STATEMENT OF BASIS/FINAL DECISION AND RESPONSE TO COMMENTS SUMMARY

Region VII
ID# 1945

Seagate Technology Incorporated

Omaha, Nebraska
(Signature Date: December 29, 1989)

Facility/Unit Type:	**Manufacturer of computer disks and assemblies**
Contaminants:	**Acetone, 1,1 Dichloroethane (1,1-DCA), 1,2 Dichloroethane (1,2-DCA), 1,1 Dichloroethene (1,1-DCE), Methyl Chloride, Methylene Chloride, 1,1,1 Trichloroethane (1,1,1-TCA), Chromium, Mercury, Chloroethane, Chloroform, 1,1,2 Trichloroethane (1,1,2-TCA), Trichlorotrifluoroethane (Freon 113), Trichlorethylene (TCE), Xylenes, Isopropanol, Cyclohexanone, Vinyl Chloride, Hexavalent Chromium, and 2-Butanone**
Media:	**Air, Soil, and Groundwater**
Remedy:	**Remediate the contaminated soil by Soil Vapor Extraction (SVE), implement a groundwater pumping and treatment system for contaminated groundwater, and rely on monitored natural attenuation in groundwater.**

FACILITY DESCRIPTION

The Seagate Technology facility is located at 11615 I Street, Omaha, Nebraska, in a commercial and industrial area; the nearest residential areas are approximately 1/4 mile NW and SW of the former manufacturing plant. The facility is located near two shallow groundwater plumes which drain into a deep sand aquifer near Hell Creek. The deep sand aquifer is previously untapped as a source of drinking water. Hell Creek has residential areas located downstream and is home to various forms of aquatic life.

Control Data Corporation (CDC), a manufacturer of computer disks and disk assemblies, originally owned and operated the Seagate Technology facility. CDC and its subsidiary, Imprisis Technology, operated the plant until 1989, when Seagate Technology Incorporated took over ownership of the facility and continued operations until 1992. The King of Kings Lutheran Church acquired the property in 1993 and all manufacturing ceased. A number of chemical spills and leaks have occurred at the facility over a 24-year operation period, including contamination from seven underground storage tank leaks, leakage and runoff from a soakage and containment pit, and a spill of 3,400 gallons of 1,1,1, trichlorethylene (1,1,1-TCE).

On December 29, 1989, the U. S. Environmental Protection Agency (EPA) and Imprisis Technology signed a consent order under the Resource Conservation and Recovery Act (RCRA). The consent order outlined the activities Imprisis must take to define the nature and extent of contamination and to identify

potential exposure risks to human health and the environment. Imprisis' first step was to develop a Description of Current Conditions Report to summarize the status of the facility. This Report was completed in February 1990. Second, Imprisis developed a workplan for evaluating soil and groundwater contaminants which EPA approved in March 1991. The workplan has been amended on several occasions, with the final amendment dated December 1991. Third, a RCRA Facility Investigation report that summarized the investigative findings was approved in September 1995 and amended in September 1996. Fourth, a Corrective Measures Study workplan laid out potential remedies and methods that would be applicable to this site. EPA approved it in December 1995. Finally, the Corrective Measures Study report, approved in May 1996, evaluated the potential remedies for site cleanup.

Seagate Technology began evaluating and implementing technologies for treating groundwater and soil under the consent agreement. Groundwater pumping and treatment began in 1990 and Seagate Technology expanded the extraction well system as the investigation progressed. A short term Soil Vapor Extraction (SVE) test was conducted in 1990, but the results were inconclusive, so a long term test was implemented in 1994. The test revealed that SVE was an effective method of removing volatile organic compounds (VOCs) from the soil. The SVE system was expanded and continues to operate.

EXPOSURE PATHWAYS

The potential exposure pathways for human health and the environment are primarily through soil and soil gas. VOCs in soil gas could be released and contaminate outdoor and indoor air. Potential releases could occur during construction.

A risk assessment which assumed that the facility site may be developed for future residential use, even though no plans currently exist to do so, revealed that groundwater could be a potential exposure pathway. This could occur if the local groundwater and deep sand aquifer were developed for industrial or municipal use. The constituents of concern in the groundwater are 1,1 dichloroethene (1,1-DCE), 1,1,1 trichloroethane (1,1,1-TCA), acetone, 2-butanone, freon 113, and chromium.

SELECTED REMEDY

The proposed selected remedies include SVE and groundwater extraction and treatment for removal of contaminants in the groundwater. These remedies are the same as those that were initially evaluated and used on an interim basis; the SVE system has been expanded. The remedies will also rely on natural attenuation of the contaminants in the groundwater.

The SVE remedy involves the following:

- Installation of wells above the groundwater table in unsaturated soil. The wells are connected with piping so a vacuum can be created. The vacuum pulls contaminated vapors from the soil through carbon filters and then releases the clean air back into the atmosphere.

- The contaminated carbon filters will be reclaimed by a permitted recycler. This remedy will continue until levels of contaminants in the soil can no longer affect groundwater.

Groundwater extraction and treatment involves:

- Installation of new extraction wells and/or use of existing wells that are placed below water level. Interim measures will remain in place until a

system is devised that can operate continuously.

