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March 31, 1993

FEDERAL EXPRESS

Mr. James A. Quinn, Project Manager
Division of Hazardous Waste Remediation
NYSDEC
50 Wolf Road
Albany, NY 12233-7010

Re: Kay Fries Inactive Hazardous Waste Site
Proposed Remedial Action Plan Comments
NYSDEC Site Code: 3-44-023 ← *file*
HVSW 9101 *for table*

Dear Mr. Quinn:

This correspondence will serve as our technical comments concerning the Proposed Remedial Action Plan (PRAP) for the Kay Fries Site in Stony Point, New York. As you are aware, H2M is the consulting engineers and hydrogeologists for the Town of Haverstraw's operation of the Sanitary Landfill, which borders the Kay Fries site. The Town has therefore requested us to review the subject project for the purpose of assessing the potential impacts from the Kay Fries site on the landfill and other Town properties. In addition, we are also concerned with the precedents being set in this project, which will have a direct impact on the manner by which other sites are regulated and remediated in New York.

After reviewing and evaluating over 13,700 pages of Kay Fries file (site) documents made available by NYSDEC through the Freedom of Information Law (FOIL), and participating in 2 NYSDEC public information meetings, we have developed an extensive foundation of knowledge regarding the PRAP and have prepared a number of comments and questions regarding the adequacy of the investigations leading up to the PRAP.

Initially, we observe that much work has been completed to date. However, we believe that the ongoing Kay Fries site investigation, undertaken by the responsible party's consultant, has not fully defined the nature and extent of the contamination at the site or the impacts on adjacent sites and water bodies. In response to the public information meeting (on March 2, 1993) and public comment notice (issued to us by NYSDEC), we offer our comments and questions regarding the PRAP and the underlying investigation. We expect that after you review our comments, the NYSDEC and the responsible party will be encouraged to respond in a progressive manner. Once our comments and questions have been adequately addressed, we believe a more effective remediation plan for this site will emerge.

We understand that the PRAP can only be as effective as the foundation of knowledge on which it is based. A PRAP is intended to be prepared for a site that has undergone a final remedial investigation/feasibility study (RI/FS). The RI/FS is a prerequisite to the PRAP. Therefore, we will begin our comments/questions by

focusing on the objectives of the RI/FS in this letter. Other aspects of the remedial process will then be discussed, and finally, we will focus on the PRAP and general comments.

The purpose of the RI/FS, as defined in the USEPA Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, (PB89-184626) (October 1988) is to characterize the nature and extent of risks posed by uncontrolled hazardous waste sites and for evaluating potential remedial options. Although the objective of the RI/FS process is not the unobtainable goal of removing all uncertainty, it is to gather information sufficient to support an informed risk management decision regarding which remedy appears to be most appropriate for a given site. The RI/FS process is focused on achieving an appropriate level of analysis to meet the objective of defining the nature and extent of contamination.

1. Remedial Investigation/Feasibility Study (RI/FS)

Our comments regarding the RI/FS have been divided into two (2) subsections according to the objectives, A) Nature of Contamination and B) Extent of Contamination.

A. Nature of Contamination

Based upon file records reviewed (dating back to 1952), numerous chemicals have reportedly been manufactured at the subject site; namely formaldehyde, phenobarbital, plasticizers, (phthalates), aromatics, phenols, cyanides, chlorinated organics, and others. This information was listed on a document entitled "American-British Chemical Supplies, Inc.--Selling Agents for Kay Fries" (1952). The numerous varieties of chemicals manufactured at the subject site therefore consists of many classes of compounds, both organic and inorganic.

Based on file records of unpermitted discharges, on November 20, 1978, the USEPA issued a violation of the Kay Fries NPDES #78-45 permit (effective 05/01/74). The violation was cited as:

- Discharges into Cedar Pond Brook (not authorized)
- Two (2) unreported discharges from two (2) storm water retention pits to Cedar Pond Brook
- Plant 4 Retention Pit discharge volume -- 35,000 gallons per discharge including the chemicals diethylbenzine, acetonitrile, caustic soda, mandelonitrile and formaldehyde.
- Tank Farm Retention Pit -- average discharge volume of 10,000 gallons per discharge of triethylorthoacetate, diethylphtalate, dimethylphtalate, ethanol, methanol, trimethylorthoformate and isodecyl alcohol.

