OhioEPA

State of Ohio Environmental Protection Agency

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Certified Mail
Return Receipt Requested

Re: Former NCR Facility
EPA ID #:OHD001876267
Decision Document

May 19, 2006

NCR Corporation
Attn: Mr. Roger McCready
Corporate Environmental Engineer
Global Environmental, Health & Safety-Law Department
1700 South Patterson Blvd., WHQ-3E
Dayton, Ohio 45497

Dear Mr. McCready:

Here is the final Decision Document for the Remediation (Decision Document) of the former NCR Facility located in Cambridge, Ohio. The responsiveness summary Ohio Environmental Protection Agency (Ohio EPA) prepared in response to the comments received concerning the Statement of Basis is also included.

The Decision Document presents the selected remedial actions for the former NCR Facility in accordance with the policies of Ohio EPA, statutes and regulations of the State of Ohio.

You have the right to appeal this Decision Document to the Environmental Review Appeals Commission (ERAC) no later than 30 days after the public notice (See Ohio Revised Code § 3745.04). You may file your appeal with ERAC at the following address: Environmental Review Appeals Commission, 309 South Fourth Street, Room 222, Columbus, Ohio 43215.

If you file an appeal, you must put it in writing. Your appeal must explain why you are appealing the action(s) and the grounds you are using for your appeal. You must send a copy of the appeal to the director of the Ohio Environmental Protection Agency no later than three (3) days after you file it with ERAC.

If you have any questions regarding the Decision Document, please call Jim Sferra of Ohio EPA's Southeast District Office at (740) 385-8501.

Sincerely,

for Pamela S. Allen, Manager
Regulatory and Information Services
Division of Hazardous Waste Management

cc: Jim Sferra, DHWM, SEDO
Jeremy Carroll, DHWM, CO

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PUBLIC NOTICE

Guernsey County

Ohio EPA issues final Decision Document for Remediation
Former NCR Facility

On May 19, 2006, Ohio EPA issued a final Decision Document for Remediation of the former NCR Corporation (NCR) site located at 800 Cochran Avenue, Cambridge, Ohio 43725. The EPA Identification Number for this facility is OHD001876267.

Why does NCR need a final Decision Document?
Director's Final Findings & Orders issued on April 2, 1998, required NCR to conduct a RCRA facility investigation (RFI) of historic waste management areas. NCR was ordered to prepare a Corrective Measures Study to develop and evaluate the corrective action alternatives and to propose the corrective measures to be taken at the site, as needed. This Decision Document presents the selected remedial action for NCR.

Can I appeal this final Decision Document?
Yes, if you are an officer of an agency of the state or of a political subdivision, acting in a representative capacity, or any person who would be aggrieved or adversely affected by the Decision Document, you have the right to appeal this Permit decision to the Environmental Review Appeals Commission (ERAC).

If I decide to appeal this final Decision Document, how and when must I make the appeal?
If you file an appeal, you must put it in writing no later than **June 21, 2006.** Your appeal must explain why you are appealing the action and the grounds you are using for your appeal. You must file your appeal, according to Ohio Revised Code § 3745.04, with ERAC at the following address: ***Environmental Review Appeals Commission***, 309 South Fourth Street, Room 222, Columbus, Ohio 43215. You must send a copy of the appeal to the director of Ohio EPA at the following address no later than three (3) days after you file it with ERAC: ***Joseph P. Koncelik, Director of Ohio EPA***, P.O. Box 1049, Columbus, Ohio 43216-1049.

DECLARATION

SITE NAME AND LOCATION

*Former NCR Facility (*OHD001876267*)*
800 Cochran Avenue
Cambridge, Ohio 43138

STATEMENT OF BASIS AND PURPOSE

This Declaration and attached Decision Document presents the selected remedial action for the former NCR Facility (NCR) in Cambridge, Ohio, chosen pursuant to the April 1998 Ohio EPA Director's Final Findings and Orders and in accordance with the policies of the Ohio Environmental Protection Agency, statutes and regulations of the State of Ohio.

ASSESSMENT OF THE SITE

The final RCRA Facility Investigation (RFI) Report (2003) summarizes the nature and extent of impacts to soil, stream sediments, stream water, and ground water. Nature and extent of contamination sampling included soils, surface water, sediment, ground water, and indoor air.

The investigation identified three areas where soils and ground water were impacted by chemicals associated with facility operations. Supplemental data was collected to help refine the results of the RCRA RFI. In general, the contamination of concern can be grouped into three areas.

- Area 1 is located in the northeast corner of the site and the significant contaminants of concern (COCs) include chlorinated solvents such as trichloroethylene (TCE), and its breakdown products cis-dichloroethylene (cis-DCE), and vinyl chloride. The presence and concentrations of the breakdown products indicate a fairly old release. These contaminants are found in shallow soil samples (< 5 feet below ground surface) and within the saturated zone (ground water) at greater than five feet below ground surface. With the exception of a small elongation of the contaminated ground water plume in the northeast section of Area 1, flow direction does not indicate any predominant direction of travel. A significant finding from the RFI determined that contaminated ground water above potable use standards has migrated outside of the facility's property boundary in this area.

- Area 2 is located south of Area 1. Again, contamination consists of chlorinated solvents, such as TCE and its breakdown products, petroleum aromatic hydrocarbons, and polar solvents. While

contaminants are present in the shallow soils (< 5 feet below ground surface), much of the significant contamination is in the saturation zone which is located at approximately five feet below ground surface. The investigation revealed that contaminated ground water is generally confined to a depth of twenty to twenty-five feet below land surface. The water level measurements taken from wells in this area indicate that ground water does not have a preferential flow direction and has not migrated radially much from the suspected source area. Contamination is present underneath the building and therefore serves as a potential source area for volatile constituents to migrate into the buildings.

- Area 3 is located at the very southeast corner of the building and contains a fairly limited number of COCs. Primarily, the contamination in this area is TCE and low levels of the breakdown product, cis-DCE. Contamination was found beneath the water table at a depth of approximately 25 feet. Ground water and contaminant movement appears to be limited. The relative lack of breakdown products indicates that this may be a more recent release than that in Areas 1 and 2. The location and presence of volatile constituents near the facility indicates that this area may serve as a source for potential migration of volatile vapors into buildings located at the site. Arsenic is identified as of concern for a monitoring well in this area.

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy will include:

- an Environmental Covenant to restrict both land use and ground water use on-site;
- a phytoremediation system to address ground water quality and quantity along the northeastern property boundary;
- a zero-valent iron filing treatment system to address on-site contamination;
- a ground water monitoring plan to: (1) ensure that the plume of contaminated ground water does not grow or migrate; (2) ensure that the contaminants continue to degrade; (3) evaluate the effectiveness of the zero-valent iron filing treatment system; and, (4) ensure that the phytoremediation system is functioning effectively; and,
- an indoor air monitoring plan to monitor air quality inside the buildings on the property.

STATUTORY DETERMINATIONS

The selected remedial action is protective of human health and the environment, complies with legally applicable state and federal requirements, is responsive to public participation and input and is cost-effective. The remedy utilizes permanent solutions and treatment technologies to the maximum extent practicable to reduce toxicity, mobility and volume of hazardous substances at the Site. The effectiveness of the remedy will be reviewed regularly as part of the remedy implementation process.

Joeseph Koncelik, Director

Date 4-27-06

Attachments

DECISION DOCUMENT FOR THE REMEDIATION OF

THE FORMER NCR FACILITY

Guernsey County, Ohio

prepared by

THE OHIO ENVIRONMENTAL PROTECTION AGENCY

EXECUTIVE SUMMARY

Ohio EPA has completed oversight of a RCRA Facility Investigation (RFI) at the former NCR facility located at 800 Cochran Avenue, Cambridge Ohio. The purpose of the RFI is to determine whether contamination from historic management practices at the site may impact human health and the environment. The investigation revealed that areas of soil and ground water, and sediments were contaminated by chemicals related to site activities. Following the site investigation, a Corrective Measure Study was conducted to evaluate remedial actions to address site contamination. Ohio EPA has reviewed the draft CMS report, had a public notice comment period, held a public comment meeting, required NCR to revise the remedies evaluated, and Ohio EPA has selected the following remedies.

