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PLAINTIFF'S EXHIBIT
UC-2802

ENVIRONMENTAL TECHNOLOGY
MONTHLY ACTIVITIES REPORT

MAY, 1986

HEALTH, SAFETY & ENVIRONMENTAL TECHNOLOGY
ENGINEERING, MANUFACTURING & TECHNOLOGY SERVICES

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AIR QUALITY/COMBUSTION Manager: G. M. Whipple

The Sistersville trial burn plan was completely revised in response to the regulatory agency's request to use toluene as a POHC. The agencies have repeatedly expressed that Best Engineering Judgment will not be used in setting the permit conditions. The test plan now covers five test conditions. (K. C. Lee)

Another source sampling study was conducted at the Institute Polyox Unit during the week of May 12 to collect emission data for a process vent (230-A) under a modified process operating condition. A separate study was also conducted in the same period for establishing the ethylene oxide and isopenthane venting characteristics from two batch reactors. Data will be used by the Reaction Engineering group for optimizing the reaction steps for ethylene oxide emission reduction. (W. Y. Wang)

Progress was made in validating the analytical methods to be used for a process emission study at the Taft and Seadrift Oxide/Glycol Units. Emission data are required to address a key air quality issue. The field study is planned for the second week of June. (W. Y. Wang)

In supporting the Ethyleneamines business for the evaluation of AEEA/TETA recovery from EA-II heavies splitter tails at Texas City, a batch still residue sample was analyzed for ash, chlorine and sulfur content. A review of existing data supports the current plan to burn this residue in the Texas City residue boilers (in late July). Proper combustion of this residue can reduce the No_x emissions to an acceptable level. A field study during the initial burns was proposed. (W. T. Wang)

"LUWA" Project Texas City

The Outline of Project for the "LUWA" project in Texas City for Solvents and Coatings Materials Division was reviewed. Because of the preliminary nature of this project, two issues remain to be resolved:

1. An application for a Standard Exemption Number 106 to the Texas Air Control Board Regulation VI must be approved before construction begins.

2. Waste from process start-up and shut-down will probably be classified RCRA hazardous due to its high acetone content.A Notice of Registration must be submitted to the State of Texas to notify them that a new hazardous waste will be generated. (D. I. McCready)

The AIChE's Center for Chemical Process Safety has formed an advisory committee to formulate and oversee projects relating to dispersion modeling. Two projects are presently under consideration. One is preparation of a spill modeling manual. The other, a "source" model for dense vapor and two-phase jet mixing. (J. R. Foster)

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Dispersion modeling was performed in support of the Kanawha Valley Ethylene Oxide Distribution Project to determine a minimum stack height required to prevent injury from an emergency ethylene oxide release. A graph of maximum ground level concentration vs. stack height was prepared. (J. R. Foster)

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RCRA/LAND/GROUNDWATER

Manager: A. H. Cheely
L. S. Magelssen

The field program to determine the extent of saline contamination began at Napoleanville, LA in late May. A field laboratory was established, monitor wells installed and initial soil samples were submitted for analysis. The geophysics survey provided a preliminary map of the saline "plume". (J. Bee, D. Cooper)

The Sistersville Dewatering project team met twice during the month to further define the scope of the dewatering project and to evaluate issues remaining before commencing the detailed process package. A time schedule and engineering estimate was developed for Division Engineering Management. The team's consensus is that two dewatering units will be installed in 1988 during the same time frame as the new hazardous waste landfill. A presentation will be made in June to the Project Steering committee concerning the status of the project. (D. Coffman)

An environmental audit package was prepared for use during the 511 Technical Center Intralocation audit. The audit was conducted during the week of May 19-23, 1986 and was a comprehensive environmental audit which evaluated the 511 EP Department's compliance with laws and regulations, Corporate Policies & Procedures, site permits (air, water, RCRA), and record keeping. Acted as the lead auditor for the audit and responsible for issuance of the final audit report. Final audit report will be issued in mid-June. (D. Coffman, A. Booth)

