of Decision is both forthcoming and extremely reasonable. This 10% offer constitutes a multiplier of at least 166.66 over the entire volumetric contribution of hazardous substances (i.e. .06%) to the Charles George Site. Given that it is likely that the members of the Charles George Site PRP Committee do not constitute all of the contributors of hazardous substances to the site, this multiplier may well be substantially larger.

In exchange for this payment, the participating PRPs request that the following agreements be embodied in a Consent Decree:

1. A covenant not to sue relating to all liability, present and future, in connection with the implementation of the source control remedy, which includes the synthetic membrane cap and the leachate collection system.
2. Assurance of contribution protection as contemplated by Section 122 of CERCLA, as amended by SARA.

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3. An acknowledgement that by entering into the Consent Decree the parties do not admit, accept or acknowledge any liability or fault by any participating party relating to any matter arising out of or relating to the Charles George Site.

Notwithstanding our continuing concerns with respect to the proposed remedy at the Charles George Site, which are reflected consistently in our prior correspondence addressed to EPA with respect to the Site, the members of the Charles George Site PRP Committee do not intend to treat this Site casually. Quite to the contrary, we are offering to pay a substantial premium over any reasonably attributable share of our responsibility for the hazardous substances at the site. This offer is made in good faith, and we hope that it will be received, evaluated and responded to in a similar manner by the EPA.

In making this good faith offer of settlement, no member of the Charles George Site PRP Committee, either individually or collectively, admits, accepts or acknowledges any liability, fault or responsibility relating to the Charles George Site and/or any wastes, materials or substances which may have been transported to and/or disposed of there. Any such liability, fault or responsibility is hereby expressly disclaimed.

We look forward to receiving your response to our offer at the earliest possible time.

Very truly yours,

CHARLES GEORGE SITE
PRP COMMITTEE

By: Michael P. Last
Michael P. Last

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May 15, 1986

Jamie Katz, Esquire
Office of the Regional Counsel
U.S. Environmental Protection Agency
Region I
J.F.K. Federal Building
Boston, Massachusetts 02203

Re: Charles George Land
Reclamation Trust Landfill

Dear Mr. Katz:

As you know, a number of the companies identified by the United States Environmental Protection Agency as potentially responsible parties ("PRPs") at the Charles George Landfill have been cooperating with the Agency to develop an appropriate, cost-effective remedy for the site. As we have stated to agency officials in the past, however, we feel strongly that the true character of the Landfill as a municipal waste landfill must be taken into account by both EPA and Massachusetts authorities in order to have any realistic hope of a settlement which includes apportionment of investigation and cleanup costs. Because we have come to believe that resolution of this issue is critical to any settlement, we have set forth below our position on this subject and hereby solicit a formal response from EPA.

Over the past several months, EPA has identified a number of industrial and commercial companies as PRPs at the Landfill. It is our understanding that the Agency believes these PRPs disposed of "hazardous substances" at the Landfill. It is also our understanding, however, that the amount of "hazardous substances" at the Landfill which is allegedly attributable to these PRPs is only a small percentage of the total volume of waste buried there, and that the site can best be characterized as a municipal waste landfill. The Agency's Record of Decision ("ROD") dated July 11, 1985 estimates that four million cubic yards of refuse were disposed of at the Landfill, and that an estimated 2,500 cubic yards of this refuse -- i.e., only six one-hundredths of one percent -- were allegedly hazardous substances. (ROD at 6.) These figures are also consistent with the operational history of the site. Although the Charles George Landfill was

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operated as a municipal dump during its entire active period, i.e., from 1955 to 1983, it was only authorized to accept hazardous waste from 1973 to 1976. (ROD at 4.) It is readily apparent from these statistics that the parties identified by EPA as PRPs have contributed only a small percentage of the total volume of waste at the site.

