EXHIBIT A TO CONSENT ORDER

Ohio EPA Decision Document
Coopermill Road Dump/McGraw-Edison Site
Ohio I.D. # 460-0204

Introduction

The Ohio Environmental Protection Agency (Ohio EPA) has selected an alternative to remediate contamination at the Coopermill Road Dump/McGraw-Edison site in Muskingum County, Zanesville, Ohio. This Decision Document summarizes the site history, the Remedial Investigation (RI), the Focused Feasibility Study (FFS), the Site Feasibility Study (SFS), and the clean-up alternatives evaluated in the FFS and SFS which are presented in the Preferred Plan for the site. The Decision Document presents the Ohio EPA's selected alternative to clean-up the site contamination and the rationale and justification for that preference. The Decision Document also incorporates responses to comments received during the public comment period on the Preferred Plan. A responsiveness summary detailing the comments received and the Ohio EPA response is appended to this document.

The Site

Coopermill Road Dump/McGraw-Edison Site
1313 Coopermill Road
Zanesville, Muskingum County, Ohio

Site Summary

The Coopermill Road Dump/McGraw-Edison site is located in Springfield Township, north of Coopermill Road and immediately west of the Zanesville, Ohio city limits in Muskingum County. It was used as an unregulated waste disposal and drum staging area by McGraw-Edison. Materials sent to this site included general office and plant waste paper products, protective asbestos sheeting, residual solvents and paints, waste paint sludges, oils, and metal shot blast from paint stripping operations. McGraw-Edison sampled and overpacked the barrels staged around the site in 1983 after the site came to the attention of the Ohio EPA. Since then, McGraw-Edison, now Cooper Industries, has conducted an investigation of the site to determine the extent of contamination. The groundwater has been identified as being contaminated and the dump area has been identified as a possible continuing source of contamination of the groundwater. The soil around the dump area or landfill has also been identified as having elevated levels of lead. The contamination at this site, if not addressed by this remedial action, presents a potential threat to public health and the environment. Additional information on the site contamination can be found within the RI and the SFS and FFS.

Community Participation

Documents pertaining to the investigation at the site including the RI, FFS, SFS and subsequent documents are public documents in the Ohio EPA files. All public documents pertaining to past and future activities at the Coopermill Road Dump/McGraw-Edison site are available to the public at the Ohio EPA Southeast District Office in Logan, Ohio.

A document repository has been established at the Muskingum County Library, 220 North 5th Street, Zanesville, Ohio. The document repository contains copies of the RI, FFS, SFS and the Preferred Plan. A copy of this Decision Document will be added to the repository. Copies of all final design documents and site reports will also be added to the repository after they are received and approved by the Ohio EPA.

The Selected Alternative

The selected alternative consists of limited excavation of the landfilled area followed by off-site disposal of the excavated material and then capping the landfill, and long-term groundwater monitoring. The combination of these two actions will control the groundwater contamination, and alleviate the potential risk which exists at the site.

Selected areas within the landfill area will be excavated. The areas to be excavated were chosen based on anomalous results from a magnetometry survey. The purpose of the limited excavation is to investigate the possibility that there may be leaking drums present in the landfill which may be providing a source of continued contamination to the groundwater. Any drums which are found containing liquid will be excavated, sampled, and disposed of at the appropriate facility. After the limited excavation, any such continuing source of groundwater contamination should be eliminated. The estimated costs of excavation and drum removal are approximately $ 4,800.00.

There will also be excavation of materials within the "cross-over", the area where two valleys merge to form a single valley, and sediments upstream of the "cross-over" with placement of the materials on the outer slope of the landfill area. This will remove the soils and sediments, which are contaminated with metals and some VOCs, from an exposed area and place them in an area to be capped. This will remove another potential route of exposure. After excavation, a clay cap will be installed over the landfill. The estimated capital cost of the clay cap is $ 300,900.00

One other aspect of the landfill area which will be addressed is the collection of the discharge from the springs located at the toe of the waste area and directing their flow to a discharge point along Chaps Run. The discharges will be collected with the use of french drains and will be discharged in compliance with the discharge limits set within a National Pollutant Discharge Elimination System (NPDES) permit. The discharge will be treated if necessary to meet the NPDES permit limits.