Proposed revisions to the Corporate Aquisition Checklists for environmental concerns were proposed based upon experiences during the Amerchol acquisition review and the previously submitted revisions to the Corporate CBP Checklists. (A. Booth)

A proposal has been received from Law Engineering Services (LES), to perform an ACL Demonstration for the industrial landfill at APC's Woodbine facility. The technical work will be monitored by CED EP personnel. A meeting with LES was held 5/29; critical issues were defined, an action plan developed, and review periods and target dates were established. The first "working meeting" review is scheduled for June 1986. (L. Scholl)

A soil sampling program designed at Taft to define the extent of PCB soil contamination has been completed. Six separate areas were sampled, both at Taft and Linde plants, all associated with acetylene flame arrestors which formerly held PCB - containing oils. Taft plant analytical and EP personnel have assumed responsibility for sample analyses. (L. Scholl)

The Phase I sludge collection and analysis program at the Holz Impoundment was completed. Results from this program will be used to decide if sludge delisting is possible. (S. Shah, D. Cooper)

Agency approval was received for the Feasibility Study Work Plan for the Marietta site investigation. The Remedial Investigation Report was re-reviewed and limited additional comments were reviewed. The March sampling data was received and a sampling plan for the June round of samples was proposed. (J. Vinzant, L. Scholl, A. Cheely)

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A study continues at Taft to define sludge disposal alternatives. Design alternatives for accumulated sludge are being prepared for Taft's PSSB, Equalization Basin, and Emergency Basin assuming Taft's waste material is declared hazardous by EPA's impending definition for hazardous wastes through RCRA (due in November, 1986). In addition, the report will look at disposing of the WWTP make sludge under hazardous material classification, and determine whether the Equalization Basin and/or Emergency Basin can economically continue to operate. (D. Wang)

A two day meeting was held at the Marietta Plant to assist Plant EP personnel in preparing for the Comprehensive Monitoring Evaluation (CME) review to be conducted by US EPA, Ohio EPA and contract personnel on June 5-7, 1986 (A. Booth, J. Vinzant)

The following activities were completed in support of the ground water monitoring and closure plan development projects at Texas City:

Upon the submittal of the IPDA Part 1 Investigation Report, status reports describing the status of the compliance plan applications for the OPDA and Lake Rosie were issued.

A schedule for the development of the Compliance Plan Application for Lake Rosie was prepared and issued to In-Plant Distribution.

Critical issues relating to surface impoundment closures and ground water monitoring/corrective action were summarized in a memo and presented to J. B. Evans in a meeting at the Plant.

A draft ERT ground water quality assessment report for Lake Rosie was distributed to and discussed with personnel in In-Plant Distribution and EP Operations. A final draft was reviewed at ERT, Inc. offices in Houston prior to submittal to the TWC.

A novel technique for tracing a contaminant plume in ground water was critiqued in a meeting with In-Plant Distribution and the supplying subcontractor (Tracer Research). Plans were made for a mid-June trial of the technique at Lake Rosie. (J. Pastene)

The capital costs of corporate wide compliance with 1984 RCRA requirements were estimated to be approximately $100MM through 1990. These costs could be reduced by an optimal combination of contract disposal, regional incinerators, and local waste incineration/treatment facilities, by at source reductions and by wastewater treatment plant modifications. (L. S. Magelssen)

A representative blending/stabilization scenario for UCCI dripolene and primary solids pond material, was defined for air emissions evaluation. Evaluation is proceeding based on the criteria of health effects and odor threshold in the nearest community, Playa de Guayanilla. (C. A. Wilger, R. L. Berglund)

A detailed action plan was prepared for the development and submittal to the EPA of closure plans for the Ponce equalization basins and Primary Solids Ponds was drawn up. Three closure alternatives are currently being

