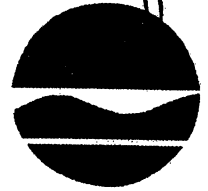


APPENDIX S

LETTER FROM THE NYSDEC – PYRIDINE CLEAN-UP OBJECTIVES

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

6. Turchan
3698-filo



Michael D. Zagata
Commissioner

August 14, 1996

Mr. Charles Carey
Director, Environmental Compliance
Warner-Lambert Company
182 Tabor Road
Morris Plains, NJ 07950

Mr. Maurice Leduc
Director of Regulatory Affairs
Nepera, Inc.
Harriman, NY 10926

Dear Mr. Carey and Mr. Leduc:

RE: Nepera, Inc. - Maybrook
Site Number: 336010

This is a follow-up to the meeting held in Albany on July 31, 1996 during which we discussed the scope of the treatability study to be conducted at the above-referenced site. In accordance with those discussions, the New York State Department of Environmental Conservation's (NYSDEC) comments on the Treatability Study Work Plan have been revised. These comments, along with comments from the United States Environmental Protection Agency (EPA) which pertain to the bench scale evaluation of the biocell technology are attached. Comments from the NYSDEC and EPA which pertain to the pilot study or the in-situ technology have not been incorporated into the attached list of comments since it was decided to drop the in-situ technology from further consideration.

A successful treatability study is hereby defined as one in which the concentrations of the BTEX compounds and pyridine-based compounds in soils are reduced to the clean-up goals outlined in the NYSDEC's TAGM 94-HWR-4046 (see Comment A-6 for the clean-up goals for the pyridine-based compounds). If, during the course of the treatability study, compounds not previously detected are identified, then the clean-up goals for those compounds may also need to be met in order for the treatability study to be deemed a success.

Please incorporate the attached comments into the work plan and submit the revised work plan to the State and EPA by August 30, 1996. It should take the agencies two weeks from that date to review the revised work plan. If you have any questions regarding this matter, please feel free to contact me at (518) 457-3395.

Very truly yours,



John D. Barnes, P.E.
Environmental Engineer 2
Bureau of Eastern Remedial Action
Division of Environmental Remediation

cc: S. Ervolina
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J. LaPadula (EPA)
J. Singerman (EPA)
J. O'Dell (EPA)
G. Turchan (CRA)

NEPERA, INC. - MAYBROOK
TREATABILITY STUDY WORK PLAN - JULY 1996

Comments from the State of New York and the USEPA
August 14, 1996

A. General Approach

1. References to bioventing must be changed to bioremediation. Bioventing is considered to be a subset of bioremediation.
2. In the event that the biocell technology (or equivalent) is the proposed remedy for remediating the on-site source areas, then a cost for treating groundwater and precipitation infiltrating the treatment cell must be developed. A strategy(ies) for addressing water in the treatment cell must be investigated and incorporated into the final Feasibility Report.
3. It is anticipated that if an SVE/bioremediation remedial program is implemented at the Nepera, Inc.-Maybrook site that it would be implemented in two phases. In the first phase, a vapor extraction technology would be utilized. Once the goals for remediating the VOCs are reached, then the second phase, bioremediation, would commence. This is typically how vapor extraction and bioremediation technologies are used in tandem at inactive hazardous waste disposal sites. The bench scale test must be designed with this strategy in mind.
4. On Page 77 of the Remedial Investigation Report, it is stated that there are approximately 9,000 cubic yards of contaminated soils below the water table. These contaminated soils must also be addressed.
5. It is highly likely that nutrients such as nitrogen and phosphorus compounds will need to be added to the soils matrix in order for the biodegradation reactions to proceed. How will the doses of these nutrients be determined?
6. The clean-up goals for the pyridine compounds in soil shall be as follows:
 - pyridine - 400 ppb
 - 2-aminopyridine - 400 ppb
 - alpha picoline - 575 ppb
 - pyridine TICs - 400 ppb (per compound)
7. In order to ensure that representative samples are collected, samples are to be collected from the hot spots (as determined from the data generated during the RI) from each lagoon. Samples are to be collected of surface soils, unsaturated soils, sludge material, and saturated soils (if present at the time of the sampling event). Additional samples from these test pits are to be collected as warranted at the direction of the DEC and EPA on-site inspectors.

B. General Comments

1. Page 2, top of page: The volume of wastewater disposed of at the site ranged from 7,000 to 50,000 gallons per week.

2. Section 2.0: The data summaries presented in Section 2.0 must be limited to the target compounds (BTEX and pyridine-based compounds). If additional data is to be presented, then the rationale(s) for doing so must also be presented.
3. Page 10, first paragraph: In the last sentence of this paragraph there is a reference to "additional samples". Please elaborate.
4. Page 10: It must be made clear that pyridine-based compounds are also target compounds for this project (see also the first paragraph of Appendix A).