Records also provided evidence in a letter (dated April 7, 1981) from the Hazardous Waste Compliance Team in White Plains (NYSDEC), to Kay Fries which indicated that information regarding the past discharge

practices must be addressed for the site. More specifically, the letter indicated that Kay Fries must reiterate the chronology of waste disposal practices which required addressing the following concerns:

- Dates of open burning and the chemicals involved.
- Dates of the use of haulers for disposal to approved sites.
- What was done with wastes when there was apparently no burning and no hauling between 1955 and 1972?
- Did chemical wastes ever go to municipal landfills?
- Dates of use of phosphate lagoon, and any sludge tests?
- What was done with wastes that were not burned?
- Sludge Pond -- Was this a disposal area or a settling area prior to discharge to Cedar Pond Brook?
- Define characteristics of the surface "dump" shown in 1958* and 1965* aerial photos.
- Verify the former outfalls from the retention pit and the main plant?
- History of lab waste disposal practices.
- Define chemical waste by name in all areas.
- The 1951* and 1957* aerial photos do not show a pronounced open burning area as in the 1947*
- Use dates, aerial photos, engineering drawings, invoices, accounting records and soil tests to document and support the answers to these statements.

After this letter was issued to Kay Fries, a memorandum (dated July 9, 1981) from NYSDEC was prepared which reflected a site inspection conducted on June 5, 1981. The site inspection was conducted to determine if a significant threat to the environment existed at the Kay Fries Site. Based upon the results of the site inspection, a number of areas of concern were identified. These were: Plant #4, Retention Pit #1, the incinerator, abandoned outfalls to Cedar Pond Brook, the new waste treatment building, aeration lagoon, firepond, phosphate lagoon, Retention Pits #2, 3, and 4, drum storage area, former burning areas and the laboratory facilities.

*No aerial photos were available for inspection in the documents made available by NYSDEC for public review under FOIL.

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Following the July 9, 1981 memorandum, a Draft Consent Order was issued by NYSDEC to Kay Fries on October 13, 1981. Paragraph 11 of this Consent Order required a "Field Investigation Program" including a remedial investigation.

In June of 1981, sediment samples were collected from Cedar Pond Brook and were detected with high levels of zinc, lead, selenium, copper, chromium, nickel, arsenic and phenol, among other toxic chemicals.

The executed Consent Order (1983) acknowledged the open burning areas, discharges to the Minisceongo Creek, chemical spills, the incinerator use between 1964 and 1979, the phosphate lagoon (which became inoperative in 1979), and surface water runoff consisting of numerous chlorinated organics, dioxane, phthalates, aromatics, and heavy metals.

Subsequent to the executed Consent Order, the consultant for Kay Fries responded to NYSDEC by limiting the scope of work to one (1) upgradient and four (4) downgradient wells (TB-1 through 5). Despite NYSDEC disagreement with the scope of work proposed by Kay Fries' consultant, NYSDEC approved the plan and it was implemented.

For the next ten (10) years, the RI proceeded in a series of seven (7) phases. Throughout that time period, numerous NYSDEC documents reiterated the same initial concerns for defining the history of waste disposal on site, the nature of the contamination, and areas of concern on the subject property. To this date, this information has not been available for public review and has not been adequately addressed in any documents available in the public record or through FOIL.

As part of this concern, the area west of the railroad tracks (on the subject property) has not been investigated. It is unknown as to whether this area is a source of contamination. In addition, there are no results of any geophysical surveys for the detection of any buried metallic objects (i.e., drums, underground storage tanks, etc.) that might have been buried at the site over the past 50 years. If this information is available, or has been addressed, please provide us with a description of these concerns so that we can ensure that all the obvious source areas of contamination and the nature of the contamination has been defined for the RI.

Since the presence of 1,4 dioxane was confirmed in 1986 by numerous split samples and resampling by the Kay Fries consultant and NYSDEC, it is not clear why this parameter has been omitted from further analysis subsequent to 1986. Its omission raises particular concern in light of the fact that NYSDOH stated at the Public Meeting held on March 2, 1993, that dioxane was widely used in industry as a stabilizer for chlorinated solvents, and NYSDEC stated at the Public Information Meeting on August 19, 1992 that "a chlorinated solvents problem" has only recently been discovered at the Kay Fries Site. Please explain.