Finally, there will be stormwater management controls, a long-term monitoring program and deed restrictions used to protect the integrity of the cap. To restrict access to the landfill, the fence which surrounds the Hildenbrand's property will be used. The fence will be inspected and maintained in such a manner that access to the property is restricted. In the future, if the fence does not appear to be restricting access to the property, then the situation will be reevaluated and alternate measures will be taken in order to restrict access.

The groundwater will be monitored for at least the next 5 years. A series of "trigger" wells will be established off-site which will be used to monitor the migration of the groundwater. The groundwater plume currently has not reached the locations selected for the trigger wells. Once the landfill is capped, it is believed that the migration of the groundwater plume will be severely reduced. Also, the limited excavation of barrels from the landfill should eliminate any continuing source of groundwater contamination. The combination of these actions should then considerably slow the groundwater plume and provide sufficient time for the degradation of the groundwater contaminants. The expected annual monitoring costs are approximately $ 32,328.00.

After five years, if the plume has <u>not</u> reached the "trigger" wells then the monitoring system will be reevaluated. The data which has been collected on the "trigger" wells and the onsite wells, and any new technologies which have been developed, will be reviewed. After the evaluation is completed, the need for an active remedy will be assessed. At a minimum, continued groundwater monitoring will probably be necessary.

If, during the five year period, the groundwater plume does reach the "trigger" wells in statistically significant quantities, then alternative measures for addressing the plume will be evaluated. At that time an active remedial alternative must be implemented such that the groundwater plume will not reach an established compliance boundary (a boundary set at a distance from the "trigger" wells so that it will take groundwater two years to migrate this distance) within two years. The quantities of constituents which will "trigger" the alternative measures are as follows:

GROUNDWATER CONSTITUENT	MCL
(1) 1,1,1-Trichloroethane	200 ug/l
(2) Trichloroethylene	5 ug/l
(3) Tetrachloroethylene	5 ug/l
(4) Trans-1,2-Dichloroethylene	100 ug/l
(5) Cis-1,2-Dichloroethylene	70 ug/l

The MCLs or the maximum contaminant levels are the standards promulgated under the Safe Drinking Water Act and are considered to be protective for a public drinking water supply. These levels are also the clean-up standards which must be achieved in order to determine the groundwater as "safe" for consumption. These levels may change if new MCLs are promulgated.

Also, a hydrologic evaluation monitoring program will be implemented which will include analyzing the water as well as measuring water levels in all site monitoring wells. These data will aid in the continuing evaluation of potential groundwater remedial technologies. The groundwater remedial technologies will be reevaluated once every five years and, if a more effective and implementable technology becomes available, it will be implemented after review and approval of the Ohio EPA.

Site Description/History

The McGraw-Edison/Coopermill Road Dump site is located in Springfield Township, north of Coopermill Road and immediately west of the Zanesville, Ohio city limits in Muskingum County. Unregulated waste disposal and drum staging activities were initiated in 1951 or 1952 and discontinued in 1972. Waste from Cooper Industries (then McGraw-Edison's) facility included general office and plant waste paper products, protective asbestos sheeting, residual solvents and paints from spent drums, waste paint sludges, oils and solvents from normal operations, and metal shot blast from paint stripping operations.

Based on a 1977 aerial photograph and a 1959 topographic map, it appears that waste disposal activities were limited to the two valleys north and west of the "mule barn". The two valleys are believed to be the source of the spring-fed stream that can be observed south of the concrete block springhouse located in the northern valley. The southern valley is partially filled and the spring that is believed to have been in the valley is currently covered with waste materials. The two valleys merge to form a single valley near the area referred to in the site investigation report as the "cross-over". The stream has been filled in with trees and soil from the valley side slopes from the "cross-over" to a point west of the farm outbuildings. The "cross-over" is believed to have been constructed of discarded appliances and waste materials.