- an Environmental Covenant to restrict both land use and ground water use on-site;
- a phytoremediation system to address ground water quality and quantity along the property boundary;
- a zero-valent iron filing treatment system to address on-site contamination;
- a ground water monitoring plan to: (1) ensure that the plume of contaminated ground water does not grow or migrate; (2) ensure that the contaminants continue to degrade; (3) evaluate the effectiveness of the zero-valent iron filing treatment system; and, (4) ensure that the phytoremediation system is functioning effectively; and
- an indoor air monitoring plan to monitor air quality inside the buildings on the property.

1.0 INTRODUCTION

The former NCR facility (EPA ID number OHD001876267) located at 800 Cochran Avenue, Cambridge Ohio has been an industrial facility since the early 1900s. In the late 1980s and early 1990s, activities began to investigate the potential for environmental contamination at the site. Specifically, Resource Conservation Recovery Act (RCRA) Corrective Action began in 1989 when U.S. EPA conducted a site visit and identified numerous solid waste management units (SWMUs) and areas of concern. U.S. EPA determined that these SWMUs and areas of concern required formal examination.

In April of 1998, NCR and the State of Ohio entered into an agreement, the Ohio EPA Director's Final Findings and Orders, wherein NCR agreed to implement RCRA Corrective Action activities at the facility. In accordance with the Director's Final Findings and Orders and applicable regulations and guidelines, NCR completed a systematic investigation of soil and ground water in and around these areas of the facility. The Director's Final Findings and Orders, in part, required the following documents to be prepared and approved by the Ohio EPA:

RCRA Facility Investigation Work Plan: This document described the site investigation strategy;

RCRA Facility Investigation Report: This document summarized the results of the investigation and identified areas requiring consideration for remediation;

RCRA Corrective Measures Study: This document evaluates the feasibility of various remedial options. Typically, Ohio EPA selects a remedy from those evaluated in this report.

Ohio EPA has prepared this Decision Document selecting remedies for contamination at the former NCR facility. This document contains only a brief summary of the findings of the RCRA Facility Investigation and Corrective Measures Study. Please refer to the RCRA RFI Workplan, RFI Report, and RFI Corrective Measures Study for additional site information.

The following sections of this Decision Document include:

2.0 Site History: This includes a brief history of facility operations, site contamination, site risks and pathways of concern, and remedial action objectives.

3.0 Corrective Measures Study: Criteria used to evaluate various remedies is discussed. A brief summary of all evaluated technologies will be presented.

4.0 Ohio EPA's Selected Remedy: The remedies for the site will be presented. Administrative aspects of remedy implementation will also be discussed.

5.0 Conclusions

2.0 Site History

The former NCR facility (Figure 1) property is approximately 58 acres and has been the site of various manufacturing or assembly operations since the early 1900s. The Florentine Sanitary Manufacturing Company made porcelain plumbing fixtures (toilets and sinks) beginning in 1917. This became the Cambridge Sanitary Manufacturing Company and ceased operations in 1930. In 1938, the Reynold Spring Company owned the property. Both the Reynold Spring Company and the subsequent owner in 1940, the Continental Can Company, manufactured molded plastics. RCA operated the site from 1953 to 1965, producing a wide range of electronic components. Historic photographs document that previous owners used various chemicals and generated waste which was stored outside in stacks of drums. NCR purchased the property in 1965 and manufactured cash registers, printed circuit boards, and other electronic equipment. NCR operated several cleaning and electroplating lines. Waste from these lines were treated on-site and included two on-site surface impoundments. AT&T Corporation purchased NCR in 1991. NCR ceased operations at the facility in 1992. In 1994, the facility was purchased by Edgetech, I.G. Inc., a subsidy of Lauren International and is currently used for the production of custom insulated windows.

Residential areas border the former NCR facility to the east, north, and to some extent on the south. Residential/commercial property is located further to the west beyond the immediately adjacent wooded area. The property also borders Wills Creek.

2.1 Summary of Site Contamination

In April of 1998, NCR began investigating the site per orders signed with Ohio EPA. While numerous SWMUs and areas of concern were evaluated, the results of the investigation allowed for the conceptual grouping of the contamination into three discrete areas. These areas are depicted in Figure 1 and described below.

- **Area 1** is located in the northeast corner of the site and the significant contaminants of concern (COCs) include chlorinated solvents such as trichloroethylene (TCE), and its breakdown products cis-dichloroethylene (cis-DCE), and vinyl chloride. The presence and concentrations of the breakdown products indicate a fairly old release. These contaminants are found in shallow soil samples (< 5 feet below ground surface) and within the saturated zone (ground water) at greater than five feet below ground surface. With the exception of a small elongation of the contaminated ground water plume in the northeast section of Area 1, flow direction does not indicate any predominant direction of travel. A significant finding from the RFI determined that contaminated ground water above potable use standards has migrated outside of the facility's property boundary in this area.

- **Area 2** is located south of Area 1 and adjacent to the current building (Figure 1). With the exception of the Old Drum Storage Area near Area 1, all other solid waste management units and areas of concern identified in Table 1 are proximal to Area 2. Contamination consists of chlorinated solvents, such as TCE and its breakdown products, petroleum aromatic hydrocarbons, and polar solvents. This contamination likely resulted from releases from the drum storage area. While contaminants are present in the shallow soils (< 5 feet below ground surface), much of the significant contamination is in the saturation zone which is located at approximately five feet below ground surface. The investigation revealed that contaminated ground water is generally confined to a depth of twenty to twenty-five feet below land surface. The water level measurements taken from wells in this area indicate that ground water does not have a preferential flow direction and has not migrated radially much from the suspected source area. Contamination is present underneath the building and therefore serves as a potential source area for volatile constituents to migrate into the buildings.

- **Area 3** is located at the very southeast corner of the building and contains a fairly limited number of COCs. No solid waste management unit or areas of concern were close to this area. The source of this contamination is unknown. Primarily the contamination in this area is TCE and low levels of the breakdown product, cis-DCE. Contamination was found beneath the water table at a depth of approximately 25 feet. Ground water and contaminant movement appears to be limited. The relative lack of breakdown products indicates that this may be a more recent release than that in Areas 1 and 2. The location and presence of volatile constituents near the facility indicates that this area may serve as a source for potential migration of volatile vapors into buildings located at the site. Arsenic is also included as a COC for one monitoring well near Area 3.

Note that elevated sediment concentrations of cadmium and copper in Wills Creek and the site outfall were identified by Ohio EPA as a concern in the RFI. Additional samples were collected during the development of the CMS. While one sediment sample collected during the RFI reported an elevated cadmium concentration, the subsequent sediment samples did not confirm the elevated result. These subsequent samples indicated that cadmium concentrations were within expected range for background. Metals in sediment can only be toxic if they are bioavailable. The bioavailability of these metals was also evaluated using U.S. EPA Equilibrium Partitioning Sediment Benchmarks. Based on these evaluations, Ohio EPA concluded that the sediment concentrations of these metals were either within expected background or not bioavailable. Thus, no further action is required for sediment metal concentrations.

2.3 Site Risks and Pathways of Concern

Actions are required when it is determined that contamination exists and that a complete pathway likely exists posing an unacceptable risk to human health and or the environment. With respect to the three areas, risk goals can be evaluated by a residential exposure scenario (unrestricted use) or, if appropriate, a more restrictive industrial scenario (this assumes that land use at the site is restricted to industrial/commercial activities). Any contamination migrating off of the property (*e.g.*, ground water migration) is required to meet residential exposure scenarios.