Furthermore, the existing environmental conditions at the Landfill -- and the need for remediation -- are tied directly to the site's historic operation as a municipal landfill. Both legal and technical representatives of EPA have stated repeatedly at meetings with PRPs that the remedial action selected for the site would be required regardless of the presence of wastes contributed by the PRPs. In addition, the Agency's decisional documents acknowledge that the primary focus of the March 1985 Source Control Feasibility Study ("FS") for the site, and the subsequent selection of a remedial alternative, were to control the generation of the enormous quantity of leachate -- 36 million gallons per year -- caused by the seepage from millions of cubic yards of solid waste refuse at the site. (ROD at 8; FS at 1-48.) Likewise, the other technical objectives of site remediation listed in the Feasibility Study -- to control surface water run-off and soil erosion from the mixture of stormwater and leachate, to control gas emissions characterized by noxious odors, and to improve site aesthetics -- were directed at the effects of solid waste disposal. (FS at 1-48 to 1-50.)

Characterization of the site as a municipal waste landfill is supported by data collected at the Landfill by EPA's contractor. Hydrogeological data show that the site's constituents are consistent with those typically detected at municipal waste landfills. (See FS at 1-21, 1-28, 1-32, and 1-37.) In this regard, a growing body of literature (some of which is discussed in the attached summary on "Hazardous Components of Household Waste" prepared by our technical consultants, Geraghty & Miller) provides evidence that a wide range of hazardous materials contained in common household wastes can be found in municipal waste landfills and in the leachates that they generate.* Indeed, at another landfill EPA is

* In addition to the studies cited in Geraghty & Miller's summary, reports prepared by or for EPA (Footnote continued)

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addressing, the Agency has undertaken to prove the connection between hazardous compounds detected in the groundwater and municipal solid waste disposal.

In an affidavit filed in litigation involving the Flemington Landfill in New Hanover County, North Carolina (attached hereto for your information), Dr. Kirk W. Brown, the consultant retained by EPA, has testified that the "numerous toxic chemicals (including but not limited to benzene, 1,2-trans Dichloroethylene, Methylene Chloride, Tetrachloroethylene, Tetrahydrofuran, Trichloroethylene and Vinyl Chloride) and several heavy metals (including but not limited to Cadmium, Copper, Lead, Mercury, Nickel and Zinc)" detected at that site are "typical of those found in leachate of municipal solid waste landfills." (Brown Affidavit at 3.) He concluded, therefore, that "the municipal solid waste could have been the sole source or contributed to the contamination found in the groundwater downgradient from the Flemington Landfill." (Brown Affidavit at 4.)

In short, all available evidence points to the conclusion that the PRPs the Agency has identified at the Charles George Landfill are not solely responsible for the site and represent only an increment of the cleanup costs. Agency officials have suggested nevertheless that, based on jurisdictional concerns, they may choose neither to pursue solid waste generators, nor, apparent-

(Footnote * continued from previous page)
which support these findings include the following:
SCS Engineers, "Evaluation of Landfilled Municipal and Industrial Hazardous Wastes," U.S. EPA Contract No. 68-03-2758, April 1983; Hathaway, Steven W., Municipal Environmental Research Laboratory, EPA, "Sources of Toxic Compounds in Household Wastewater," 1980; Landreth, Robert E., Municipal Environmental Research Laboratory, EPA, "Chemical and Physical Effects of Municipal Landfills on Underlying Soils and Groundwater," EPA-600/2-78-096, May 1978; Brunner, Dirk, et al., "Evaluation of Leachate Treatment," Municipal Environmental Research Laboratory, EPA, EPA-600-2-77-168a, September 1977; Office of Water Supply, EPA, "The Report to Congress: Waste Disposal Practices and Their Effects on Ground Water," January 1977.

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ly, to view this site as one in which the Fund should be used to cover the share of the problem attributable to those generators. We are frankly unable to square EPA's reservation, however, with positions the Agency has taken in other litigation, where the equitable arguments for exerting jurisdiction seem far less compelling than they do here.

EPA has strenuously advanced the argument that a material containing any hazardous substance, no matter how small the quantity, is subject to Superfund jurisdiction. See, e.g., *United States v. Carolann*, Civ. No. 83-2162-O (D.S.C. June 15, 1984) (concentration of hazardous substances in waste material is irrelevant to Superfund jurisdiction). EPA has even taken the position that a waste expressly excluded from Superfund on the basis of its exemption under the Resource Conservation and Recovery Act ("RCRA"), is nevertheless brought back within Superfund jurisdiction if it contains trace levels of "hazardous substances." *Eagle-Picher Industries v. EPA*, 759 F.2d 905 (D.C. Cir. 1985). In light of these cases and the substantial evidence that municipal solid waste and its leachate contain a wide range of hazardous constituents, EPA should have no jurisdictional concern about pursuing waste generators other than those already identified as PRPs, if the Agency is unwilling to allocate Fund monies for their fair share.