In addition to the waste disposal activities within the valleys, 55 gallon drums of waste materials, spent solvents, and paint sludges were staged along the fence rows that formed the southern and western boundaries of the field that contained the waste disposal area. Access to the waste disposal and drum staging areas was along a dirt and cinder road on the southern side of the valley from the farm located at the mouth of the valley.

The Ohio EPA became aware of this site in 1982. After inspection of the property, Ohio EPA contacted McGraw-Edison regarding disposal of the drums which were staged around the site. McGraw-Edison, with the oversight of the Ohio EPA, sampled, overpacked and properly disposed of the drums in 1983. During the drum removal, asbestos was uncovered on the site, just below the surface cover soil. Some of the asbestos was excavated and removed from the site, but the majority was left in place and covered with clean soil. The removal action was completed in late 1983.

Concurrent with the drum removal, McGraw-Edison and the Ohio EPA began to test the water by sampling the spring and the well water the site residents were using.

The presence of contaminants in the well water and the spring led the agency and McGraw-Edison/Cooper Industries to pursue a remedial investigation of the site.

Remedial Investigation and Feasibility Study Summary:

The investigation was conducted to determine the effect(s) the landfill area was having on the environment; to determine whether substances migrating from the site endanger the public health, welfare or the environment, and to gather the data necessary to support the Feasibility Studies.

Soil and Sediment Investigations: Some of the work conducted (1983 & 1984) consisted of sampling the soil in and around the landfill and the sediment of the east spring which joins Chaps Run. Elevated concentrations of lead and chromium were detected in the soil in and around the landfill. There was also one soil sample which detected naphthalene (see Tables 3-1, 3-4 of the RI). Sediment samples revealed bis (2-ethylhexyl) phthalate and some metals (see Table 3-2 of the RI). After contamination was detected in the on-site domestic well, Ohio EPA determined that there should be an extensive study of the groundwater quality and an in-depth hydrogeological evaluation of the site. A series of four hydrogeological investigations followed.

Groundwater Investigations

Phase I: In 1986, a hydrogeologic evaluation and a magnetometry survey were conducted to define the environmental condition of the site. The magnetometry survey was to aid in evaluating the presence and location of buried waste drums in the landfill area. The hydrogeologic evaluation studied the general geology and the hydrogeology of the site. Nine wells were constructed and sampled. The results demonstrated the presence of chlorinated hydrocarbons: trichloroethene (TCE), tetrachloroethene (PCE), trans-1,2-dichloroethene (trans-1,2-DCE), and 1,1,1-trichloroethane (1,1,1-TCA). The information obtained from this investigation lead the Ohio EPA and Cooper Industries to the conclusion that further investigation of the site was warranted. The Phase II hydrogeologic investigation was conducted in 1987.

Phase II: Nine new monitoring wells were installed to further define the hydrogeologic characteristics of the site. The purpose of the wells was to further define the extent of contamination in the shallow saturated zone and to obtain information on the two lower saturated zones. The results from the monitoring wells demonstrated that the chlorinated hydrocarbons had reached the intermediate monitoring zone but not the deep zone. The contaminants present in the groundwater were the same as those found during the first phase with the exception of one new constituent, 1,1-dichloroethene (1,1-DCE) found in monitoring well 13. After studying the data from the Phase II investigation, it was apparent that further delineation of the groundwater plume was necessary.

Phase III: The Phase III investigation was conducted in late 1987. Nine new monitoring wells were installed, monitoring well M1-D was modified, the Hildenbrand domestic well was closed, a soil gas survey was conducted, and a residential survey of potential downgradient groundwater users was conducted. The groundwater sampling results continued to demonstrate the presence of the chlorinated hydrocarbons already identified. The soil gas survey was conducted to determine if there was another source of volatiles yet unidentified. The results demonstrated the presence of volatilization but all readings were relatively low and did not indicate any new source areas.

The residential survey demonstrated that residents on Coopermill Road in the vicinity of the site are currently using the municipal water supply. Thus, there are presently no known groundwater supplies being utilized within the area of contamination, or immediately down-gradient of the area.