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considered; i) Closure by cleaning out the contaminated sludge and soil to acceptable levels ii) closure by removal of the sludge and covering of the contaminated soils in place, and iii) closure by covering the contaminated sludges and soils in place. (V. G. Balagopal)

In early May, the EPA informed UCCI that the aeration basins would need to be delisted or "closed" under a plan which would leave the basins intact before the basins could be transferred to PRASA. An accelerated sampling program was completed to support the delisting petition and closure plan. Sample analysis and write-up of both documents is in progress. (T. Wong, V. G. Balagopal)

Soil samples were taken and a piezometer was installed to evaluate dike stability of the Ponce dewatered sludge landfill. These efforts are needed to answer an NOD. (T. Wong, C. A. Wilger)

Leachability tests were performed on specimens of previously stabilized Ponce dripolene A/B, East and West primary solids Pond's sludges. A TCLP test on stabilized dripolene sludge showed relatively low (ppb) concentrations of a few hazardous constituents. A field demonstration by Enrico, a waste stabilization vendor, was attended; a trip report summarizing the attractive features, potential concern areas, and recommendations will be issued in the near future. A field test, using Enrico's system, has been tentatively scheduled for Ponce. (T. Wong, S. I. Shah).

Samples of Ponce A & B dripolene treated using the Kippen process were sent to San Juan Cement for their evaluation of the use of processed dripolene as a fuel. (T. Wong)

The Detection Ground Water Monitoring Program for the Ponce Puntilla Waste Management Area and Compliance Monitoring Program for the Industrial Landfill Waste Management Area were prepared as "stand alone" documents and were sent to EPA as scheduled on May 30, 1986. These documents propose permit language for RCRA Ground Water Monitoring at Ponce. (B. E. Smith)

A scope of work and RFP were prepared for an oil migration study; the contract was awareded to Prof. Jon Sykes, University of Waterloo. The Phase II action plan for Ponce ground water remedial action was prepared and work commenced on the oil migration and ground water modeling tasks. A finite element grid was prepared and a first run was made on the Ponce ground water model to simulate existing ground water conditions. (B. E. Smith)

Environmental endorsement of the Nippon Unicar Company Ltd. - Silicones Expansion was recommended. Previously identified environmental concerns associated with the Sistersville chlorosilanes spill/fire containment project were reviewed and their status documented. CBP summary checklists were prepared for both projects. (R. A. Hoppe)

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WASTEWATER TREATMENT/PRODUCT SAFETY Manager: M. P. del Pino

Aquatic toxicity tests conducted on the Technical Center Outfalls 008 and 003 showed no acute toxicity in 008 to fathead minnows or Daphnia magna and no acute toxicity to fathead minnows in 003. However, significant acute toxicity was indicated in 003 to Daphnia magna with a measured 48-hour LC50 of 63 percent. Based on our initial Daphnia test data on several outfalls, it appears that these test organisms are generally more sensitive than the minnows and suspended solids and algae can contribute to the measured toxicity. (G. T. Waggy)

Degradation of Polymer JR and Cellosize (produced at CPI and Institute) are being studied. Preliminary investigations indicate enzymatic pretreatment followed by biological treatment may be a viable alternative. An internal clarifier and sludge recycle pump and line have been installed in Pond-1 at CPI. Arrangements have been made for wasting of biological sludge on a regular basis. (P. S. Kodukula, J. C. Hoskinson)

The semi-annual CMA Environmental Update was attended in New Orleans, LA., on May 19 and 20. Discussions were held concerning regulatory developments in the areas of RCRA, Superfund, effluent guidelines, groundwater, and air pollutants. While a separate memorandum will issue summarizing major issues, one important finding was that screening level procedures for land disposal prohibition will be abandoned by EPA; performance level requirements or specification of disposal options will be utilized instead. (T. W. Siegrist)

