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DRAFT SAMPLING AND ANALYSIS PLAN FOR NH PLATING COMPANY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

NOV 27 1990

Mr. George Mavris
Roy F. Weston, Inc.
44 Burlington Mall Road
Suite 604
Burlington, Massachusetts 01803

RE: Draft Sampling and Analysis Plan for New Hampshire Plating Company, Merrimack, New Hampshire

Dear Mr. Mavris:

The purpose of this letter is to inform you that we have completed our review of your draft sampling and analysis plan for the New Hampshire Plating Company (NHPC), submitted to the Agency on October 29, 1990. This letter also confirms our initial response to your plan provided in a conference call on November 8, 1990. The proposed sampling and analysis plan will be used to collect representative samples of both untreated and treated soils/sludges. These materials are presently listed as EPA Hazardous Waste No. F006. We note that these materials also may be listed as EPA Hazardous Waste Nos. F007 - F012; however, due to the limited information provided we were unable to make a determination as to the exact classification of these materials. We discuss below the results of our review.

Chemical Stabilization Process

Your draft sampling and analysis plan indicates that between 1962 and 1985, NHPC used three unlined lagoons to dispose of electroplating wastes consisting of various heavy metals, cyanide, acids, and chlorinated solvents. You also indicate that EPA is currently remediating the site and chemically stabilizing the contaminated soils and sludges removed from the site. First, the contaminated soils are mixed with the sludges in a pugmill at a ratio of 4:1 (soil:sludge). The mixture of soil/sludge then is mixed with Type I Portland Cement (presumably in another pugmill)

at a ratio of 3:1 (soil/sludge mixture:Type I Portland Cement). The chemically stabilized residue is transferred via a six-yard dump truck to a lined storage cell. The sampling plan states that between 24 to 38 loads are generated daily; therefore, approximately 144 to 228 cubic yards of chemically stabilized residue are generated daily.

Your description of the chemical stabilization process is not complete. A complete description should include information regarding:

- The maximum total volume of stabilized waste you expect to generate (an accurate measure of waste volume is critical to our evaluation);

- Addition of other reagents and/or water, including source of water (or does the process rely on the moisture content of the soil/sludge mixture?);

- Physical nature of chemically stabilized treatment residue (solid, monolithic, friable, etc.,);

- Length of time soil/sludge mixed and length of time soil/sludge mixture mixed with Type I Portland Cement;

- Size of pugmills used to mix soil/sludge and soil/sludge mixture with Type I Portland Cement;

- Procedure for measuring/metering quantities of soil, sludges, and reagents to ensure proper mixture ratios;

- Safeguards (if any) to prevent short-circuiting (e.g., inadequate mixing or insufficient quantity of reagents);

- Initiation and completion of chemical stabilization process (i.e., start date, end date, elapsed time required to treat all of the material).

- Elapsed time required for reaction to occur, and elapsed time required for material to fully cure;

- Explanation for why treatment residue generated between August 1, 1990 and September 12, 1990 were placed back

into the lagoon system;

- Clarification of whether the treatment system was down during the period of September 12 and September 17, 1990; and

- Procedure for removing chemically stabilized treatment residue from storage cell.

Sampling and Analysis

Sampling Performed To Date

Your draft sampling and analysis plan states that prior to October 22, 1990, representative composite and grab samples of the chemically stabilized treatment residue were collected at various frequencies. Initially, aliquots of treatment residue were collected from each truck and composited every five truckloads, resulting in the generation of one composite sample representing 30 cubic yards of treatment residue. Individual grab samples also were collected, one from each truckload. It is unclear whether composite and grab samples were collected concurrently or separately (i.e., collection of composite samples and then at a later date, collection of grab samples). The draft sampling and analysis plan states that between August 1, 1990 and September 12, 1990, the treatment residue was analyzed for the TCLP extraction concentrations of cadmium, chromium, lead, nickel, and zinc.