Phase IV: In 1988, Cooper Industries conducted pump testing on seven wells, and installed two new monitoring wells. The pump testing was done for the purpose of evaluating the feasibility of pumping and treating the groundwater. This work comprised the Phase IV hydrogeologic study for the site.

Additional work: In the fall of 1989, some additional work was performed in order to ensure adequate long-term groundwater monitoring. One off-site monitoring well was installed, just north of Coopermill Road, an on-site soil gas survey was conducted, six existing monitoring wells were retrofitted and the first round of a long-term groundwater monitoring program was conducted. The groundwater results continued to demonstrate contamination from volatile organics already detected. However, the groundwater plume has not migrated as far south as the new off-site well. Also, the soil gas survey detected some VOCs but not at levels which would indicate the presence of an additional contaminant source area.

Risk Assessment: The purpose of the risk assessment is to evaluate the current and potential future on-site and off-site human health effects of the contaminants at this site. The potential sources of contamination at the Coopermill Road Dump/McGraw-Edison site are the landfilled wastes and contaminated soils, the contaminated groundwater, and the contaminated surface water and sediments of the east spring. The risk assessment serves to compare site-related conditions to the conditions which existed prior to waste disposal on site.

The soil in and around the landfill has been shown to contain lead, chromium and naphthalene above levels normally found in soil. Current toxicological information is unavailable for quantifying risks associated with the ingestion of lead. Asbestos has also been detected in the soil. Although, the risks associated with chromium, naphthalene and asbestos have not been quantified, these contaminants are, nonetheless, addressed in the remedy. Volatile organics have been detected in the surface water of the east spring in concentrations as high as 20 parts per billion (ppb). The sediments of the east spring area also show contamination from the compound bis (2-ethylhexyl) phthalate as well as some metals (see Table 3-2 in the RI, Vol I). The groundwater shows the greatest and most consistent contamination from five volatile organic compounds. The contaminants are:

1) Trans-1,2-dichloroethylene (Trans-1,2-DCE)
2) Cis-1,2-dichloroethylene (Cis-1,2-DCE)
3) Tetrachloroethylene (PCE)
4) Trichloroethylene (TCE)
5) 1,1,1-Trichloroethane (1,1,1-TCA).

All but 1,1,1-TCA have exceeded their maximum contaminant level (MCL). MCL's are standards promulgated under the Safe Drinking Water Act and are considered to be protective for a public water supply.

Currently, the site is unfenced and easily accessible, although privately owned. At this time, there are no private wells on or immediately down gradient of the site which could provide exposure to the groundwater. Due to the accessibility of the site, exposure through dermal contact or ingestion of the soil is a possibility. If a child was to ingest normal quantities of soil around the landfill via playing, etc. over a long period of time, there would be a potential for risk. Also, if a child or adult would dig in the soil and contact asbestos, there is a possibility of inhaling asbestos fibers which are potentially carcinogenic. The surface water of the east spring shows detectable levels of metals and chlorinated hydrocarbons (see Table 3-3 of the RI, Vol. I). However, dilution and volatilization of these contaminants downstream of the site results in reduced levels which present an insignificant risk. The sediments of the east spring have shown some contamination as well. However, the constituents do not appear to migrate through the sediment and appear to be restricted to the site.

In the future, if the site is left in its current state with no restrictions to access or building, then the above exposures would continue to be a possibility along with the following scenarios. With no restrictions to building, someone could build a home and/or install a well either on or off-site. If a well was installed in the contaminant plume, there is the potential for exposure to the contaminants through ingestion of the water, inhalation of volatile contaminants during showering, and dermal contact with the contaminated groundwater. Concentrations of contaminants in the groundwater plume are significantly above regulatory levels set by the Safe Drinking Water Act for public water supplies and are above the risk levels considered acceptable to the Ohio EPA for carcinogenic compounds.
Also, if the contaminant plume in the groundwater continued to migrate, a well drilled off-site could potentially intersect the contaminant plume, resulting in exposure and unacceptable levels of risk to off-site receptors.