Even more important in our view, these cases provide support for EPA's use of federal funds to cover the share of cleanup costs attributable to at least the public entity solid waste generators at the Charles George Landfill. Further, for EPA to assert otherwise would be inconsistent with the Agency's inclusion of several municipal landfills on the National Priorities List (the "NPL"). To the extent that private PRPs at these landfills are unknown or without resources, an EPA determination that it has no authority to use the Fund (coupled with a policy that it has no Superfund jurisdiction over public entity solid waste generators) would leave the Agency with no means to clean up these sites. It is certainly not fair to the public that the fortuitous presence of a small quantity of privately generated waste at a municipal landfill is the only mechanism that will transform the dump into a Superfund site worthy of cleanup. It is equally unfair to ask those few private PRPs who have been identified at the Charles George Landfill to pay for cleanup of the entire site. The Agency's

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authority to list a municipal landfill on the NPL and to implement a remedy surely cannot turn on EPA's identification of a few private parties to bear the burden. Municipal landfills such as the Charles George Landfill are either eligible for federal funding or are not appropriately on the NPL at all.*

In sum, EPA has ample factual and legal justification for apportioning cleanup costs among all responsible parties and, if the Agency chooses to do so, to use the Fund to cover some of the apportioned costs. If this issue were to be resolved through litigation, we would expect to take the same position outlined above with respect to the small ratio of hazardous to solid waste, the likely source of any chemical contamination at the Landfill, and the objectives of site remediation. We believe it is unrealistic to assume that a court would impose substantial liability on de minimis contributors of hazards to the site, whatever the Agency's reasons for refraining from pursuing others.

For these reasons, we firmly believe that any fair and legally supportable apportionment of costs at the Charles George Landfill will require that EPA address the contribution issue which we have raised in this letter. In light of EPA's intent to expend considerable money at the Landfill, we urge the Agency to address this important issue before opportunities for settlement have

* At the Flemington Landfill, EPA has avoided this jurisdictional quagmire by proceeding under RCRA Section 7003, which extends cleanup authority to solid waste as well as hazardous waste. If Section 003 provides the Agency jurisdiction to address that site, however, it may likewise be available at the Charles George Landfill. Although EPA brought suit solely against the owners and operators of the Flemington Landfill (the defendants then pleaded generators of solid waste), there is no jurisdictional distinction between owner-operators and generators under Section 7003. Alternatively, the complexity of federal jurisdictional concerns at the Landfill could be addressed through cooperative efforts with the Commonwealth of Massachusetts where state authorities may be employed to pursue all responsible parties.

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passed. We stand ready to work with you and other identified PRPs to resolve this issue in a mutually satisfactory manner, and look forward to your prompt response.

Sincerely,

General Electric Company
The Gillette Company
Polaroid Corporation

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Hazardous Components of Household Waste

In the past decade, there has been increasing attention paid to the hazardous constituents of household products, and their potential to contaminate ground water. A study by Geraghty & Miller, Inc. (1979) examined the status of ground-water investigations for organic chemicals in Nassau and Suffolk Counties, N.Y. The study discusses programs of public agencies to identify and manage organic chemicals, specifically citing the earlier work of Pader (1978) to identify hazardous chemicals (with the potential for entering the ground water via its usage) in consumer products; 250 products were identified as being of concern. Consumer products studied were found to frequently contain the following compounds, among others: methylene chloride, trichloroethylene and orthodichlorobenzene.

Ridgley and Galvin (1982) studied the issue of improper disposal of household products containing hazardous constituents. Their report was part of an overall project to develop a program to limit the amount of hazardous compounds that enter the environment by the improper disposal of "household hazardous waste". Their report was part of an overall project to limit the amount of hazardous compounds that enter the environment by improper disposal of "household hazardous waste". Their work included an extensive inventory of the hazardous components of pesticides, paint products, household cleaners, and automotive products; this inventory included the earlier survey of MacKay (1979), in Nassau County. Their inventory showed that consumer

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products contain the following compounds, among others: benzene, toluene, 1,1,1-trichloroethane, trichloroethylene, tetrachloroethylene, methylene chloride, and ortho- and paradichlorobenzene. Ridgley & Galvin also discuss the use of vinyl chloride as an aerosol propellant in consumer products (such use is now banned).