The draft sampling and analysis plan then states that beginning on September 18, 1990 aliquots of treatment residue were collected from each truckload and composited every ten truckloads, resulting in the generation of one composite sample representing 60 cubic yards. Individual grab samples also were collected at a rate of one every five truckloads. Again, it is unclear whether composite and grab samples were collected concurrently or separately (i.e., collection of composite samples and then at a later date, collection of grab samples). The draft sampling and analysis plan states that starting October 4, 1990, the list of analytes analyzed using the TCLP increased to nine with the addition of arsenic, barium, mercury, and selenium. On September 21, 1990, analyses were again modified to include TCLP analyses for cyanide and volatile organics. (Due to the chronological progression of your draft sampling and analysis

plan, we question whether the date should be October 21, 1990.) Lastly, samples of the treatment residue also were analyzed for total, amenable, and reactive cyanide. Unfortunately, we do not know how many samples were analyzed for TCLP concentrations or total concentrations, nor do we know the size of each aliquot or grab sample. We also note that TCLP concentrations of silver do not appear to have been completed. Lastly, the draft sampling and analysis plan does not identify the volatile organic constituents tested for using the TCLP.

Sampling to be Implemented

The draft sampling and analysis.plan states that a 16-ounce aliquot of treatment residue will be collected from every truckload and an 80-ounce composite sample will be generated. As we discussed in our conference call, please confirm that the 80-ounce sample will be taken from a composite sample of all truckloads generated daily. The plan goes on to state that the 80-ounce composite sample will be divided into three samples: 1) 32-ounce sample for analysis by primary laboratory; 2) 32-ounce sample for archiving; and 3) 16-ounce sample for QA/QC check by secondary laboratory. A minimum of four samples will be analyzed for:

- TCLP for the TC metals, nickel, and zinc;
- TCLP for the volatile organic compounds;
- TCLP for amenable cyanide;
- Characteristics of ignitability, corrosivity, and reactivity;
- Total metals and volatile organic compounds;
- Cyanide (total, amenable, and reactive);
- Reactive sulfide;
- Total organic carbon (TOC); and
- Oil and grease.

Although it is stated that a minimum of four samples will be analyzed, the draft sampling and analysis plan also states that daily composite samples of the treatment residue will be collected and analyzed for the TCLP analyses for the TC metals, nickel, zinc, and cyanide. In addition, it states that one composite sample of treatment residue will be analyzed for TCLP analyses for the volatile organic constituents every five days, or as deemed necessary following screening of soil and sludge with a photoionization detector (PID). As a result, we are

unclear as to the total number of samples of the treatment residue to be collected and analyzed.

As we discussed in our recent conference call, we believe that the above sampling and analysis procedures are inadequate. Specifically, we believe that the proposed list of analytes is insufficient. Based on the information provided in your plan and our telephone call, we recommend that the following analyses should be performed:

- Total oil and grease content.

- TCLP extractions for all of the TC metals, nickel, and cyanide (using distilled water in the cyanide extraction). However, in the unlikely event that the treatment residue exhibits a total oil and grease content in excess of one percent, the TCLP must be replaced with the Oily Waste Extraction Procedure (OWEP). See SW-846 method number 1330. Lastly, the draft sampling and analysis plan does not specify if the TCLP analyses will be performed on the cured or uncured CSEAFD. If your demonstration is based on analyses of the fully-cured material, the exclusion (if granted) would only apply to the fully-cured material. If you wish the demonstration to be for the uncured material, the TCLP analyses must be performed on the uncured material.

- TCLP extractions for all of the 40 CFR §261, Appendix VIII constituents likely to be present in the waste (we note that an analytical feasible subset, such as 40 CFR §264, Appendix IX, may be used).

- Total concentrations of all the TC metals, nickel, and all of the 40 CFR §261, Appendix VIII constituents likely to be present in the waste (we note that an analytical feasible subset, such as 40 CFR §264, Appendix IX, may be used).

- Total concentrations of cyanide and sulfide. If the total concentration of cyanide exceeds 250 mg/kg, analyzes for reactive cyanide must be performed; and if the total concentration of sulfide exceeds 500 mg/kg, analyses for reactive sulfide must be performed.

- Multiple Extraction Procedure (MEP) concentrations of all the TC toxic metals, nickel, and cyanide (using distilled water in the cyanide extraction) on representative samples. The MEP analyses should be modified by using the TCLP to generate the initial extraction (see SW-846 Method 1320). However, in the unlikely event that the treatment residue exhibits a total oil and grease content in excess of one percent, instead of using the TCLP, you must perform the initial extraction using the Oily Waste Extraction Procedure (OWEP). Furthermore, the samples of chemically stabilized treatment residue must be ground and passed through a 100X mesh screen prior to the TCLP and MEP analyses. Lastly, If you wish the demonstration to be for the uncured material, the MEP analyses must be performed on the uncured material.