Ecological effect data were collected on UCON Hydrolube Concentrate 5902 to provide requested information to Texaco. These studies showed UCON Hydrolube 5902 to be relatively non-toxic to fathead minnows and Daphnia magna with LC50 values greater than 4,0000 mg/L. Some toxicity was indicated by a LC50 of 270 mg/L in the Microtox test using marine luminescent bacteria. (G. T. Waggy)

Ecological effect data were collected on Silicone Surfactant L-536 to meet the need of a customer, Scotfoam. The information shows that L-536 is biodegradable and relatively nontoxic to bacterial biomass, but it is toxic to fathead minnows and Daphnia magna as most surfactants are. (G. T. Waggy)

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RESEARCH/TECHNOLOGY/STANDARDS PROGRAM Manager: R. A. Conway

The EPA Science Advisory Board started evaluating risks associated with several means of sludge disposal at a May 1-2 meeting. The Publicly Owned Treatment Works (POTW) sludges involved are of both direct interest to South Charleston and Texas City, and of indirect interest as the technology spills over to hazardous wastes. Risks associated with land disposal, incineration, and ocean disposal are to be assessed using common bases; this will lead to proposed regulations later this year. The next meeting is June 10-11. (R. A. Conway)

The development of a waste management system for a multiple purpose incinerator was added to the new proposed ASME combustion research program in support of the regional incinerator projects. (K. C. Lee)

A meeting of an ad hoc workgroup, formed under the CMA RCRA Regulations Taskgroup, was attended. CMA's comments on EPA's recent petition guidance manual (on developing and submitting a petition for a variance to the upcoming land disposal restrictions) were reviewed and finalized. Plans were made and responsibilities were assigned for developing CMA's comments on the recent proposed RCRA codification rule (28-MAR-86 FR). Our main input related to the proposed minimum technology (i.e., double liner) requirements for surface impoundments and landfills. Numerous technical comments questioning the proposed performance standard for liner systems and the Agency's assumption that flexible membrane liners are leak proof were provided. Questions about the validity of some of the assumptions in SOILINER model were raised. (A. J. Pastene)

A position was accepted on the CMA RCRA Modeling Workgroup (formed under the RCRA Regulations Taskgroup). The group is initiating a settlement with EPA's Office of Solid Waste pertaining to EPA's VHS model and other land disposal models, in lieu of litigation. It is anticipated that, through the auspices of the settlement negotiation, CMA can have a significant effect on the models that will be used by the Agency in upcoming land disposal restrictions, waste characterizations, and delistings. (A. J. Pastene)

A summary of the issues associated with the Air Emissions Regulations under RCRA was presented to the CMA RCRA Task Group on May 15. The purpose of this presentation was to ask for their support and continued involvement in the program, particularly when specific hazardous waste issues are involved. (R. L. Berglund)

At meetings of the CMA Secondary Emissions Workgroup on May 13 and May 14, the workgroup first discussed ongoing EPA field sampling studies, and formulated comments on EPA documents. Then it met with over 30 EPA researchers, regulators, and contractors working on secondary emissions programs. Important issues discussed in the EPA/CMA meeting relate to waste water effluents, RCRA facilities, and NESHAPS. Two new documents have been received from the EPA for review. These are associated with air emissions from (1) aerated wastewater treatment systems, and (2) land disposal systems. The first study will be used as a basis for subsequent field investigations. The land disposal study was to be used in developing a laboratory research program. Significant limitations of both documents have been observed and transmitted to the EPA. (R. L. Berglund)

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The issues covered at the final meeting of the CMA Process Emissions Regulation Task Group on May 15 included task group reorganization, secondary emissions, the EPA's intent to issue a single Hazardous Organic Chemical NESHAP in June of 1987, and ongoing litigation on benzene, vinyl chloride, radionuclides and the 'intent to list' framework. This task group will be reformulated into the new Air Standards and Regulations Task Group in June. (R. L. Berglund)

