

**Subject: Open Field Burning
Wet Scrap Accumulation
Woodbury**

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November 30, 1967

MINUTES OF A MEETING

A meeting was held on Friday, November 17, 1967, to review the the proposed methods of burning of the wet scrap still remaining in the pits on the 3M disposalsite in Woodbury Village. Those present were J. F. Evert, L. F. Ludford, G. B. Dyball, W. S. Anderson, J. T. Ling, H. J. Wessel, J. W. Todd, R. C. Watters, D. W. Kirkwold and the writer.

The overall solution of the entire Woodbury problem is basically divided into these phases:

- (I) The pumping well and force main system designed to stop and remove the chemical contamination that has already seeped into the ground water.
- (II) The removal of the wet scrap that is still in the original pits.
- (III) The removal of the chemical contamination that has seeped into the soil below the pits but has not reached the ground water. There is an average of about 50-60 feet of soil between the bottom of the pits and the ground water.

Phase I is under construction and will be in operation about December 15, 1967. Phase III is still being studied in the laboratory and a solution will be recommended at a later date. The successful solution of phases II and III will significantly reduce the overall pumping time required to remove the chemical contamination from the ground water.

**Exhibit
1065**

State of Minnesota v. 3M Co.,
Court File No. 27-CV-10-28862

In May and June, 1967, soil borings were made through the wet scrap pits at the 3M disposal site in Woodbury Village. Based on the results of these borings and the laboratory analysis of the soil and wet scrap, it was estimated that at least 95 per cent of the wet scrap that was originally disposed of at Woodbury still remains in the pits. The remaining 5 per cent has seeped into the soil and into the ground water.

As a result of the soil borings and subsequent analysis and evaluation of the scrap still remaining in the pits, three methods of disposal were investigated to varying degrees:

- (1) Complete incineration
- (2) Retorting in a rotary kiln at low temperature followed by combustion of the gases that were driven off.
- (3) Open field burning

Items (1) and (2) were investigated only in the laboratory. It was estimated that in either case the capital investment required would be at least \$1,000,000 and much more laboratory and pilot plant work would be required before an actual design could even be realized.

The open field burning was further tested in August under actual field conditions. The tests were made by personnel from the Central Research Pilot plant and the Environmental and Civil Engineering Department. A drag line was used to excavate the scrap from the pits. The scrap was piled beside the pits in 1-2 foot layers and burned. During the burning process the drag line was used to mix the burning mass and increase the burning efficiency. Following completion of the burning, samples of the remaining ash were collected for analysis. According to J. W. Todd and J. F. Evert, it was found that the overall scrap volume had been reduced about 75 per cent and that the chemical solvents in the scrap such as isopropyl ether, methyl ethyl ketone, etc. had been reduced by more than 99 per cent.

Based on these results it was felt that the ash could be put back into the ground without further seepage, however, the ash will be piled above ground, diked and observed for a period of time after the burning to be sure there is no additional seepage.

The combustion process itself is very inefficient and consequently there will be huge volumes of intense black smoke generated during the time of burning. Air samples were collected during the test burning in the immediate vicinity of the burning and analysis made for the common pollutants such as carbon monoxide, carbon dioxide, sulphur dioxide, particulate material, total hydrocarbon, etc...

Since atmospheric dilution is the only control, the products of combustion could present a problem if adequate dilution is not available. Problems such as the nuisance created by odor and smoke and possible property damage by soiling clothes, buildings, etc. could be the result. Based on our laboratory analysis on the samples collected there was no indication that there will be any harmful health effects; however, the extensive number of products of combustion that have not been monitored and their possible synergistic effects combined with inadequate atmospheric dilution could conceivably present a problem. A monitoring system will be established during the actual burning to determine the effect of the burning and the products of combustion that could possibly be harmful. If we appear to be approaching such levels of contamination, the extent of burning will be reduced so that the concentration of the products of combustion would be in the harmless range. However, reduction in the volume of scrap being burned will extend the time in which it takes to complete the project. It should be emphasized that a monitoring system is only as effective as the components being looked for. A complete list of all the suspected products of combustion will be made by G. B. Dyball, W. S. Anderson and J. A. Pendergrass prior to the burning so that a monitoring system can include them.

The burning will take about ten weeks, 24 hours each day, seven days each week. Two large rigs with clam shell buckets will be used for excavation and one rig with a logging bucket will be used for mixing. A bulldozer will be used to pile the ash after burning. The estimated cost is about \$300,000.

If this method of disposal is approved by 3M management, approval of several governmental agencies will be required before the burning can start. These include the new Minnesota Pollution Control Agency and both Woodbury and Cottage Grove Village councils. Although the St. Paul Air Pollution Control Agency has no jurisdiction in this area they should also be appraised of the situation so they will be able to answer any questions they might get asked about the burning.

As a result of the meeting the following conclusions were reached:

- (1) Based on the test burning and the subsequent laboratory analysis, the burning will be complete enough so that the remaining ash can be buried without further seepage and continued ground water contamination, however, the ash will be piled above ground, diked and observed for a period of time after the burning to be sure there is not additional seepage.
- (2) A detailed procedure for the burning, air monitoring and safety precautions will be completed by December 4, 1967. Messrs G. B. Dyball, W. S. Anderson, and J. A. Pendergrass will compile a list of known products of combustion that should be monitored.
- (3) If this method of disposal is approved by 3M management, all permit and approval negotiations should be complete by December 31, 1967.

- (4) If all approvals are obtained the burning should be scheduled to start about January 2, 1968, so that it can be completed during the winter months.

Submitted by

CEK

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