Focused Feasibility Study (Landfill Operable Unit): The Focused Feasibility Study (FFS) was conducted to identify and screen technologies and alternatives for addressing the landfill present on the site. The Risk Assessment indicates that there are risks due to ingestion of lead, chromium and naphthalene from soil, and inhalation of friable asbestos.

Four alternatives were evaluated in detail in the Focused Feasibility Study. Each alternative was compared based on the overall effectiveness in addressing the current and future site conditions.

These alternatives were:

* Limit Site Access with Long-Term Landfill Monitoring
* Capping of Landfill Area
* Capping of Landfill Area with Limited Excavation and Off-Site Disposal
* Excavation of Landfill Area with Off-Site Disposal

All alternatives are summarized below:

1. Limit Site Access with Long-Term Landfill Monitoring

This remedial action would include (1) the maintenance of the current fence around the perimeter of the property as long as this fence restricts access to the property, (2) the development of a long-term landfill monitoring program, and (3) the utilization of a land use deed restriction.

As proposed, the alternative would limit access to the site and thus access to the contaminated soil. The site would be reassessed on an annual basis. The reassessment would include a long-term monitoring program that provides information on the condition of the site's soils, sediments, air and groundwater.

Cost Estimates
Direct Costs

Capital Costs	$ 17,200
Annual O & M Cost	$ 24,700

2. Capping of Landfill Area

This remedial alternative would consist of (1) the excavation of materials within the "cross-over" and sediments accumulated upstream of the "cross-over" with placement of the materials on the outer slope of the existing waste deposit, (2) the

installation of a cap over the waste deposit, (3) the installation of french drains to collect discharges from the springs located at the toe of the waste deposit, direct their flow to a discharge point along Chaps Run and treat the discharge water if necessary to comply with the NPDES permit, (4) the maintenance of the current fence around the perimeter of the property as long as this fence restricts access to the site, (5) the installation of stormwater management controls (i.e., diversion swales, collection ditches), (6) the development of a long-term monitoring program and (7) the utilization of a land use deed restriction.

This particular option can vary depending on the type of cap installed. The first option is a soil cap. The soil cap would consist of 18 inches of clean silty soils in two 9-inch lifts compacted to a maximum dry density and optimum moisture content that correlates to an acceptable slope stability safety factor. The silty soils would be covered with six inches of clean topsoil compacted with heavy equipment (tracked-in), and revegetated with a blend of perennial and annual seeds compatible with local climate.

The second option is a clay cap designed to be in compliance with 3745-27-11 of the Ohio Solid Waste Regulations. The cover subbase will be six inches thick followed by a soil barrier layer (two-foot thickness), then a granular drainage layer (eight-inch thickness), followed by a geotextile and finally capped two feet of topsoil. The drainage layer will be covered with a geotextile fabric to prevent clogging from the overlying soil cover. Soil cover and topsoil will be compacted to a maximum dry density and optimum moisture content that correlates to an acceptable slope stability safety factor. The cap construction area will be revegetated with a blend of perennial and annual seeds compatible with local climate and regulatory requirements.

Cost Estimates

Capital Costs to prepare area for capping	$ 29,200
Capital Cost for Soil Cap	$ 95,800
Capital Cost for Clay Cap	$266,900

Total Capital Costs

Soil Cap Option	$ 29,200 + 95,800 = $125,000
Clay Cap Option	$ 29,200 + 266,900 = $296,100

Annual Maintenance Costs

Soil Cap Option	$ 27,600
Clay Cap Option	$ 36,200

3. Capping of Landfill Area with Limited Excavation and Off-Site Disposal

The third remedial alternative consists of the same remedial measures as the second alternative with the addition of limited excavation activities to investigate the anomalous areas detected during a prior magnetometry survey and to remove drums encountered containing appreciable amounts of materials of concern for off-site disposal.