The three areas do not meet all residential scenario pathways and for some pathways do not meet industrial use scenario goals. Three media of concern, soil, ground water, and air, are discussed below.

Soil Exposures: Concentrations of contaminants in some site soils exceed industrial risk goals.

Ground Water Exposures: On-site ground water concentrations exceed applicable standards (*e.g.*, maximum contaminant levels (MCLs) or risk-based standards).

Air Exposures: Current indoor air sampling data indicates that this pathway is potentially complete, but risk goals are met.

2.4 Remedial Action Objectives.

Eliminating exposure to contaminants, reducing contaminant concentrations, and monitoring potential exposures are objectives of site remediation.

Site-wide: The facility has been an industrial facility for the better part of the last 100 years. Residential exposures do not currently exist at the site. Eliminating the potential for residential exposures at the site is an objective for site remedy.

Area 1: Ground water is migrating off-site in Area 1. Ensuring that ground water leaving the site boundaries meets applicable standards (*e.g.*, MCL or risk-based standards, and off-site vapor intrustion goals) is one remedial objective for this area. In addition to the ground water migration off-site, exposure to contaminated on-site soils and ground water must be addressed.

Area 2 and Area 3: Objectives for the remediation in Areas 2 and 3 include the protection of site workers from contaminated soils, protection from vapor intrusion, and elimination of potential exposures to ground water.

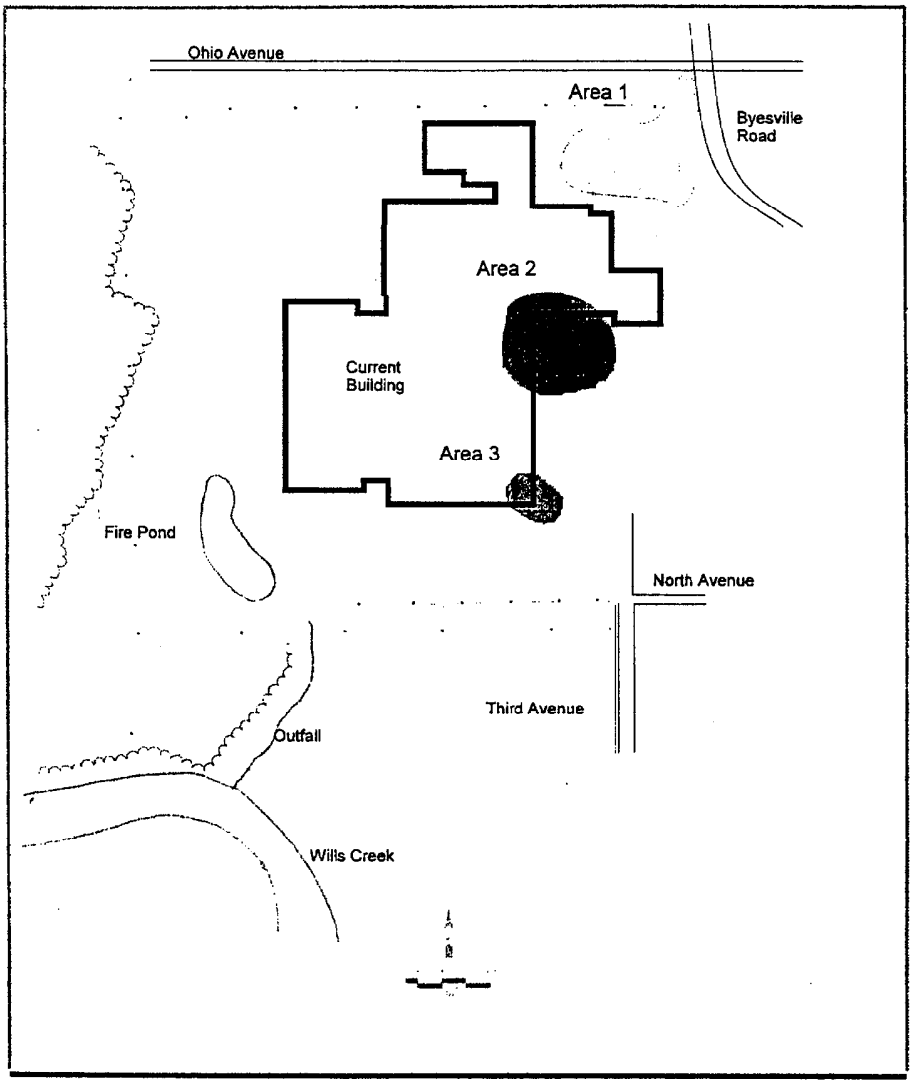

FIGURE 1
FORMER NCR FACILITY
[Figure adapted from the Corrective Measures Study (NCR, 2005)]

3.0 CORRECTIVE MEASURES STUDY

The purpose of the Corrective Measures Study is to develop, evaluate, and recommend corrective measures to address the remedial action objectives. A Corrective Measures Study involves an evaluation of various remedial technologies based on numerous criteria. Procedurally, NCR submitted a draft CMS, Ohio EPA selected a remedy and public noticed this selected remedy. During the public comment period, both NCR and Edgetech submitted concurring recommendations for remediation at the site. Ohio EPA in principle agreed with these recommendations and requested that NCR submit a final CMS report that reflected these recommended changes. This section summarizes the criteria used to evaluate the remedies and provides a brief summary of all evaluated technologies.

3.1 Remedy Selection Criteria

Nine remedy selection criteria are generally used to help select appropriate corrective measures. The first four evaluation criteria are threshold criteria required for acceptance of a remedy. All four of these criteria, as they are applicable, must be met in order for the remedy to be acceptable. The other five evaluation criteria are the balancing criteria used to help select the best remedy.

Threshold Criteria

Protect human health and the environment. Remedies shall be evaluated to determine if they can adequately protect human health and the environment, in both the short and long term, from unacceptable risks posed by environmental contaminants present at the facility.

Attain media cleanup standards set by the implementing agency. Remedies shall be evaluated to determine if the final numerical standards for the subject environmental media will be achieved. The evaluation will include the method of verification, and its supporting quality assurance and quality control procedures, used to make the determination.

Control source of the release(s) to reduce or eliminate, to the extent practicable, further releases that may pose a threat to human health and the environment. Remedies shall be evaluated to determine if it is practicable to physically remove the source of environmental contamination as part or all of a remedy.

Comply with applicable standards for management of waste. Remedies shall be evaluated to determine if they meet all of the applicable requirements of state, federal, and local environmental laws for management of waste.

Balancing Criteria

Long term reliability and effectiveness. Remedies shall be evaluated to determine their ability to maintain reliable protection of human health and the environment over time once the measure is fully implemented. This includes assessment of the residual risks remaining from untreated wastes and the adequacy and reliability of controls such as containment systems and enforceable land use restrictions (*e.g*, Environmental Covenants).

Reduction in the toxicity, mobility, or volume of wastes. Remedies shall be evaluated to determine the degree to which recycling or treatment are utilized to reduce the toxicity, mobility or volume of wastes present at the facility.

Short term effectiveness. Remedies shall be evaluated to determine the following: 1) short term risks that might be posed to the community during implementation of the remedy; 2) potential impacts on workers during implementation of the remedy and the effectiveness and reliability of worker protection measures; 3) potential environmental impacts of the remedy and the effectiveness and reliability of mitigative measures employed during implementation; and, 4) time until protection is achieved.

Implementability. Remedies shall be evaluated to determine the ease or difficulty of implementation and shall include, as appropriate, the following: 1) technical difficulties and unknowns associated with the construction and operation of a technology, the reliability of a technology, ease of undertaking additional remedies, and the ability to monitor the effectiveness of the remedy; 2) administrative feasibility, including activities needed to coordinate with other offices and agencies and the ability and time required to obtain the necessary approvals and permits, as necessary; and, 3) the availability of any services and materials needed to support and complete the remedy.