- Discharge of treated groundwater into Omaha's sanitary sewer systems. Seagate Technology will obtain a permit for discharge to the city's sewer system and monitor this discharge to ensure that contaminants levels do not exceed Omaha's requirements. If the contaminants exceed the city's limitations, Seagate Technology will divert contaminated groundwater to an on-site air stripping system. In addition, extraction techniques should also be applied to the deep sand aquifer, even though it is not being used for drinking water purposes, as it was a viable source of drinking water before contamination and should be returned to its natural state.

- Monitored natural attenuation. The contamination will be reduced by natural biological and/or chemical degradation, dilution, adsorption, volatization, and dispersion. Groundwater monitoring will ensure contaminant migration does not occur.

EPA based its selection of the remedies to be used in cleaning up the site by using a ratings matrix. Each remedy alternative was evaluated for several factors, including short-term effectiveness, long-term reliability, reduction of contaminants and cost, and a numeric score derived. The remedies with the best overall score were chosen.

EPA evaluated the corrective measures alternatives proposed and selected both remedies. EPA will continue to monitor the progress of the corrective actions by reviewing laboratory analyses and progress reports, and conducting occasional on-site inspections. The estimated cost for implementing these procedures, including capital, operation, and maintenance of the necessary equipment, is $8.5 million, over 30 years.

CONTAMINATION DETECTED AND CLEANUP GOALS

Media	Estimated Volume	Contaminants of Concern	Maximum Concentration (ppm)	MCL Action Level (ppm)	Ground-water Protection Standards (mg/kg)	Point of Compliance
Soil	Estimated volume of contami-nated soil is approxi-mately 13,000 yd^3	1,1-DCA 1,2-DCA 1,1-DCE Methylene chloride 1,1,1-TCA Freon 113	3.9 0.033 4.0 3.1 63 1.5	No MCL action levels have been estab-lished for soil	10.24 0.061 0.184 0.06 5.8 27,144	Not established for soil. Goal is to treat entire area of soil contami-nation.

CONTAMINATION DETECTED AND CLEANUP GOALS

Media	Estimated Volume	Contaminants of Concern	Maximum Concentration (ppm)	MCL Action Level (ppm)	Ground-water Protection Standards (mg/kg)	Point of Compliance
Shallow Ground-water Main Plume/ Hell Creek Plume	Estimated volume of water is 63,200,000 gallons	Acetone	850	*	*	Existing limits of groundwater plume
		Chloroethane	0.85	*	*	
		Chloroform	0.395	*	*	
		1,1-DCA	4.6	*	2.54 (12.8)**	
		1,2-DCA	0.058	*	0.018 (0.092)	
		1,1-DCE	62	*	0.025 (0.128)	
		TCE	0.039	*	*	
		Methylene chloride	340	*	0.018 (0.092)	
		1,1,2-TCA	0.046	*	*	
		1,1,1-TCA	190	*	0.72 (3.66)	
		Isopropanol	32	*	*	
		Xylenes	0.635	*	*	
		Cyclo-hexanone	85	*	*	
		Freon 113	20	*	756 (3,843)	
		Chromium	4.3	*	*	
		Mercury	0.0012	*	*	
		Hexavalent chromium	0.53	*	*	
		Vinyl chloride	*	*	0.007 (0.037)	
Surface water and sediment in Hell Creek	unknown	Acetone	8.3	*	*	
		2-Butanone	4	*	*	
		1,1-DCE	0.063	*	*	
		1,1-TCA	0.31	*	*	
		Freon 113	0.057	*	*	

* Information was not available at the time the Statement of Basis summary was prepared.

** The groundwater protection standard for the shallow groundwater Main Plume is provided first, followed by the standard for the Hell Creek Plume enclosed in parentheses.

CONTAMINATION DETECTED AND CLEANUP GOALS

Media	Estimated Volume	Contaminants of Concern	Maximum Concentration (ppm)	MCL Action Level (ppm)	MCL Cleanup Goal** (mg/l)	Point of Compliance
Deep Ground-water	Estimated volume of water is 51,000,000 gallons	1,1-DCA	0.071	*	0.7 (ACL)	Existing limits of groundwater plume
		1,1-DCE	0.063	*	0.007 (MCL)	
		Methylene chloride	0.00555	*	0.005 (MCL)	
		1,1,1-TCA	0.12	*	0.2 (MCL)	
		Freon 113	0.0084	*	210 (ACL)	
		Chromium	0.00042	*	*	
		Mercury	0.00345	*	*	
		Vinyl chloride	0.0034	*	0.002 (MCL)	

* Information was not provided at the time the Statement of Basis summary was prepared.

**The levels set for deep groundwater are based on MCLs for those chemicals where an MCL has been developed and alternate concentration limits (ACLs) for chemicals without MCLs. ACLs are risked based calculations that provide protection within acceptable health ranges.

INNOVATIVE TECHNOLOGIES CONSIDERED

None.

PUBLIC PARTICIPATION

EPA conducted a formal public comment period on all corrective measures considered from February 21, 1997, to April 7, 1997.

The response to comments document will be placed in the administrative record when it is completed.

NEXT STEPS

EPA is preparing a Final Decision Document which will reflect any other information obtained and EPA's responses to public comments.

KEY WORDS:

soil, groundwater; inhalation, ingestion, dermal contact; chloroethane, 1,1-DCA, 1,2-DCA, 1,1-DCE, 1,1,1-TCA, methylene chloride, freon 113, vinyl chloride, mercury, chromium, acetone, methyl chloride, 1,1,2 TCA, TCE; soil vapor extraction, groundwater pumping and treatment; monitored natural attenuation

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RCRA Corrective Action