The key issue discussed at the CMA Hazardous Air Pollutant Work Group meeting was the upcoming Hazardous Organic Chemical NESHAP being scheduled for June 1987. This single regulation may cover all the chemicals which the Agency has indicated they 'intend to list'. Presently, chlorinated hydrocarbons and butadiene will be included in the NESHAP; ethylene oxide remains under review. (R. L. Berglund, G. M. Whipple)

A meeting of the Ethylene Oxide IC Environmental Task Force with EPA was held on May 6 and 7 to review the recently completed short-term emissions surveys and discuss the Agency's model plant concept. The Agency is still reviewing the need to regulate air emissions of ethylene oxide from production facilities, and make a decision within the next month. (R. L. Berglund)

The U.S. EPA sent three officials, representing different functions, to the ASME research committee May meeting to ask for help in developing regulations for municipal waste incinerators. They acknowledged that EPA needs help from practitioners. (K. C. Lee)

Current EPA thinking on how industrial boilers burning hazardous waste should be regulated was received from CMA; it was reproduced and sent to all plants for comment. Data on the heavy metal content (in ppm level) of wastes are critical in helping EPA set realistic limitations on waste feed. EPA also requested input on other technical issues. (K. C. Lee)

With partial support from the DEAM Remedial Technology project, terrain conductivity surveying, a remote non-destructive geophysical method used to quickly investigate the surface soil and pore water conductivity of a site was evaluated for tracking the subsurface migration of contaminants. The conductivity survey measured, at the ground surface in a marsh environment, the response of the ground to a direct current induced by the instrument. Changes in geologic structure, pipelines, soil composition or pore water composition altered the induced conductivity measured by the instrument. The method is applicable to plumes of separate-phase organics, saline and high or low pH compounds and inorganic compounds that distinctly change the groundwater or soil conductivity. (J. M. Bee)

ASTM Subcommittee D34.09, Treatment Methods discussed performance testing for solidified wastes. Methods for testing of long-term biodegradation effects were brain stormed; preliminary thoughts within the subcommittee will be circulated for technical review. The Canada/USEPA joint study will be closely followed while developing ASTM Standards for developments in other tests for performance of solidified wastes. (S. I. Shah)

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The first phase of the DEAM secondary emissions laboratory studies has been completed. Batch tests were conducted to evaluate the relative fates in an activated sludge system of eight specific organics that represent ranges of volatilization potentials and biodegradabilities. Surface and sub-surface aerated reactors were spiked with the compounds of interest, and reactor off-gas and mixed liquor samples were collected as functions of time and analyzed for specific compound content. A preliminary examination of the results reaffirms that some chemicals rapidly bioconvert upon contacting the biological medium. In addition, the removal of chemicals through volatilization follows first order kinetics, but that bioremoval follows zero order kinetics for specific organics. The implications of the results are that the portion of a chemical volatilized in a biological system increases with increasing concentration. (R. L. Berglund, T. W. Siegrist)

This transfer of the secondaryemissions issues to the wastewater effluent limitations guideline programs from the EPA Air Office was acknowledged by EPA to be a direct result of the comments submitted by CMA. This option was strongly suggested, and is a significant victory for the chemical industry. Preliminary indications are that if OAQPS is going to propose a pretreatment level for the influent to the WWTF, it will be in the ppm range (possibly 10 ppm, as in vinyl chloride) rather than the ppb range (25 ppb) proposed by the Office of Water. (R. L. Berglund)

A detailed summary of the recent CASAC meeting reviewing the Ozone NAAQS has been prepared, and a plan for future action by the chemical industry was developed. EPA regulatory activity on the Ozone NAAQS will continue for two more years. In addition, the EPA plans to increase their efforts to reduce ozone levels in nonattainment areas. The chemical industry needs to be in a position to respond technically to the approaches being considered in the EPA's regulatory program. (R. L. Berglund)

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