Cost. Remedies shall evaluate capital costs, annual operation and maintenance costs and the net present value of those costs. The cost estimates include only the direct costs of implementing the corrective measure. Cost estimates are provided in the CMS.

3.2 Summary of Remedial Alternatives

NCR evaluated nine remedial alternatives in the final CMS. In addition to the remedies proposed, additional monitoring of indoor air and ground water will be required. An environmental covenant will be a component of any selected remedy. Indoor air monitoring, ground water monitoring, and the environmental covenant will also be discussed in this section.

Monitored Natural Attenuation (MNA): MNA is the reductive dechlorination of the chlorinated solvents by naturally occurring bacteria. This process is already occurring at the site as evidenced by the concentrations of TCE breakdown products at the plume edges in Areas 1 and 2. The lack of these breakdown products in Area 3 indicates that this is a more recent release.

Cost range: $1.6 to 3.0 million.
Time frame: 100+years
Advantages: Proven non-invasive method would likely address solvent contamination throughout the saturated zone.
Disadvantages: Long term monitoring and associated costs.

This alternative was not selected for the site.

Capping (Area 1 and Area 2): On-site containment (*i.e.*, a waste in place) could be achieved by building a cap over contaminated areas. Long-term monitoring would also be a component of this remedy. Capping of the contaminated areas would reduce or eliminate exposures to direct contact, vapors, and blown dust.

Cost range: $73,000 to $120,000 (not including long term monitoring)

Time frame: Three months to installation, long term monitoring (100 years)
Advantages: Easy to implement, relatively low cost.
Disadvantages: Does not remove any contamination, does not address ground water contamination, and would require long-term monitoring.

This alternative was not selected for the site.

Excavation (Areas 1 &2): This option is the removal of contaminated soils and disposal of waste material off-site in an appropriate landfill or incineration facility. Excavation is an effective means of eliminating contamination from the site.

Cost range: $1.4 to 2.3 million for Area 1 and $250,000 to $420,000 for Area 2
Time frame: approximately 6 months for excavation, 30 to 100 years of monitoring.
Advantages: Permanent removal of unsaturated surface contamination.
Disadvantages: Contamination below zone of saturation would remain. Long-term monitoring for ground water would be required.

This alternative was not selected for the site.

Permeable reactive barriers: Clean-up is passively achieved as ground water flows through reactive material placed in the flow path of the ground water plume. NCR evaluated the use of an iron filing barrier wall to reductively dechlorinate solvents to ethane, ethene, and soluble chloride ions.

Cost range: $585,000 to $955,000
Time frame: Three months to installation, possible long term monitoring (100 years)
Advantages: Relatively quick protection for off-site flow of ground water.
Disadvantages: Very little contaminant removal and only at the perimeter. Long-term monitoring required

This alternative was not selected for the site.

Slurry Walls or Grout Curtains: These are subsurface barriers used to contain contaminated ground water but do not necessarily treat any contamination. Slurry walls consist of a vertically excavated trench that is filled with a slurry (typically bentonite and water) that hydraulically prevents trench walls from collapsing and retards ground water flow. Grout curtains are a series of boring or grouted vertical columns that are interconnected to form a hydraulic barrier.

Cost range: $72,000 to $120,000 (slurry wall); $180,000 to $290,000 (Grout curtain)
Time frame: Three months to installation, long-term monitoring also required.
Advantages: Low cost protection for off-site migration.
Disadvantage: No contamination removal and long-term monitoring required.

This alternative was not selected for the site.

Phytoremediation: Phytoremediation uses two aspects of plants to address contamination. Transpiration uptakes contaminated ground water which both vents contamination and can reduce ground water flow. Also microbial communities located in the root zone degrade various types of organic contamination such as chlorinated solvents. NCR evaluated the use of poplar trees to address off-site ground water flow in the northeast corner of the site.

Cost range: $125,000 to $200,000
Time frame: Two years till sufficient maturation of trees, long-term monitoring also required.
Advantages: Low cost treatment of ground water leaving the site in the northeast corner of the site.
Disadvantages: Placement as described would only address contamination leaving the site. Long term monitoring also required.

Ohio EPA has selected phytoremediation as a component of the overall site remediation. The use of phytoremediation as a component of corrective action is discussed in Section 4.0.

Lasagna™: Lasagna™ treats low permeability soils through the application of DC electrical enery to induce electro-osmosis along with in-situ treatment (*e.g.*, iron filings). The electro-osmosis moves pore water and contamination from anode to the cathode. As the water is forced to move along this electro-osmosis gradient, strategically-placed iron filings would intercept and dechlorinate the solvents. Removal efficiency is very high at 90 to 99 percent. Heat generated by the electrical current also mobilizes solvents and increases the efficiency of the process.

Cost range: $1.8 million to $3.0 million (Area 1); $560,000 to $900,000 (Area 2); $300,000 to $560,000 (Area 3)
Time frame: Two to three years for installation with closure in 5 to 25 years.
Advantages: Removes most of the mass of contamination.
Disadvantage: Very high cost compared to other possible solutions and would likely disrupt site activities.

This alternative was not selected for the site.

In-situ Soil Mixing: For volatile organic compounds this technology involves mixing various reagents either in-place or in a nearby staging area. The mixing process allows for reagent delivery throughout the contaminated soils. Augering in an iron filing slurry mixture was evaluated for Area 1 only since this is the area where contamination is migrating off-site.

Cost range: $2.9 million to $4.7 million
Time frame: Six months for implementation in Area 1; long term monitoring would be required.
Advantages: Removes a large quantity of contamination and could reduce closure time.
Disadvantages: Main disadvantage is the high cost. Cost would be even higher if implemented at Areas 2 and 3.

This alternative was not selected for the site.

Zero-valent Iron Filing Diffusion Holes: Clean-up would be achieved by placing zero-valent iron filings in numerous boreholes throughout each of the contaminated areas. The iron filings reductively dechlorinate solvents as previously discussed. A grid pattern of boreholes would be made using direct-push technology. This technology is proposed to reduce contamination by 50% within 3-5 years and 90% removal within 8-10 years. It should be noted that the zero-valent iron filing remedial alternative was not evaluated in previous versions of the CMS. This alternative was jointly evaluated and proposed by NCR and Edgetech (current land owner) during the public comment period.

Cost range: $60,000 to $100,000 total for all three areas.
Time frame: 2 months for installation, 5 to 20 years for remediation
Advantages: Removes most of the contamination from the saturated zone.
Disadvantages: The grid/borehole approach of the iron filing application has not been tried before.

Ohio EPA has selected this remedy for Areas 1, 2, and 3.

Monitoring requirements

Indoor air: An indoor air monitoring program will be implemented at the Edgetech/LMI building to verify indoor air quality meets acceptable standards fo the site worker. NCR will continue the current indoor air monitoring program on an annual basis. This program will include building inspections on a semi-annual basis to evaluate the building for vapor intrusion pathways (*e.g.*, cracks in the floor) or changes in the facility process that may impact air sampling.

Ground water: A site-wide ground water monitoring program will be developed to monitor contamination on-site and, if moving, off-site contamination. Ohio EPA wants to ensure that the plume does not grow or migrate. Ground water contamination leaving the property boundary must meet appropriate residential standards.

Ohio EPA will require monitoring of indoor air and ground water.

Environmental Covenants: An Environmental Covenant as per the Ohio Revised Code has been proposed for the site restricting ground water use and restricting property use to industrial purposes.

> Ohio EPA will require an Environmental Covenant to be part of any selected remedies.

4.0 Corrective Measure Recommendations

Ohio EPA has reviewed the RCRA Facility Investigation and final Corrective Measures Study provided by NCR. Ohio EPA selected a remedy based upon a consideration of the industrial setting of the facility, location of contamination, the level of contamination, the potential impact to human and ecological receptors, cost, and comments provided during the public comment period.