Lu et al (1985) summarized four earlier studies which identified organic compounds or classes of compounds in landfill leachates. Some of the classes identified were halogenated methanes, aromatic solvents, ketones, and phthalate esters.

DeWalle et al (1985) studied the toxic chemicals in a residential septic system. The specific system served 97 homes outside of Tacoma, Washington. The system was sampled regularly over a seven-day period. Several volatile priority pollutants were detected regularly within the system, most notably, toluene at an average concentration of 34.6 ug/L; methylene chloride and chloroform were also detected regularly. The priority pollutants were found in generally higher concentrations on weekends, which was attributed to homeowner activities using related products to priority pollutants (paint thinners, grease removers, toilet bowl cleaners, etc.). This study further confirms the use of hazardous chemicals in households. The highest concentrations of priority pollutants were found in sludge and scum samples from the septic system. Methylene chloride, benzene, 1,2-dichlorobenzene and 1,2,4-trichlorobenzene were all detected in excess of 1000 ug/L, with methylene chloride the highest at approximately 8000 ug/L. Several

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other volatile and base/neutral extractable priority pollutants were detected at lesser concentrations. The importance of these findings is that septic systems frequently require removal of the scum and sludge to maintain their efficiency. The studied system had been cleaned a short time before the study by pumpage of the solids. This type of waste is usually called "scavenger waste" and unregulated disposal of this waste in municipal landfills has been a very common practice.

Sabel and Clark (1984) sampled leachate and ground water at twenty permitted landfills and two dumps in Minnesota to determine the distribution of volatile organic compounds (VOCs). Their study included sites in urban, industrialized areas as well as sites in rural areas. The available data indicated that household wastes were capable of generating leachate containing VOCs at landfills which were remote from industrial activity.

VOCs which are frequently found as contaminants in ground water are the isomers of dichloroethane and dichloroethene. These compounds are generally uncommon to industrial use and in consumer products. They may also be present as an impurity in some other halogenated organic compound. Studies have demonstrated that anaerobic degradation of ethanes and ethylenes with more chlorine substitution, such as trichloroethylene and 1,1,1-trichloroethane, can produce these compounds: Wood et al (1981), Bower et al (1981), Parsons et al (1984), and Parsons & Lage (1985). These studies have also shown that vinyl chloride can be produced by the same degradation processes. Anaerobic conditions usually prevail inside a landfill.

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References

- Bowmer, E.J.; Rittmann, B.E.; & McCarty, P.L. Anaerobic Degradation of Halogenated 1- and 2-Carbon Organic Compounds. Envir. Sci. & Technol., 15:596(1981).
- DeWalle, F.B., D. Kalman, D. Norman, J. Sung, and G. Plews (1985). Determination of Toxic Chemicals in Effluent from Household Septic Tanks. United States Government Protection Agency. EPA/600/2-85/050.
- Geraghty & Miller, Inc., 1979. Supplemental Report to the Nassau-Suffolk Regional Planning Board on the Current Status of Ground-Water Investigations for Organic Chemicals in the Nassau-Suffolk Area. Port Washington, N.Y.: Geraghty & Miller, Inc.
- Lu, J.C.S., B. Eichenberger and R.J. Stearns. Leachate from Municipal Landfills. Noyes Publications, Park Ridge, N.J., 1985.
- Mackay, Susanne L., 1979. Report on Survey of Consumer Products Containing or Suspected of Containing Harmful Organic Chemicals and Having the Potential of Contaminating the Groundwater of Nassau County, New York. Nassau County Dept. of Health.
- Pedar, F.V., 1978. Control of Organic Chemical Contaminants in Underground Sources of Drinking Water, Nassau County, New York. Paper presented at the New York Public Health Association Annual Meeting, June 1978, in Albany, New York.
- Parsons, F. and G.B. Lage. Chlorinated Organics in Simulated Groundwater Environments. Journal AWMA, 77:5152 (May, 1985).
- Parsons, F., Wood, P.R., & DeMarco, J. Transformations of Tetrachloroethane and Trichloroethane in Microcosms and Groundwater. Journal AWMA, 76:2:56 (February, 1984)
- Ridgley, S.M. and D.V. Galvin, 1982. Summary Report, Report A of the Household Hazardous Waste Disposal Project. Municipality of Metropolitan Seattle.
- Ridgley, S.M., 1982. Toxicants in Consumer Products, Report of the Household Hazardous Waste Report. Municipality of Metropolitan Seattle.
- Sebel, G.V. and T.P. Clark, 1984. Volatile Organic Compounds as Indicators of Municipal Solid Waste Leachate Contamination. Waste Management and Research. Vol. 2, pp.119-130.
- Wood, P.R., R.F. Land and I.L. Payan, 1981. Anaerobic Transformation, Transport and Removal of Volatile Chlorinated Organics in Groundwater. Miami, Florida, Drinking Water Research Center, Florida International University.

