STATEMENT OF BASIS/FINAL DECISION AND RESPONSE TO COMMENTS SUMMARY

Region III
ID# 2575

INTERNATIONAL BUSINESS MACHINES

Manassas, Virginia
(signed July 25, 1990)

Facility/Unit Type: **Electronics manufacturer**
Contaminants: **PCE; TCE; 1, 1, 1-TCA; trans 1, 2-DCE**
Media: **Soil, ground water**
Remedy: **Ground water pump and treat with granular activated carbon filtering system, in-situ soil vapor extraction**

FACILITY DESCRIPTION

On March 1, 1989, EPA and IBM entered into a Consent Order pursuant to Section 3008(h) of RCRA. Under the terms of the Consent Order, IBM was required to complete onsite and offsite investigations of the nature and extent of contamination from the facility and conduct a corrective measures study (CMS).

The principal activities at the 600-acre IBM facility are semiconductor design and the manufacturing and development of electronic defense systems. IBM began operations at the facility in 1969.

The ground water flows through a single bedrock aquifer consisting of interbedded red siltstone and sandstone. Ground water movement at the site is to the northeast. Prince William County draws some of its water supply from wells in this aquifer. Initial investigations in 1978 revealed VOCs in on-site soils and in ground water.

The Occoquan Reservoir is approximately 5 miles west of the facility. The reservoir is hydraulically upgradient of the facility, and is not affected by site contaminants.

The IBM facility is within the city of Manassas, Virginia. The surrounding land use includes residential and commercial development as well as undeveloped woodlands.

IBM initiated the following interim actions: soil treatment to raise pH to immobilize fluoride; soil excavation; removal of a 10,000-gallon waste solvent tank and two 20,000-gallon waste acid tanks; closure of underground tanks; and pumping and treatment of ground water from two onsite wells. IBM provided municipal water hookups to residences using contaminated wells and assisted the Prince William County Service Authority in installing a ground water treatment system for a public water supply well with a high PCE concentration.

EXPOSURE PATHWAYS

Public health is threatened by human exposure to contaminants in the ground water transported through the underlying aquifer to water supply wells.

CONTAMINATION DETECTED AND CLEANUP GOALS

Media	Estimated Volume	Contaminant	Maximum Concentration	Action Level	Cleanup Goal	Point of Compliance
ground water	Not provided	PCE*	10 ppm**	3.5 ppb	0.67 ug/l***	Well PW-07
		TCE*		N/A	3 ug/l***	Well PW-07
		PCE		N/A	5 ug/l****	Ground water wells:
		TCE		N/A	5 ug/l	D-28
		trans 1,2-DCE*		N/A	70 ug/l	D-29
		1,1,1-TCA		N/A	200 ug/l	OF-34
soil		PCE	Not provided	N/A	Not provided	
		TCE	Not provided	N/A	Not provided	
		trans 1,2-DCE	Not provided	N/A	Not provided	

* Detected off site
** Maximum total VOC concentration
*** Based on 10^{-6} cancer risk-based level
**** Based on MCLs

SELECTED REMEDY

The selected corrective measure consists of continued pumping of ground water from two onsite and two offsite wells and treatment with granular activated carbon units. Soil and bedrock will be remediated with a pilot vapor extraction system and an associated gas-phase treatment and monitoring system in the unsaturated zone.

The selected corrective measure is an effective and reliable method that will reduce the toxicity, mobility, and volume of contamination. This alternative is a cost-effective permanent solutions that uses innovative technologies to attain long and short term remediation.

The annual costs associated with the corrective measures are as follows:

	Capital	O&M
Pump and treat	$1,665,400	$ 709,700
Pilot vapor extraction	$ 146,000	$ 354,000
TOTAL	$1,811,400	$1,063,700

After completion of the pilot vapor extraction project the first year, the O&M cost will revert to $709,000.

INNOVATIVE TECHNOLOGIES CONSIDERED

- Gas-phase treatment and monitoring system

PUBLIC PARTICIPATION

A public notice soliciting public comments on the proposed remedy appeared in the Washington Post on March 21, 1990 and in the Springfield Journal on March 28, 1990. The public comment period was effective for 30 days after the respective public notices.

EPA received two comments regarding the IBM facility. The comments reflected the following three issues of public concern:

- Adverse effect on property values
- Impact on surrounding woodlands
- Impact on public safety.

NEXT STEPS

EPA and IBM will negotiate a second §3008(h) consent order requiring IBM to implement the selected remedy.

KEY WORDS
ground water; soil; ingestion; VOCs; PCE; TCE; TCA; DCE; on-site treatment; off-site disposal of residuals; pilot vapor extraction; filtration; excavation.

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