Potential pathways of concern include exposure to soils, exposure to contaminated ground water, and off-site and on-site indoor exposure to vapors from the soils and ground water. The Ohio EPA has determined that an industrial setting of the facility may be appropriate provided proper controls are in place. An industrial setting does not alter the human health standards used to evaluate ground water. Therefore, the contaminated ground water must be addressed and exposure to the public must be controlled. In addition, volatile contaminants emanating from contaminated soil and ground water must also be addressed and controlled.

Environmental Covenants
The final CMS states that "to prevent future groundwater use at this site, a groundwater use restriction will be put in place. This restriction will be drafted according to Ohio EPA rules and with cooperation of NCR (former owner), Edgetech (current owner), and Ohio EPA. This groundwater use restriction, together with the hydrogeologic conditions, will be adequate to protect humans from exposure to contaminants in the groundwater under the site." Ohio EPA believes that property restrictions developed in accordance with Ohio's Environmental Covenant law §§ 5301.80 to 5301.92. of the Ohio Revised Code are an acceptable remedial component for the site. The Environmental Covenant will subject the site to the following restrictions; no extraction or use of ground water on-site, and the land use will be restricted to industrial use only. Details of industrial land use restrictions will be finalized during the Corrective Measures Implementation.

Phytoremediation
Ohio EPA has selected phytoremediation for the northeast corner of the property. Contamination in Area 1 requires remedial action to treat or contain ground water that is moving off-site. The phytoremediation is designed to both treat contamination through biological activity in the root zone and create a hydraulic barrier to off-site ground water flow gradient in the northeast corner of the site.

Zero Valent Iron Filings
Ohio EPA has selected the use of zero valent iron filings to address contamination in Areas 1, 2, and 3. The goal of this remedial effort is to clean up the most contaminated soils to meet industrial standards and to reduce ground water concentrations to acceptable risks for indoor air concentrations in possible future buildings.

Ground Water Remediation and Monitoring
Ohio EPA will require a comprehensive ground water monitoring program to monitor ground water on- and off-site. The purposes of the ground water monitoring program are to: 1) ensure the plume does not grow; 2) ensure existing contaminants continue to degrade; 3) ensure both the effectiveness of a zero-valent iron filing remediation strategy to address contamination (Areas 1, 2, and 3); and 4) evaluate the effectiveness of phytoremediation at controlling ground water flow in the northeast corner of the property.

Indoor Air Monitoring
Ohio EPA has selected an indoor air monitoring program to ensure that indoor air quality meets acceptable standards for the site worker. The indoor air monitoring program will include indoor air sampling and building inspections. Building inspections will be performed semi-annually and occur concurrently with ground water monitoring events. Risks to human health from the contaminant plume that has migrated off the facility property will be assessed from data gathered annually from a monitoring well located at the plume boundary. Triggering criteria will be defined where additional assessment or remediation will be required if the proposed ground water concentration levels indicate that a potential vapor intrusion pathway exists for off-site residences.

5.0 Conclusions

Ohio EPA selected the following remedies to address contaminated ground water and soil at the former NCR facility.

- Environmental Covenants in accordance with Ohio's Environmental Covenant law found in the Ohio Revised Code §§ 5301.80 to 5301.92 will declare the site as industrial use only. This will control human exposure to contamination in soils and ground water. Restrictions will include no extraction or use of ground water on-site and limits on-site excavation (except utility easements).

- A site-wide ground water monitoring plan will be implemented to monitor ground water contamination and ensure that ground water contamination plumes do not grow, that the contaminants continue to degrade, and that the selected ground water remedy is functioning effectively.

- Phytoremediation using hybrid poplar trees will limit ground water flow off-site. This remedy will include a monitoring program. This remedy is anticipated to reduce and ultimately eliminate much of the contamination in the northeast corner of the property.

- An indoor air monitoring program will evaluate potential risk due to the vapor intrusion pathway. If risk levels are exceeded, additional corrective actions will be required.

ACRONYMS

cis-DCE	cis-dichloroethylene. Chlorinated solvent used for degreasing. Also a breakdown product of trichloroethylene.
COC	Constituents of Concern (COC)Any contaminant discovered during a facility investigation at a level that has the potential to negatively impact human health or the environment.
CMS	Corrective Measures Study (CMS)A study undertaken by a facility whose purpose is to develop and evaluate remedial alternatives for the cleanup of environmental contaminants at a facility.
MCL	Maximum Contaminant Level, a water quality standard.
MNA	Monitored Natural Attenuation, a method of allowing natural processes to degrade pollution coupled with a monitoring program to measure progress.
Ohio EPA	Ohio Environmental Protection Agency
RCRA	Resource Conservation and Recovery Act (RCRA)A federal law that regulates the generation, transport, storage, treatment and disposal of hazardous wastes.
RFI	RCRA Facility Investigation (RFI)A study conducted to collect information necessary to adequately characterize a site for the purpose of developing and evaluating effective remedial alternatives.
SWMU	Solid Waste Management Unit (SWMU)Any discernable unit at which wastes have been placed at any time irrespective of whether the unit was intended for the management of solid or hazardous waste; such units include any area at the facility where solid wastes have been routinely and systematically released.
TCE	Trichloroethylene, a chlorinated solvent used for degreasing.

Responsiveness Summary for the Remediation of the Former NCR Corporation Facility

Guernsey County, Ohio

prepared by

The Ohio Environmental Protection Agency

In April, 1998, NCR entered into Director's Final Findings and Orders with Ohio EPA and began investigating historical contamination at the former NCR facility located at 800 Cochran Avenue, Cambridge, Guernsey County, Ohio. The Orders require several key elements, each of which help to gather information necessary to support clean-up decisions, and consists of (among other things) a RCRA Facility Investigation (RFI) and a Corrective Measures Study (CMS) to evaluate several potential remedial options. Ohio EPA conducted a 45 Day public comment period from October 31, 2005 to December 19, 2005. On December 8, 2005 Ohio EPA presented its Statement of Basis for the NCR facility at a public meeting held at the Guernsey County City Council Chambers. The purpose of this responsiveness summary is to document the comments received during the public comment period, and Ohio EPA's responses to the comments. Separately, Ohio EPA will require NCR to revise the CMS based in part on Ohio EPA's review of these public comments.

Public Meeting Comments

Representatives from NCR and Edgetech I.G., Inc. (Edgetech) were in attendance at the public meeting but did not provide comments. Ohio EPA provided the following comment for the record at the public meeting:

> *"Ohio EPA would like to note for the record that both NCR and Edgetech have submitted alternative clean-up technologies to be considered instead of the current proposal in the Statement of Basis. Ohio EPA will consider these proposals and may change the current remedy proposed in the statement of basis upon review of these submittals."*

Submitted Comments

During the comment period, letters were received from NCR via e-mail on December 16, 2005 (see Appendix A for a copy of the letter) and from Edgetech representatives via hand delivery on December 19, 2005 (see Appendix B for a copy of the letter). The December 16, 2005 letter from Edgetech included, by reference, comments and concerns addressed in an August 29, 2005 letter from Edgetech to NCR. A copy of this August 29, 2005 letter was provided to Ohio EPA via e-mail on September 12, 2005 (see Appendix C).

NCR comments included an alternative remedial strategy to be considered in lieu of the remedy proposed in the Statement of Basis. A supporting Technical Memorandum was

included with NCR's comment letter. Likewise, Edgetech's letters recommended an alternative remedial strategy and included an attachment to supplement the provided comments. Copies of all letters and their attachments are included in appendices to this responsiveness summary.

The following are comments received from NCR.