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UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NORTH CAROLINA
WILMINGTON DIVISION

UNITED STATES OF AMERICA

Plaintiff,

v.

WASTE INDUSTRIES, INC. ET AL.

DEFENDANTS.

CIVIL ACTION NO. 80-4-CIV-7

AFFIDAVIT OF DR. KIRK W. BROWN

I, DR. KIRK W. BROWN, hereby declare that:

1. I am employed by K. W. Brown and Associates, Inc. as President.
2. A copy of my Curriculum Vitae is attached hereto (Attachment A). The Curriculum Vitae summarizes my educational and employment history and my professional and consulting activities and lists the publications which I have authored or co-authored.
3. This declaration is based upon my research, education and experience as a soil scientist and my review of data and materials gathered and analyzed by the United States Government and agencies or departments of the State of North Carolina concerning the Flemington Landfill in New Hanover County, North Carolina and groundwater contamination in the vicinity of the Flemington Landfill and of the following reports or documents:

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- A. Waste Industries, Inc. Sanitary Landfill and Operational Plan, April 20, 1973.
- B. U.S. EPA. Flemington Landfill Groundwater Data. Attached to a memo from James L. Holdaway, Chief of the Waste Compliance Agency to Mr. Chuck Wakild of the North Carolina Department of Natural Resources. (Dated July 17, 1984).
- C. Ecology and Environment, Inc. Evaluation of Remedial Approaches Selected for Flemington Landfill, Wilmington, North Carolina, October 15, 1980.
- D. U.S. EPA. Final Report, Well Water Samples, New Hanover County, North Carolina, Sampling Period July 17-18, 1979.
- E. U.S. EPA. Preliminary Report, Groundwater Monitoring, Vicinity of New Hanover County Landfill in the Flemington Area of Wilmington, North Carolina. (Dated May 3, 1979).
- F. U.S. EPA. Supplementary Report, Well Water Samples, Area of New Hanover County Landfill, Wilmington, North Carolina. (Dated June 8, 1979).
- G. N.C. Department of Natural Resources and Community Development. Groundwater Conditions in the Flemington Area of New Hanover County with Emphasis on Effects of the Landfill. Report of Investigation No. 16, November, 1978.
- H. U.S. EPA. Final Report, Well Water Samples, Area of New Hanover County Landfill, Wilmington, North Carolina, Sampling Period, April 18-19, 1979.
- I. U.S. EPA. Hazardous Waste Site Investigation, Flemington Landfill, New Hanover County, North Carolina, Sampling Period, September, 1979.
- J. U.S. EPA. Hazardous Waste Site Investigation, Flemington Landfill, New Hanover County, Wilmington, North Carolina, Project No. 84-133, August 8, 1984.
- K. Brown, K. W., G. B. Evans, Jr., and B. D. Frentrup (eds.). Hazardous Waste Land Treatment, Ann Arbor Publication, Ann Arbor, Michigan, 1983.
- L. Brown, K. W., and K. C. Donnelly. The Occurrence and Concentration of Organic Chemicals in Hazardous and Municipal Waste Landfill Leachate, Environmental Science and Technology, 1985.
- M. Lu, J. C. S., B. Eichenberger, and R. J. Stearns (eds.). Leachate from Municipal Landfills, Production and Management, Noyes Publications, Park Ridge, New Jersey, 1985.