In addition, parameters such as total phenols, cyanide, formaldehyde, heavy metals and semi-VOCs have been detected throughout the site and have not been defined as a concern for presenting a risk to public health and the environment. Please explain the rationale for omitting analyses for these parameters in more recent

investigations since the initial investigation at this property detected these chemicals/contaminants and the site history indicates extensive chemical use and disposal.

B. Extent of Contamination

The extent of contamination can only be ascertained through knowledge of the system by which contaminants become mobile in the environment. Thus, the hydrogeology must be adequately characterized for this determination. With respect to the hydrogeology on the property, Figure 3 in the Phase VII Remedial Investigation Report (August 1992) produced by IT Corp (drawing #529341) raises a number of questions to us. We are particularly concerned with the groundwater flow direction depicted on the contour map in the southern portion of the site. More specifically, monitoring well TB-2 is incorrectly represented on this figure with respect to the horizontal scale (1"=40'). Based on this scale, and the position of well TB-2 relative to MW-39 and 40, the 32', 38', and 44' groundwater contours should curve west instead of south (as shown). This is a significant revision and concern to us as this would indicate that the groundwater would have a southerly flow component in the south portion of the site.

In addition, Figure 1 in the Phase VII RI addendum (dated December 16, 1992), indicates that nine (9) deep wells were measured to contour the potentiometric surface of the deep aquifer on the site. The method for mapping a potentiometric surface must include measurements from well screens or wells positioned at the same elevation. The measurements therefore represent the pressure head of the water at each location. Each water level in the piezometers (installed in the deeper aquifer) should represent the elevation head + the pressure head + the velocity head. The velocity head is typically negligible. By holding the elevation head constant, one can determine the pressure head between each location, thereby allowing an interpretation of the ground water flow in that zone. However, the methodology utilized to construct the ground water contour map (as shown in Figure 1 of the Addendum) utilizes wells TB-1 (with the mid-point of the well screen at -15.09'); TB-2 (with the mid-point of the screen elevation +41.16'); TB-4 (mid-point of well screen -2.66'); TB-5 (with mid-point of well screen -29.82'); TB-6 (with mid-point of well screen at elevation -10.8'); MW-29 (with mid-point of well screen elevation 14.85'); MW-33D (with mid-point of well screen elevation at -8.21'); MW-34D (with mid-point of well screen elevation at -.75'); and MW-47 (with mid-point of well screen elevation at -6.23'). The inconsistent mid-points of each well screen, therefore makes it inappropriate to measure the potentiometric surface of this aquifer, rendering Figure 1 inaccurate.

With respect to the vertical flow component between the upper and deeper aquifers on the site, the monitoring well pair MW-33S and D indicates an upward flow component. Contrary to this reading, the nearby well couplet MW-34S and D, indicated a downward flow component. Furthermore, out of the four (4) paired piezometers on the site, two (2) indicated a downward flow component and two (2) indicated an upward flow component. It would be reasonable that the paired piezometers TB-1 and 1A would indicate a downward flow component, whereas TB-5 and 5A would indicate an upward flow. However, the difference between the MW-33 and MW-34 pairs are inconsistent and therefore inconclusive. Additional information is necessary to determine and characterize the three-dimensional flow of ground water beneath the site. This becomes a critical concern because the horizontal and vertical extent of contamination cannot be defined without proper

characterization of the aquifer system. Furthermore, lead was detected in the groundwater within the deeper aquifer at the site and the source has not yet been defined.

The sampling results for the retention pit, the creek, and other surface water impoundments on the site are not adequate to characterize the extent of contamination or the nature of contamination at these locations. There has been no delineation of the vertical extent of contamination at these areas as only one (1) sample per location (if any at all) were obtained. In addition, the results were not reproduced and therefore not valid. These results are not appropriate or adequate to be used in Risk Assessment or Fish and Wildlife Impact Assessment. More data is needed in order to fully characterize the nature and extent of contamination at these areas of concern (as originally raised by NYSDEC in 1981).

The southern and western portions of the site have not been investigated. More information is needed to characterize the contamination in these areas. Perhaps a historical aerial photo study and geophysical survey would provide information to satisfy these unknowns.

