NUS CORPORATION
SUPERFUND DIVISION

INTERNAL CORRESPONDENCE

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TO: DAVE MAC INTYRE
DON BRENNEMAN
DON SENOVICH

DATE: SEPTEMBER 10, 1985

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FROM: G. D. GARDNER

SUBJECT: MEETING NOTES FROM MEETINGS HELD FEBRUARY 8, 1985 AT U.S. EPA, REGION III OFFICES IN PHILADELPHIA, PENNSYLVANIA AND AT DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL OFFICES IN DOVER, DELAWARE
TYBOUTS CORNER LANDFILL - PROJECT 5716

Meeting at U.S. EPA, Region III Headquarters, Philadelphia, Pennsylvania

A meeting was held at U.S. EPA Region III Headquarters to discuss the initiation and implementation of the Feasibility Study at Tybouts Corner Landfill. Persons present included: G.D. Gardner, NUS Corporation; Roy Schrock, RSPO, Abe Ferdas, REMPO, Thomas Voltaggio, REM/FITPO, Marilyn Plitnik, geologist, U.S. EPA personnel. The meeting began at 9:30 a.m.

The purpose of the meeting was to discuss the Feasibility Study and potential "operable units" to subdivide the potential remedial actions at the site. Abe Ferdas indicated he would prefer to see the Remedial Investigation/Feasibility Study reports combined to eliminate the needless duplication of background, and other boilerplate that appears in NUS reports. In addition, he said it reduces the number of reviews required, making the process more time efficient. Roy Schrock indicated that at least a preliminary draft report for the Remedial Investigation should be issued for the State to review. Gardner indicated NUS would continue to proceed along the time line that would produce a preliminary draft RI report at the end of March.

Gardner indicated that the draft RI report and FS report dates may not be met if the delivery date for the last sampling (January, 1985) could not be delivered before March 5, 1985. March 5, 1985 was the date that the U.S. EPA - ESD recently estimated for the delivery of the validated data. Tom Voltaggio made a telephone call and obtained a committment of the middle of next week (February 13 or 14) of the validated laboratory data for the last round of sampling.

Gardner explained that there are two and possible units of contamination at Tybouts Corner Landfill. The first is the main landfill, including the small landfill west of Pigeon Run, which is the primary source of contaminants. The second is the contaminated groundwater plume that exists in the Middle Sand. The Middle Sand is believed to be part of the Upper Hydrologic Zone. The third is the potential contamination in lower sand aquifers of the Upper Hydrologic Zone. The status of these lower aquifers will not be known until the sampling data from the third round of sampling is received and reviewed. The question Gardner posed to Ferdas and Voltaggio was as follows:

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- Should the landfill itself be analyzed as an operable unit or should the Middle Sand combined with the landfill be considered the operable unit?

- Since the status of the sand aquifers below the Middle Sand is unknown, should NUS proceed with the Feasibility Study assuming that the Middle Sand and landfill would be treated at an operable unit.

- Should NUS proceed with evaluation of the incineration, and the RCRA level compliance land disposal alternative?

- Voltaggio indicated that the landfill and Middle Sand should be evaluated as a single operable unit. Voltaggio also indicated that incineration has to be evaluated so NUS should proceed. In addition, the RCRA land disposal option should proceed if the information is available to adequately evaluate this alternative. Gardner indicated that the remaining source control remedial alternatives would be evaluated using a computer groundwater model to facilitate the Feasibility Study. Gardner explained that the computer model would allow super position of various remedial actions, such as groundwater pumping and treating, surface capping, groundwater diversions, for the source control options to determine the impact on the groundwater flow regime immediately around the site. The purpose was not to model the regional flow to determine the impact on municipal wells at some time in the distant future. Gardner emphasized that the model would expedite the analysis and allow for more alternatives to be evaluated. Manual analysis of the groundwater conditions would take many months. All parties agreed to go ahead with the modeling assuming that the objectives of the modeling could be met.

The meeting ended at approximately 11:15 a.m.