4. I have been asked by the United States environmental Protection Agency and United States Department of Justice to conduct a detailed review of data and information concerning the groundwater contamination at or near the Flemington Landfill site and to compare this data with information, studies and reports on leachate generated by municipal solid waste landfills. In addition, I have been asked to characterize the possible origin of the contaminants. For purposes of this comparison I have assumed that the Flemington Landfill is a municipal solid waste landfill as opposed to a hazardous waste disposal facility. Municipal solid waste landfills typically receive solid waste from a variety of residential and commercial sources.

5. Analyses of groundwater samples from wells positioned downgradient from and in the vicinity of Flemington Landfill indicate the presence of both numerous toxic organic chemicals (including but not limited to Benzene, 1,2-trans Dichloroethylene, Methylene Chloride, Tetrachloroethylene, Tetrahydrofuran, Trichloroethylene and Vinyl Chloride) and several heavy metals (including but not limited to Cadmium, Copper, Lead, Mercury, Nickel and Zinc). A list of these and other chemicals, at the maximum concentrations in which they have been found in groundwater samples collected in the vicinity of and downgradient to the Flemington Landfill, is given in Attachment B.

6. Chemicals present in the groundwater downgradient from the Flemington Landfill are typical of those found in leachate of municipal solid waste landfills. The metals may be components of pipes, plumbing fixtures, automobile parts, household appliances, and sewage sludge, which become soluble as these materials corrode and degrade in the acidic environment within a municipal solid waste landfill. These acidic conditions typically arise in these landfills because of the anaerobic

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conditions which are prevalent. Under anaerobic conditions, organic compounds tend to decompose into their organic acid derivatives. These organic acids are the compounds which give rise to the acidic conditions.

7. Based upon my research, education and experience as a soil scientist and upon my review of data, material, reports and documents collected, analyzed and prepared in the course of the investigations conducted by the Governments of the United States and the State of North Carolina on the groundwater contamination problems associated with the Flemington Landfill, it is my opinion that the municipal solid waste could have been the sole source of or contributed to the contamination found in the groundwater downgradient from the Flemington Landfill.

8. Heavy metals found in the groundwater downgradient from the Flemington Landfill are the specific metals and within the concentration range that has been found at municipal solid waste landfills (Lu et al., 1985), with the exception of the high value for Lead, which was 3.5 times the high value reported previously. Highest concentration of several heavy metals found in the groundwater and concentration range of these metals in leachate from municipal solid waste landfills is given in Attachment C. The ranges of metal concentrations are the minimum and maximum concentrations found in a survey of leachate from 26 municipal solid waste landfills (Lu et al., 1985).

9. Toxic organic chemicals found in the groundwater downgradient from the Flemington Landfill are typical of the chemicals and generally within the concentration range that has been found at municipal solid waste landfills (Brown and Donnelly, 1985). The highest concentration for several of the toxic organic chemicals found in the groundwater and the concentration range of these chemicals in leachate from municipal

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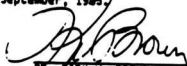
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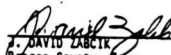
solid waste landfills is given in Attachment C. Methylene Chloride and Vinyl Chloride were a little below the concentration range given for those contaminants. Tetrahydrofuran and 1,2-trans Dichloroethylene exceeded the values given by Brown and Donnelly (1985) in the collection of data by factors of 2 and 16, respectively. Despite the greater concentrations for these two components, it is likely that the origin of these compounds is municipal solid waste. The ranges of organic chemical concentrations are the minimum and maximum concentrations found in a survey of leachate from 16 municipal solid waste landfills (Brown and Donnelly, 1985).

10. My research with many of the compounds listed above, plus the large amounts of published scientific literature, indicate that contaminants considered here are mobile in the subsurface environment. The metals may move through permeable deposits either as soluble salts or as components of organic matter. The concentration of the organic constituents reported are all well below their water solubilities (Brown et al., 1983), thus, these constituents would move readily with water in the subsurface environment.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed on this 29th day of September, 1986


DR. KIRK W. BROWN


DAVID LABRIE
Pazos County, Texas
(Expires May 26, 1986)