Comment 1:

NCR is submitting comments on the OEPA's Statement of Basis, October 2005 for the Former NCR Facility in Cambridge, Ohio. OEPA's proposed remediation plan as presented in the Statement of Basis supplements the remedy as proposed by NCR in the Corrective Measure Study submitted to the OEPA on June 20, 2005. NCR direct its comments at the supplemental phytoremediation for the Area 1 source area that OEPA proposes.

OEPA's Statement of Basis agrees that phytoremediation is appropriate for preventing contamination from leaving the site above acceptable standards in two ways. First, via dewatering of the area to prevent groundwater flow from leaving the site and secondly the biological degradation of the contaminants via the trees extensive biomass root system and uptake/transpiration. In addition, OEPA suggests in the Statement of Basis that the same method could be used to address the Area 1 source area. NCR believes there is a technical and practical reason why this may not be an appropriate use of phytoremediation. There is a concentration of contaminants ina defined area within Area 1 that could be detrimental to the phytoremediation process. Within the Area 1 source area there is soil that potentially contains contaminants above this effectiveness threshold. A non-technical reason for not using phytoremediation in the Area 1 source area is because the current property owner uses this area for staging of equipment and truck maneuvering. It would be very inconvenient for the property owner to have trees growing in this area.

OEPA's position concerning the Area 1 source area is that it would be beneficial to reduce the contaminants in the source area to reduce the migration of contaminants toward the northeast corner and off-site. NCR continues to believe that there is minimal migration of contaminants from the Area 1 source area due to the combination of very low permeability material and the lack of a gradient to provide the push. The contaminants in the Area 1 source area meet acceptable standards for a commercial/industrial property and therefore do not require remediation.

Though additional measures are unnecessary, NCR has chosen an alternative remedy to address the Area 1 source area in response to OEPA's concern. The technology is reductive dechlorination using zero valent iron filings in a matrix of bore holes. Attached is a detailed white paper explaining the alternative remedy and supporting documentation. Due to the potential effectiveness, economics and

lack of interference with Edgetech's current and future operations NCR is willing to apply this technology to all three areas on concern (Area 1, 2, and 3) at the site.

Ohio EPA Response

Both NCR and Edgetech comments (see below for Edgetech's comments) identify practical and technical aspects of using phytoremediation to address the contamination in Area 1.

The practical considerations will be discussed first. The phytoremediation selected in the Statement of Basis would require a very high density of trees in Area 1. Comments by NCR and Edgetech state that Edgetech uses and needs most of this area for a tractor-trailor rig turn-around for shipments and deliveries. Edgetech's comments state that "the area proposed for planting with poplar trees is crucial to Edgetech's continued operation and expansion of the Facility. This area is necessary to allow semi-trailors to access and exit the manufacturing Facility". NCR's comments state that the phytoremediation would be "very inconvenient" for the property owner because the property owner uses this area for staging of equipment and truck maneuvering.

As acknowledged by both NCR and Edgetech, Ohio EPA agrees that an alternate strategy to the extensive planting of poplars to remediate the contamination in Area 1 should be considered due to these practical considerations. However, the CMS should still include the more limited planting of poplars in the northeast corner to help de-water the soils and help limit ground water migration off-site. The planting of these trees should be designed to not interfere with current or reasonably anticipated future operations/expansions.

Technical comments stated that phytoremediation may not be appropriate for reasons such as; the contaminant concentrations potentially being phytotoxic or at too great of a depth; the length of time that might be required; the potential emission of volatiles to the atmosphere; the seasonality of leaf-out and effectiveness during the winter months. Also identified were several other aspects such as financial assurances, test plots, etc.

Ohio EPA accepts that practical concerns preclude the use of phytoremediation at the site at this time, thus it is not necessary to engage in an in-depth debate on the status of the science or the applicability of phytoremediation at this site. Many of the concerns identified for phytoremediation also apply in general to other potential remedies. Any selected remedy will be required to have an adequate performance monitoring program to ensure that the remedy is working and should it be determined

that a remedy is not working, the remedy should identify corrective actions to ensure compliance with remediation goals.

The following comments were received in a letter dated December 19, 2005 from Mr. Scott Doran, legal counsel for Edgetech.

Comment 2

Our firm represents Edgetech I.G., Inc. ("Edgetech") in connection with its evaluation of the remedy proposed by the Ohio Environmental Protection Agency ("Ohio EPA") in the Statement of Basis dated October 2005 related to historical soil and groundwater contamination of the former NCR Corporation Facility in Cambridge, Ohio (the "Facility"). The Facility is now owned and operated by Edgetech. The following provides Edgetech's comments on the Statement of Basis and the proposed remedy. This also incorporates by reference comments on the Corrective Measures Study ("CMS") forwarded by email to Ms. Kovac on September 12, 2005.

Ohio EPA Response

Ohio EPA acknowledges the incorporation by reference comments received by Ms. Kovac (Ohio EPA attorney) on September 12, 2005. These comments are addressed later in this responsiveness summary.

Comment 3

Edgetech manufactures a unique polymer sponge rubber architectural seal which significantly improves the energy efficiency of insulated windows. Edgetech's products are sold worldwide and are rapidly gaining market share in Europe, Asia and South America. Edgetech moved its operations to the Cambridge facility (the "Facility") in 1994 and currently employs over 135 people and an additional 35 employees at a related company, LMI Custom Mixing, which is also located at the Facility. The Facility houses Edgetech's management, manufacturing operations and an extensive research and design division. Edgetech's operations and employment have grown almost continuously since 1994 and additional expansions are anticipated in both the near and long term. Obviously , the remedy chosen by the Ohio EPA must both assure protection of human health and the environment and protect Edgetech's ability to continue to expand and increase employment in this relatively depressed area of Ohio.

As discussed in greater detail below, after a careful technical review, Edgetech believes that the remedy set forth in the proposed Statement of Basis fails to meet the requirements of state and federal law and may significantly hinder Edgetech's ability to maintain and expand its operations and increase employment. Moreover, Edgetech believes that the proposed remedy will fail to assure a timely and effective clean-up which is fully protective of human health and the environment. At the

same time, Edgetech has participated in discussions with NCR and Ohio EPA concerning an alternative remedial approach which, with some modification and the establishment of meaningful performance and monitoring standards, may result in timely and effective remediation.

Three areas of fairly significant soil and groundwater contamination remain at the Facility as a result of NCR's historic operations. Despite the fact that a variety of remedial techniques have been proven effective in similar environmental circumstances, the proposed remedy will be ineffective, costly and unprotective. NCR has acknowledged in the CMS that other technologies exist which would assure timely remediation of the site (in as little as five years), albeit at a greater cost. The Ohio EPA's proposed remedy of long-term groundwater and indoor air monitoring, land use controls and the planting of poplar saplings is not an acceptable remediation plan. Based on Edgetech's review of the remediation proposal, significant soil and groundwater contamination may remain on the site for over 100 years. The use of poplars as a remediation technique is unproven and, in some instances, has aggravated the environmental conditions where it has been used. The proposed use of a deed restriction to limit excavation activities on the property will impact Edgetech's ability to maintain and expand its operations. Future construction may be more costly because of the necessity to address the subsurface presence of contaminants. The proposed remedy certainly does not meet the standards of Ohio's regulatory program to minimize the need for further maintenance at the facility and assure protection of human health and the environment. See OAC 3745-55-11.

Ohio EPA Response
Please see response to Comment 1.

Comment 4

Poplar Trees Will be Ineffective to Treat and Control Groundwater Contamination

Ohio EPA has proposed to accept and expand NCR's proposal to use poplar trees to treat and control groundwater contamination in what has been referred to as "Area 1" at the northeast corner of the site. Even under optimal conditions, this remedial approach will fail. Contamination is present in groundwater at depths of 20 feet. There is no indication in the literature or otherwise that poplar roots will reach a depth of 20 feet and, in fact, the roots are unlikely to penetrate little farther than the perched water table at 5 feet below ground surface. Thus, the lower levels of contamination will be unaffected.