Meeting With State of Delaware DNREC at Dover, Delaware

The meeting with the State of Delaware Department of Natural Resources and Environmental Control personnel started at 1:15 p.m. Persons present included:

Roy Schrock - U.S. EPA
G. D. Gardner - NUS Corporation
Mike Apgar - DNREC
Steve Young - DNREC
Robert Prickert - DNREC
Charles Bandoian - ERM, consultant to DNREC

The purpose of the meeting was to report the status of the RI and FS and to obtain the opinion of State personnel regarding the use of computer modeling for the Feasibility Study. In addition, the State was requested to contact Getty Oil Company to utilize well OR-6 for a pumping test to be conducted within the next several weeks.

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Gardner described the progress on the RI since the completion of drilling in late December, 1984. Work completed in January included:

- Sampling of all Phase III and selected Phase I and II wells.
- Performance of hydraulic conductivity testing (short-term pump test) on all but two of the Phase III wells.
- Continued data analysis, including interpretation of geophysical logs from Phase III borings which were received in mid-January.
- Continued monitoring of groundwater levels with continuous water level recorders.
- Risk Asssment analysis based on the new guidance from U.S. EPA.

Gardner requested that the State pursue conducting a pumping test on the shallow Getty well as location OR-6. This is an 8" diameter well screened in the zone appropriate to test the monitoring wells at Tybouts Corner Landfill. Gardner indicated the distance from the fill, combined with the effect of tidal fluctuation may preclude obtaining significant results from the pump tests. However, the availability of the well and its location in the proper formations make the attempt at testing a worthwhile adventure. Gardner indicated the well is an 8" diameter steel cased well with a well screen approximately 74' long. There is no well pump in the well. The State will determine whether Getty can provide the pumping or not. If not, NUS will have to pump the well.

Gardner explained the desirability and usefullness of utilizing groundwater modeling to assess remedial action alternatives. Gardner discussed the process by which the MacDonald and Harbaugh model was selected to model flow at the site. Gardner indicated use of the model would be restricted to analyzing remedial alternatives for source control and for pumping schemes in the Middle Sand. Gardner indicated that modeling the aquifers below the Middle Sand would not be possible due to a lack of data. Gardner stressed the modeling would be used as one tool to assess remedial alternatives. The State and their consultant were concerned that use of the model might be overstated in terms of the accuracy of results, and that erronous judgement may arise from an inaccurate model. Gardner emphasized that NUS was aware of the perchance to lose the "forest through the trees" in modeling and that a conscious effort would be made to avoid this problem. NUS groundwater modeling expert, Vedat Batu has an open dialogue with many of the recognized experts in practical groundwater modeling (E.P. Papadolpoulos, Pinder, and MacDonald who wrote the model being used for this investigation).

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Gardner indicated the modeling would proceed in a step-like fashion. The first step was to identify whether or not the Tybouts Corner Landfill hydrogeology could be modeled and which model was appropriate to use. That step is completed and a MacDonald Harbough model was chosen. The next step is to input the raw data on the grid. The grid would be designed to accommodate remedial action alternatives. The third step is to calibrate the model. Calibration would take place by comparing calculated with existing static water levels after running the model through several time steps. Adjustments to the model would be made by adjusting hydraulic conductivity. NUS will now proceed into the calibration of the model. The forth step will be to superimpose remedial alternatives on the calibrated model and determine the changes in groundwater flow regime. This will allow NUS to interpret the potential changes in contaminant flow.

Mike Apgar indicated that New Castle County has advertised for a consultant to perform groundwater pumping and treating. Mike believes this is for Tybouts Corner Landfill.

The State is concerned that the pump and treat option be included in the Feasibility Study. The pump and treat option they would like to see is one in which production wells could be established and the water pump and treated for use by local industry. Gardner indicated this option would be evaluated for the Middle Sand in the Feasibility Study to be prepared by the end of April. Pumping and treating of aquifers deeper than the Middle Sand, if found contaminated, would require further field investigation including establishment of the pumping well.

The meeting adjourned at approximately 3:15 p.m.

GDG/lcw