2. Interim Remedial Measures (IRMs)

Numerous IRMs were conducted at this facility during construction activity in the past with soils contaminated with numerous organic contaminants. The excavated contaminated soils were not tested for metals and other site specific parameters as defined by historical file documents and therefore the material has not been characterized. Please provide all records of soil disposal (including any manifests, bills of lading, etc.) in order to indicate the method of disposal. Was this material disposed of as hazardous waste? If so, was it tested for Toxicity Characteristic Leaching Procedure (TCLP) and other hazardous waste characteristics? Please provide this information.

In addition, all IRMs conducted at the site did not remove all of the contaminated material. How can the on-site construction workers be assured of safe working conditions and how will this impact future site land use?

3. Delisting portions of the site

The site history indicates that certain portions of the site have been delisted from the NYSDEC Inactive Hazardous Waste Disposal Site Registry. Please provide copies of any and all delisting petitions that were not available for public review through FOIL.

4. Risk Assessment

We are concerned with the criteria that was used by NYSDEC to determine the site to be a "significant threat". Please explain, more fully, the rationale and the basis by which a significant threat was arrived at for this site and why it took approximately five (5) years for this determination to be made (in affidavit form).

Based upon the Risk Assessment, applicable, relevant, and appropriate requirements (ARARs) that should be used for the soils at this site should be based upon the memorandum from NYSDEC dated November 16, 1992 (HWR-92-4046) whereby recommended cleanup goals for soil are identified. It is not clear as to what that site background conditions are, nor which soils have exceeded the recommended cleanup goals (ARARs).

With respect to the Risk Assessment, benzene concentrations up to 60 ppm were detected at the site in the groundwater. However, the Risk Assessment only acknowledged an average concentration of 12 part per billion. In addition, no fish were sampled. Compounds of concern on this site were also identified in historical records as metals, semi-volatile organics and volatile organics among others. Additional information is necessary and must be considered in a full scale Risk Assessment in order to determine and quantify the risks associated with this site.

Has there been a private well survey conducted for the vicinity of the site in order to determine potential groundwater receptors?

5. Fish and Wildlife Impact Assessment

With respect to the Fish and Wildlife Impact Assessment, VOCs sampling was the focus of the 1990 samples by IT Corp. It is not clear as to why metals, dioxane, phenols, cyanide, phthalates, polycyclic aromatic hydrocarbons (PAHs), and PCBs were not sampled. In addition, the fact that samples were not collected and an insufficient data base exists for the Fish and Wildlife Impact Assessment, does not justify the summary or conclusion that the data is questionable and that there is no risk to the fish and wildlife in the area. Additional data must be obtained from the sediment in both the Minisceongo Creek and Cedar Pond Brook (through coring not only grab samples) in order to determine the potential for any other contaminants that might be presents in the surface water bodies in the nearby area.

6. PRAP

The recommended remedial action in the PRAP has been identified as Alternative 3 and includes the construction of three (3) groundwater trenches for the recovery and treatment of shallow groundwater at the site. Based on the ground water flow at the site, the location of the south western most groundwater trench (See PRAP Figure 3) should be revised to more accurately reflect the groundwater flow direction in that portion of the property. The groundwater trench in the area near MW-40, where the groundwater contours are to be adjusted, should have a groundwater trench that is located in an east-west direction to intercept groundwater flow from the site of the south.

There appears to be sediment sample data which necessitates remediation at the site. The priority pollutant metals detected in the sediment exceeded NYSDEC ARARs. The treatment facility bermed area, fire pond and large retention basin #1 are located in the eastern portion of the site. The location of these three areas, which will require remediation, are located downstream of the location of the groundwater recovery trenches proposed under Alternative 3 of the PRAP. It is recommended that the location of the groundwater recovery trenches be relocated to the east, to intercept the groundwater flow from the fire pond, treatment facility bermed area and

large retention basin prior to groundwater being discharged to the Minnesceongo Creek and that priority pollutant metals reduction be included as a treatment technology.

The PRAP recommended Alternative 3 which includes treatment of the recovered groundwater by an on-site water treatment facility. The water treatment facility would include an air stripping tower followed by carbon adsorption for the removal of the groundwater. The proposed treatment system does not have the capability of reducing levels of priority pollutant metals. In light of the data presented in Table 2-1E (Appendix A) of the Phase VII RI with regards to remediable levels of priority pollutant metals in the sediments, the recommended PRAP alternative should include provisions for the on-site treatment system to include treatment technology for metals removal. In addition, cyanide, phenols, and semi-VOCs have been detected in the groundwater on the site. How will these compounds be removed during treatment?