Moreover, the technical guidance relied upon by Ohio EPA in considering this approach (Technology Evaluation Report (TER) T.E. -98-01, Phytoremediation,

Technologies Analysis Center, October 1997) acknowledges the following limitations of phytoremediation.

1. The TER clearly acknowledges the long duration of time required for any potential cleanup.

2. The TER acknowledges the potential for contamination of the associated vegetation and food chain as well as emission of volatiles to the atmosphere. NCR has not evaluated these risks.

3. The TER acknowledges that "long-term monitoring and evaluation of phytoremediation technology is still needed to demonstrate efficacy, to further define suitable plants and applications, and to gain acceptance from regulatory agencies."

4. The TER also acknowledges that in many applications, phytoremediation is not the sole treatment option, but is used in conjunction with other approaches including extraction or other treatment. As previously noted, a number of other remedial options could be implemented at this site.

5. The TER acknowledges that phytoremediation is effective only to the depth of approximately ten (10) feet.

6. The TER also acknowledges that winter operations may pose problems for phytoremediation due to the loss of leaves. The TER suggests that mathematical modeling of the "hydrology and contaminant transport" be completed in order to ensure that migration of contaminants or leeching to ground water during winter dormancy does not preclude this remediation option. It is also referenced that the contaminants may be absorbed into leaves and released to the environment in that manner when the leaves fall. What remedial activity will take place during Ohio's long winters?

7. The TER indicates that phytoremediation is used in many cases as a "polishing step" to close sites after other clean up technologies have been used on the hot spots. This is exactly the type of situation being addressed at the Facility.

8. The TER suggests that treatability studies be utilized in the designing of the phytoremediation system in order to achieve desired results. No treatability study has been conducted by anyone at this point. Also, with respect to the release of the volatiles to the atmosphere, it is suggested that air toxins calculated should be done in order to estimate the concentrations that would be released.

9. The TER also references performing a "capture zone calculation" in Section 4.5. This Section acknowledges that if the contaminant plume is not absorbed by the vegetation, the concentration of the soil remaining will actually be greater.

10. Finally, the TER references the need to maintain the field of vegetation and that a contingency fund should be provided for periodic replanting and ensuring a viable system. The Statement of Basis does not reference any type of financial assurance mechanism.

It is important to note that Area 1 continues to include areas of contaminated soils at levels ten times above Ohio EPA's leach-based allowable values. The planting of poplars and the use of phytoremediation is simply the wrong technology to use to effectively address these hot spots of contaminated soils and groundwater.

Additionally, we understand that Ohio EPA's proposal includes planting with poplar saplings. There will be little root growth in the first years so the Facility would essentially go without a mechanism for treating and/or controlling further migration of contamination for the next five to ten years.

Equally important, the area proposed for planting with poplar trees is crucial to Edgetech's continued operation and expansion of the Facility. This area is necessary to allow semi-trailers to access and exit the manufacturing Facility. It is also the logical area for future building expansion. The planting of thousands of poplar trees in this area would obviously make these uses impossible and could well lead to Edgetech ultimately considering moving to another facility.

The levels of contamination in the groundwater indicate the potential presence of DNAPL in these areas. This has not been investigated and DNAPL obviously would not be treated by a phytoremediation. If DNAPL were present, it would result in the inability to ever meaningfully remediate the affected areas using phytoremediation.

Finally, given that much of the heaviest contamination is located immediately adjacent to the Facility, Edgetech believes that it would be appropriate to require NCR to conduct additional investigation to determine whether there is significant areas of contamination beneath the Facility and/or along utility lines. It certainly appears that the utility lines are providing a migration pathway for the contamination. These areas would not be addressed via phytoremediation.

Ohio EPA Response

Please see response to Comment 1.

Comment 5

Land Use Restrictions

The Statement of Basis anticipates that land use restrictions will be placed on the Edgetech property limiting use of the property to industrial activities and prohibiting the use of groundwater and the excavation of soils in contaminated areas. In addition, any construction activities at the Facility would need to be approved by the Ohio EPA. While Edgetech would agree that prohibiting the use of groundwater and allowing only industrial uses on the property would have little effect on the future use of the Facility, it strongly opposes imposing land use restrictions which would hamper its ability to expand the Facility in a cost-effective and timely manner in the future. Given that it is likely that this contamination will remain for years to come under the proposed remedy, involving the Ohio EPA in evaluating every construction activity in these areas is an unreasonable and unwieldy mechanism for controlling exposure to contaminants. In light of the number of alternative remedial mechanisms which are currently available and at a reasonable price, falling back on land use restriction is an unreasonable remedial choice.

Additionally, Edgetech has not agreed with NCR to allow the imposition of deed restrictions on this property, nor is it required to do so by any contractual agreement or state or federal law. Instead, NCR is required to complete the remediation of the site under the rigorous corrective action requirements of the Resource Conservation and Recovery Act which, we understand, do no necessarily allow for the use of "no-dig" deed restrictions as a part of a remedy.

Ohio EPA Response

Ohio EPA believes that institutional controls can be an acceptable component of a remedy at a RCRA Corrective Action site. Institutional controls are also provided for under the Ohio Environmental Covenants law [Ohio Revised Code (ORC) 5301.80 to 5301.92 (effective December 30, 2004)]. Ohio EPA believes that an environmental covenant to restrict ground water use will be a necessary component of the remedy. Ohio EPA is still concerned that protections must be in place should excavation or construction activities occur. If the generally agreed-upon use of the zero-valent iron filings remedy performs well, it is possible that the environmental covenant would not be required to "run with the land" and could terminate at some point in the future. All three parties, NCR, Edgetech, and Ohio EPA have indicated a willingness to work toward acceptable environmental convenant restrictions.

Comment 6

Groundwater and Indoor Air Monitoring

Edgetech agrees that comprehensive monitoring of the groundwater and indoor air is an essential component of the remedy as long as elevated levels of contamination remain in the soil and groundwater. The monitoring schedule set

forth in the Statement of Basis is acceptable, provided that the Ohio EPA assures that it is properly carried out and the agency promptly reviews the results of the monitoring. Moreover, Edgetech believes that the remedy should identify the specific remedial measures which will be implemented by NCR if the monitoring indicates that the ultimate remedy is not performing as expected or if other risks are identified.

Ohio EPA Response

Ohio EPA agrees with this comment. These details have been requested to be identified in the revised CMS with expanded details to be developed during the Corrective Measure Implementation phase of the project.

Comment 7

Alternate Remediation Option

NCR has discussed with Edgetech and Ohio EPA the use of zero valent iron filings which would be injected into the soil at intervals in Areas 1, 2 and 3. NCR outlined this approach in Terran Corporation's November 15, 2005 report entitled, "Diffusion Based Remediation in Low Permeability Soils at the Former NCR Facility in Cambridge, Ohio." Edgetech is concerned that the limited movement of groundwater in the affected areas may hinder the effectiveness of this remedial approach. However, Edgetech believes that, with modification, the use of this remedial technology in combination with continued monitoring and the limited planting of poplar trees, is an acceptable initial remedial approach. In that regard, Edgetech believes that it will be very important to establish meaningful performance objectives to demonstrate that this approach will result in timely and effective remediation, and the following objectives should be considered:

1. *While installing the Geoprobe borings for the iron filing installation, collect approximately 8 to 10 soil and shallow groundwater samples for laboratory analysis from the center of the most contaminated area within each of the three (3) main areas. For instance in Area 1, sampling should be focused near Borings I-2, J-0, J-1, K-0, and L-0. The proposed number of samples (8 to 10) is necessary so that an appropriate statistical background or baseline contaminant concentration (i.e., a 95% Upper Confidence Limit) can be obtained. Edgetech believes this is necessary because it has been over four (4) years since the soil and groundwater data have been collected in these areas. If natural attenuation is occurring, we should expect some degradation and this data will provide a "new" starting point for contaminant concentration and mass.*

2. *Install one (1) or (2) Geoprobe wells within each of the three (3) main source areas. These do not have to be fancy or costly, simply 1-inch diameter wells that can be sampled during the quarterly monitoring to reflect soil pore*

water/shallow groundwater reduction during the remedial period. Currently, there are no wells close enough to monitor the overall efficacy of the remedial design.