Pre- and post-treatability samples must be collected and analyzed not to determine the "effects of the technologies" but the *effectiveness* of the technology.

5. Page 11, Section 3.1: In the event that compounds other than the BTEX and pyridine-based compounds must be remediated at the site, then the literature review will need to be expanded accordingly.
6. Page 12, Section 3.2: This section must be re-written in a clear and concise manner.
7. Page 13, Section 4.1 and Table 4.1: The following table format is suggested:

LAGOON #	SAMPLE ID#	SOIL/SLUDGE as % SOIL	ANALYSES (1)
1	L1-S1	100	A,B,C,D,E,F,G,H,I,J
1	L1-S2	0	A,B,C,D,E,F,G,H,I,J
1	L1-S3	90	A,B,C,D,E,F,G,H,I,J
etc.	etc.	etc.	etc.

(1)
 A - TOC
 B - pH
 etc.

The soil/sludge ratios for the mixed samples must be specified in the work plan. The 90/10 ratio presented in the above table is just one of the possibilities.

The soil and sludge samples are to be collected at locations where the highest levels of contamination were observed during the Remedial Investigation.

When mixing the sludge material with soils, it may be difficult to create a uniform matrix (i.e. - there may be clumps of sludge material distributed throughout the matrix). How will this situation be handled if it occurs? How will any impacts on the rate(s) of biodegradation be factored into the final analysis (decision process)?

8. Page 14, Section 4.1.1: In the first paragraph, it is stated that "(t)he test pits will be utilized to visually inspect the lagoon soil and sludges for conditions which would either support or inhibit the application of the SVE or bioventing technologies". What will the field personnel

be looking for?

9. Page 14, Section 4.1.1: As agreed to during the May 10, 1996 meeting in New York City, analyses for the full TCL/TAL sets of analytes must be conducted for both the pre- and post-bench scale study analytical tasks. Pesticides/PCBs must be added as analytes for this project. In addition, it is strongly recommended that analyses for the full TCL/TAL sets be conducted at the beginning of the column test (time = 0) in order to allow for a more meaningful comparison to the post-treatability analyses. The analyses proposed for the samples collected at the other time intervals during the column test are acceptable.

VOC samples (pre-bench scale sampling) are not to be composited.

10. Page 15, 4.1.3 (and elsewhere): The laboratory analyses (TCL analytes) must be reported with NYSDEC ASP Category B deliverables.
11. Page 15, Section 4.1.2: One of the concerns of the NYSDEC is that bioremediation of the pyridine-based compounds may be severely inhibited in the presence of high concentrations of BTEX compounds. What "... selected mixtures of VOCs, SVOCs, and pyridines..." will be used during the bench-scale test (see also Comment A.3)? This information should be presented in a tabular format.
12. Page 17, What temperature(s) will the columns be incubated at (respirometer test)?
13. Page 18, Section 4.4: At what temperatures will the column tests be conducted at? These tests should be conducted at two temperatures based on the average winter and summer temperatures, respectively (4°C and 22°C).
14. Page 18, Section 4.4: The following experimental conditions must be evaluated in addition to the four experimental conditions outlined at the bottom of the page:
 - a. - the impacts of metals in on-site soils on the biodegradation rates, and
 - b. - the impacts of pesticides and PCBs on the biodegradation rates.
15. Page 19, Section 4.4: The reason why the NYSDEC and EPA have requested analyses for metals during this study is to determine what impacts (if any) the presence of metals have on the biodegradation rates. The second sentence of the third paragraph must be re-written accordingly. This is also an issue with respect to pesticides and PCBs (see Comment B.9).
16. Page 19, Section 4.4: How will the air flow rates through the columns be determined (provide a sample calculation)?

During the July 31, 1996 meeting, there was a discussion regarding simulating vapor extraction and bioremediation modes during the column test. A discussion regarding how this issue will be addressed must be incorporated into the work plan (see Comment A.3).
17. Page 36, Section 7.2: The column tests must be conducted until asymptotes are reached for the pyridine-based compounds.
18. Page 39, Item #2: How is this objective going to be met?

19. Page 39, Item #3: How will the pH be adjusted (if required) during the bench scale study?
20. Page 44, Schedule: The following items must be built into the project schedule:
- ▶ 30 days to revise submittals per comments from the agencies
 - ▶ 2 weeks for the agencies to review the revised submittals

C. Additional Guidance Documents

The EPA has suggested that the following guidance documents be used as guides during this study:

Guide for Conducting Treatability Studies under CERCLA: Aerobic Biodegradation Remedy Screening - Interim Guidance, EPA/540/2-91/013a, July 1991

Guide for Conducting Treatability Studies under CERCLA: Biodegradation Remedy Selection - Interim Guidance, EPA/540/R-93/519a, August 1993

Bioremediation of Recalcitrant Organics, by Hincee and Anderson, Battelle Press, 1995