- Characteristics of ignitability, corrosivity, and reactivity.

We note that analyses for TCLP and total concentrations of zinc and total concentrations of TOC are not necessary.

You must perform all of the above analyses on representative samples of the stabilized waste. Based on the limited information you provided to date, we suggest that you complete the above analyses on a minimum of 8 representative composite samples collected over the course of the stabilization process. In addition, we recommend that you expand your routine analysis of all daily composite samples to include the following:

- TOG; as noted above, if >1%, OWEP should be used to measure leachable metals.

- TCLP analyses for all TC toxic metals,, nickel, and cyanide (using deionized water for cyanide).

- TCLP analyses for volatile organic compounds (VOCs) likely to be in the waste.

The above recommendations assume you will be able to document that the key analytes of concern are the metals, cyanide, and selected organics (e.g., VOCs). Therefore, you must demonstrate

(through all available data on the site, the production processes operating on the site, etc.) that the metals and selected VOCs are the only constituents likely to be in the waste. Such arguments would appear to be most persuasive for the absence of certain classes of compounds (a.g., herbicides/pesticides, dioxins, PCBs, etc.).

The draft sampling and analysis plan also states that samples of the untreated soils, sludges, and soil/sludges will be collected using the above sampling procedure, and analyzed using the same set of analyses and parameters. The plan states that this information will be used to assess the effectiveness of the onsite treatment process. We agree that samples of the untreated materials should be collected and analyzed to better characterize the waste feed. We, however, believe that it is more important to fully characterize the treatment residue. We, therefore, suggest that only four representative samples of the soil/sludge mixture be collected and that the analyses be limited to the total concentrations of the TC metals, nickel, cyanide, and the 40 CFR §261, Appendix VIII constituents likely to be present in the waste. You may prefer to perform more extensive testing of the untreated wastes to support treatability studies.

Ground-Water Monitoring Data

The draft sampling and analysis plan states that historical analytical data including ground-water data will be used to document the absence of Appendix VIII constituents. We do not believe that ground-water monitoring data are sufficient to document which constituents were not present in the waste. Specifically, we are concerned that the wells may be improperly installed or insufficient in number, the list of analytes monitored may be incomplete and the concentrations and solubilities of the materials potentially in the waste vary widely. Therefore, the mere absence of a specific constituent in ground-water is not sufficient basis to determine that it was never in the waste. A more suitable procedure for excluding potential analytes, is to review the list of chemicals, products and Material Safety Data Sheets (MSDS) for all trade name products used at the facility to determine if a specific chemical was or was potentially present. As noted above, you also may rule out the presence of specific classes of chemicals if these chemicals were not used or generated at the site. W e do request that any ground-water monitoring data that may be collected from

wells installed to specifically monitor the storage call be submitted. Based on our recent conference call, however, such data apparently are not available.

Conclusion

We note that a complete review of your draft sampling and analysis plan was difficult due to the limited nature of the information presented. Nonetheless, we believe that your draft sampling and analysis plan, with the above modifications, is adequate. We also believe that we have addressed to the fullest extent your draft sampling and analysis plan; therefore, we are closing your petition file (#DO828).

If you choose to submit a formal petition in the future, your petition will be assigned a new petition number and reviewed in chronological order along with all nev petitions. We remind you that your formal petition (if submitted) must contain all of the information discussed in the "Petitions to Delist Hazardous Wastes - A Guidance Manual," U.S. EPA, Office of Solid Waste, (EPA/530-SW-85-003), April 1985. Please forward any petition to the following address:

Mr. James Kent
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460
Mail Code: OS-333

Should you have any questions regarding today's correspondence, please call me at (202) 382-2224, or the technical reviewer of your draft sampling and analysis plan, Howard Finkel of ICF Incorporated, at (703) 934-3656.

Sincerely,

Original Document signed

Robert Kayser, Chief
Delisting Section

cc: Linda Murphy, Region I
Andrew Miniuks, Region I
Janis Tsang, Region I

Bob Scarberry, EPA HQ
Narendra Chaudhari, EPA HQ
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