3. *In accordance with the terms of the proposed remedy, NCR anticipates seeing a 50% contaminant mass reduction in 3-5 years. Edgetech would propose in two (2) years NCR collect approximately 8 to 10 soil and shallow groundwater samples for laboratory analysis from the center of the most contaminated area within each of the three (3) main areas. A statistical analysis or a 95% Upper Confidence Limit can be used and compared against the baseline data to measure contaminant concentration and mass degradation. Within two (2) years we should see a 25% reduction in mass and witness further contaminant degradation such as an increase in cis-1,2-DCE and even vinyl chloride and a reduction in TCE concentration. If this does not occur, the remedy should be reevaluated.*

Edgetech also believes that NCR should give further consideration to increasing the iron filing boring density near the heart of the source areas (e.g., from 6.0-foot centers to perhaps 3.0-foot centers). In addition, NCR should also consider installing some borings inside the facility for Area 2 (near former Borings ID-4 and ID-3) as well as Area-3 (near Boring ID-1).

Ohio EPA Response

Ohio EPA has asked NCR to address these comments in the CMS. Also Ohio EPA has requested that the CMS describe the performance monitoring of the remedial alternative in sufficient detail to provide Ohio EPA assurance that alternatives or corrective measures will be implemented in a reasonable and timely fashion should the remedy not function as intended. Also, please see the response to Comment 1.

Comment 8

Alternatively, Edgetech has suggested a number of other technologies which would allow for timely biodegradation of the contaminates in soil and groundwater. In fact, one proposal from CL Solutions indicates that the groundwater could essentially be remediated within five years for cost of under $300,000. A copy of CL Solutions' proposal is attached. This process would actually be considerably less expensive than quarterly monitoring of the groundwater for the foreseeable future. NCR anticipates the cost of monitoring to exceed $1,500,000. A lot of active remediation can take place for $1,500,0000. Additionally, the planting of poplar trees is likely to cost upwards of a million dollars. Again, taken together, the site could be promptly remediated for the same cost. Furthermore, remediation of these areas could also reduce or eliminate the need for ongoing indoor air monitoring, further reducing NCR's costs.

Ohio EPA Response

Similar to the iron filing remedial alternative, Ohio EPA believes that a large number of injection points would be required to address the ground water plume in an acceptable fashion. Unlike the iron filings which theoretically remain effective for years; nutrient enrichment processes last only until the carbon source (dextrose sugar) and in this case oxygen source are depleted. Depletion of these resources can be weeks or months depending on the bacterial population. Theoretically, a properly designed bioremediation process will address contamination in a relatively short time frame. However, because these components deplete, multiple injections are often required over time.

The actual process is not clear from the proposal. Ohio EPA originally understood that the CL-Out proposal would require a recirculating wick system as opposed to a series of injections at multiple points. Given the low permeabilities at the site, Ohio EPA would require hundreds of wicked injection points to ensure adequate coverage. A recirculating wicked system would require extensive piping throughout Areas 1, 2, and 3 which would impede use of the property in a similar fashion as the phytoremediation proposed in the Statement of Basis. There are also impediments to injecting the material into the clays at the site, injections even under pressure would not spread out throughout the clay. Even given the tentative agreement of the iron filing approach, Ohio EPA requested that the CMS include a nutrient/oxygen enrichment alternative.

Comment 9

Edgetech strongly believes that the proposed remedy does not meet the requirements of the corrective action process, is inconsistent with Ohio EPA's usually rigorous review of these types of projects, fails to assure the protection of human health and the environment and ignores vastly more effective, more protective and potentially less costly remedial alternatives. In addition, it puts at risk Edgetech's ability to maintain and expand its operations in Cambridge, Ohio and to provide quality jobs for in excess of 135 employees.

Provided that NCR proceeds to implement the modified remediation plan and enter into an Administrative Order with Ohio EPA under RCRA performance standards, Edgetech is willing to consider the establishment of the proposed land use restrictions (Edgetech and NCR must also negotiate an acceptable agreement relating to an allocation of cost and risk related the remaining contamination). Edgetech urges the Ohio EPA to assure that the ultimate remedy is both timely and effective. Edgetech is more than willing to work with the Ohio EPA and NCR to successfully meet this objective.

Ohio EPA Response

Responses to previous comments generally address the concerns identified in the above statements. Ohio EPA is committed to pursuing the zero-valent iron filing remediation approach at the facility and is willing to participate in negotiations that result in an environmental covenant amenable to all involved parties.

The following comments were provided to Ms. Frances Kovac, Ohio EPA legal counsel by Mr. Scott Doran, legal counsel for Edgetech. The comments reflect a letter of concerns dated August 29, 2005, from Mr. Doran to Mr. Wray Blattner legal counsel for NCR. While submitted prior to the public comment period, these comments were included by inference as per Mr. Doran's comments discussed above.

Comment 10

First and foremost, Edgetech is very concerned by NCR's proposal to leave areas of significantly contaminated soils in Areas 1 and 2. In particular, the highly contaminated soils in Area 1 appear to serve as a source area for the plume of contaminated groundwater. The contamination in Area 1 presents potential risks to Edgetech's employees, significantly complicates future expansion of the facility and is the source of the migration of contaminated groundwater migrating toward or past the facility boundaries. Edgetech strongly believes that the most heavily contaminated soils should be removed from Area 1 and properly disposed of. While Edgetech believes the optimum approach would be to remove the entire area of contaminated soils in Area 1, which would include an area of approximately 100 feet by 100 feet by 10 feet, it recognizes the cost of this effort would be substantial. Therefore, a more focused source area excavation would be acceptable. This would result in the excavation of the most contaminated soils in an area 50 feet by 50 feet by 7 feet in the area of Boring J0. The cost to dispose of this soil as a hazardous waste would be approximately $210,000. The cost of excavation, transportation, sampling, etc., would likely add another $100,000 to $125,000 to this amount.

Assuming this source areas was removed, Edgetech believes that the contamination in Area 1 would attenuate relatively quickly, thereby significantly decreasing NCR's monitoring costs. Presently, NCR is proposing to monitor Area 1 for 30-plus years at a cost of between $1.6 million to $3 million. If the monitoring period was reduced by 10 to 15 years, excavating this area would result in a significant savings for NCR in the long run.

It may also be worth evaluating whether the soils in Area 1 would necessarily be considered a listed hazardous waste. To our knowledge, there is no information indicating that the contamination resulted from the disposal of waste materials. Rather, because raw materials were stored in this area, the contamination could be

the result of occasional releases of virgin porduct. Accordingly, unless the excavated soil was a characteristic hazardous waste, it may not require disposal as a hazardous waste and disposal costs would be reduced accordingly.

Edgetech also believes that some type of in situ treatment would be cost effective for Area 2. It is a much smaller area that is affected and Kevin Reaman has had significant successes in similar geologic settings using the BioDrain technique.

Second, in light of the likely migration of contaminants near and under the Edgetech facility, including via utility lines, Edgetech believes it is necessary to conduct more rigorous regular air monitoring in the facility, particularly in parts of the facility located near Area 3. It does not appear that this area of the facility has been monitored in the past and it will be important to assure that there is no migration of contaminant vapors into this area now or in the future. Moreover, to the extent to which elevated contaminant levels are detected in the future within the Edgetech facility, Edgetech would expect NCR to agree to whatever remedial actions are necessary to ameliorate that risk.

Ohio EPA Response

The issues identified in the above comments have been addressed in previous comment responses. No further response is required.