The PRAP (recommended Alternative) 3 discusses that treated groundwater would be discharged to the local Publicly Owned Treatment Works (POTW) or to surrounding surface waters. Based on information presented at the public hearing of March 2, 1993, the discharge previously proposed to local POTWs is not a viable option. What is the status of a SPDES discharge permit application for a discharge to the Minnesceongo Creek or Hudson River? Does the present value of Alternative 3 account for an upgrade in treatment technology at the on-site treatment facility if the surface water discharge is the only available discharge option and priority pollutant metals (and others) reduction is required as a treatment technology?

The Summary of Site Risks section (page 4) of the PRAP discusses that "...lead in soils may be from the local geology or from a disperse wide-spread anthropogenic source(s) in the Stony Point Area". The Evaluation of the Alternatives section (page 7) of the PRAP discusses that "...contaminants were detected above groundwater standards in wells outside the proposed groundwater capture area (e.g., lead), these contaminants are ubiquitous to the site and are not believed to be site related". Please provide documentation for these two statements.

The Site Background and Description section (page 3) of the PRAP discusses that "Several areas of contaminated soil have been located and removed as IRMs. Documentation of underground benzene and methyl isobutyl ketone (MIBK) tank spills at the site are on record. Is there testing data available on the soils when the contaminated soils were removed? What was the period that the contaminated soils were removed? Please provide complete documentation for the management of these wastes.

The Feasibility Study (October, 1992) for the site discusses potential source areas of contamination (page 2-5). Based on NYSDEC initial inspection of the facility, retention pits number 2 and 3 and the phosphate lagoon had been filled by construction activities. What type of material was used to backfill these areas? Was the backfill material tested and what was the source of the backfill material?

The Summary of Alternatives section (page 5) of the PRAP mentions that "An impermeable clay layer exists beneath the site". Is permeability testing data available on the clay liner beneath the site? What extent of testing was conducted to determine the existence of an impermeable liner? To what depth is the clay layer and at what locations on the site were test borings conducted to evaluate the clay layer?

7. General Comments

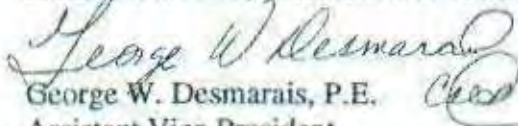
In November of 1988, laboratory analysis of sediment samples was conducted at the Kay Fries site. The samples were collected on November 14 through 16, 1988 and were tested for priority pollutant metals, VOCs, semi-VOCs and pesticides/PCBs. The sediment samples were collected from existing retention pits, retention basin, culverts, fire pond, treatment facility bermed area and an outfall pipe. The results of the sediment sample testing data was presented in Table 2-1 of Appendix A of Phase VII of the (RI). Appendix A of the February 1983 Order-on-Consent for the site includes a site sketch of the facility. The site sketch indicates existence of a sludge pond, aeration lagoon, open burning areas, phosphate lagoon and incinerator. Why were these areas on the site not sampled during the 1988 sampling program? Is there a site plan drawn to scale which has been drafted and certified by a professional as to the location of areas investigated which have been identified in the site sketch?

The sediment sample testing data for priority pollutant metals was presented in the Phase VII RI. Our office has compared the sediment sample testing data to soil cleanup goals established by NYSDEC. The testing data from Table 2-1E (Appendix A) of the Phase VII RI indicate that the sediment samples exceeded the NYSDEC cleanup goals the majority of the time for priority pollutant metals such as beryllium, cadmium, chromium, copper, mercury, nickel, selenium, and zinc. Why were these areas not sampled again or included as part of the remediation plan for the site?

The retention pits #1 and #4 as shown in the Phase VII RI report are not consistent with the original Appendix A site map as shown in the Consent Order. Please clarify.

Thank you for the opportunity to offer our review comments and questions on the field investigations and the PRAP for the Kay Fries site. We trust that the foregoing will assist the NYSDEC in future protection of human health and the environment relating to this site. We look forward to encouraging progress in your remediation effort. If any questions arise regarding our comments/questions, please contact our office at (516) 756-8000.

Very truly yours,
HOLZMACHER, McLENDON & MURRELL, P.C.


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