ATTACHMENT 8

EPA PROJECT XL PROPOSAL
F006 SLUDGE RECYCLING PROJECT FACT SHEET #1
(Rev. 07/19/00)

INTERNATIONAL BUSINESS MACHINES CORPORATION
EAST FISHKILL FACILITY

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What is Project XL

Project XL, which stands for "e**X**cellence and **L**eadership", is a national initiative that tests innovative ways of achieving better and more cost-effective public health and environmental protection. The experience and lessons learned from Project XL will assist EPA in redesigning its current regulatory and policy-setting approaches. Project XL encourages testing of **cleaner, cheaper, and smarter** ways to attain environmental results superior to those achieved under current regulations and policies, in conjunction with greater accountability to stakeholders. Project XL is limited in scope, having a goal commitment of 50 pilot projects. Therefore, it is vital that each project test new ideas with potential for wide application and broad environmental benefits. As of July 2000, twenty-six pilot experiments are being implemented and twenty additional projects are being developed.

Project Summary

As an integral part of the semiconductor manufacturing process, wastewater containing dissolved fluoride and certain metals is generated by electroplating processes in various buildings located throughout the IBM East Fishkill facility in Hopewell Junction, New York. This wastewater is conveyed via piping and pump stations to one of two on-site wastewater treatment facilities for treatment. As a result of the wastewater treatment process, a wastewater treatment sludge is generated. EPA lists such wastewater treatment sludges from electroplating operations as a hazardous waste with a code of F006. This XL Project proposes to reuse the F006 sludge from one of its wastewater treatment plants as a raw material in cement manufacturing. It is anticipated that the F006 sludge would represent less than 1.5% of the total raw material feedstock for one day.

Currently, this sludge is being disposed in a permitted landfill. However, since the composition of the F006 sludge is very similar to the raw materials utilized in the manufacture of cement (see Table 1), it is technically possible for this material to be recycled in the production of cement. From a regulatory perspective, the federal and state rules which regulate the management of hazardous waste already include provision for such a recycling project.

The reuse of approximately 2300 tons of this wastewater treatment sludge in the manufacture of cement was accomplished from 1988-1991 in accordance with approvals from NYSDEC and USEPA. The project was discontinued when there was a reinterpretation of the applicable regulations by the USEPA.

Superior Environmental Performance

There are several benefits to this XL Project that further environmental protection:

- Movement of the sludge to the top of the waste management hierarchy (from landfill to reuse).
- Conservation of raw materials currently used in cement manufacturing.
- Decreased requirements for mining operations.
- Utilization of limited landfill capacity for wastes requiring this management option.

The above environmental benefits will be maximized with the implementation of F006 sludge recycling on a national basis.

Flexibility

The feasibility of using F006 as a raw material in the manufacture of cement has been proven during IBM's prior project during 1998 - 1991. This project utilized the exemption for hazardous waste used/reused in the manufacture of commercial products, but was discontinued when there was a reinterpretation of the applicable regulations by the USEPA.

The flexibility being requested as part of this XL Project is the recognition that the sludge undergoes a physical and chemical transformation during the cement manufacturing process, and thus is no longer identifiable in the cement product. As such, use of the cement in or on the ground would not be considered disposal of the F006 sludge.

Stakeholder Involvement

IBM is soliciting input regarding this XL Project from local officials and environmental groups, national environmental groups, industry representatives and the general public. The stakeholders group will assist IBM in preparing the final proposal to EPA by attending meetings with IBM, reviewing project-specific documents and reports, reviewing the final proposal and expressing any concerns in regard to safeguarding public health and the environment.

Table 1: Comparison of IBM F006 Sludge to Cement Manufacturing Raw Materials

Constituent	Typical Raw Mix (%)	IBM F006 Sludge (%)
SiO_2	14.3	13.09
Al_2O_3	3.03	5.94
Fe_2O_3	1.11	0.36
CaO	44.38	41.33
MgO	0.59	0.89
S	nil	nil
SO_3	0.07	8.45 (a)
Loss on Ignition	35.86	28.65
K_2O	0.52	0.04
Na_2O	0.13	0.08
Total	99.99	98.83

(a) Present as Sulfates

Project Contacts

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