Cost Estimates

Capital Cost for drum excavation and disposal	$ 4,800
Total Direct Cost	
Soil Cap Option with Limited Excavation	$129,800
Clay Cap Option with Limited Excavation	$300,900
Total Annual Cost	
Soil Cap Option with Limited Excavation	$ 27,600
Clay Cap Option with Limited Excavation	$ 36,200

4. Excavation of Landfill Area with Off-Site Disposal

Remedial alternative 4 includes the excavation and off-site disposal of materials from the waste deposit, the cross-over area, and the sediment collection area upstream of the cross-over. Disposal options would be dependent on the physical and chemical characteristics of the material. For costing purposes, disposal costs for nonhazardous and hazardous landfills and incineration were considered.

The volume of material deposited at the site is estimated to be approximately 10,000 cubic yards with an estimated 1,900 cubic yards of additional material expected to be associated with the cross-over and the sediment collection areas. Therefore, about 11,900 cubic yards of material would be excavated and transported to an approved off-site facility for disposal.

Cost Estimates

Capital Costs	
Excavation	$ 11,700
(1) Nonhazardous Waste Landfill Option	$1,261,200
(2) Hazardous Waste Landfill Option	$3,819,700
(3) Incineration Option	$5,009,700
Annual Maintenance Costs	$ 23,800

Site Feasibility Study-Groundwater Operable Unit: The Site Feasibility Study (SFS) was conducted to identify and screen technologies and alternatives for addressing the groundwater and the rest of the site outside of the landfill. The Risk Assessment indicates that there are potential future exposure risks due to ingestion of the groundwater. Four alternatives were evaluated in the Site Feasibility Study.

Each alternative was evaluated based on the facility conditions, contaminant characteristics, technology applications/limitations, future development or land use, and capital costs.

The alternatives were:

* Long-Term Groundwater Monitoring
* Groundwater Controls
* In-Situ Treatment
* Treatment of Extracted Contaminants

All alternatives are summarized below:

1. Long-Term Groundwater Monitoring

This remedial alternative would consist of maintaining the groundwater in its current condition while continuing to sample and monitor it to ensure that contaminated groundwater does not migrate past a predetermined boundary. The monitoring program would consist of (1) locating a compliance boundary, (2) installing one well constructed in the deep zone of saturation (M-22D), (3) installing four "trigger" wells constructed in the intermediate zone of saturation and (4) quarterly sampling of eleven existing site monitoring wells, the four "trigger" wells, and M-22D. The "triggers" for the wells will be the MCLs for the contaminants. Once the "trigger" levels are reached, a remedy will be implemented to capture and treat all contaminated groundwater. The MCLs for the groundwater constituents are:

GROUNDWATER CONSTITUENT	MCL
(1) 1,1,1-Trichloroethane	200 ug/l
(2) Trichloroethylene	5 ug/l
(3) Tetrachloroethylene	5 ug/l
(4) Trans-1,2-Dichloroethylene	100 ug/l
(5) Cis-1,2-Dichloroethylene	70 ug/l

Also, a hydrologic evaluation monitoring program will be implemented which will include measuring water levels in all site monitoring wells. These data will aid in the continuing evaluation of potential groundwater remedial technologies. The groundwater remedial technologies would be reevaluated once every five years and, if a more effective and implementable technology became available, it would be implemented. Also, if monitoring shows that the contaminated groundwater has migrated to the "trigger" wells in statistically significant quantities, its presence would trigger the implementation of an additional remedial technology.

Cost Estimates

Sample, Analysis and Reporting Annual Cost	$ 32,328

2. Groundwater Controls

Groundwater controls are remedial measures that minimize the effect of contaminant migration by extracting the contaminants within the groundwater system or by containing the contaminated groundwater within a physical or hydraulic barrier.

(1) Groundwater Pumping

Groundwater pumping in an aquifer with compatible hydraulic characteristics has been proven an effective means of controlling the extent of contamination by removing contaminated groundwater. These remedies are often used to contain, remove, divert, or prevent contaminant migration within a groundwater system by establishing an extraction depression to the flow of contaminated groundwater. However, information provided by prior hydrogeologic evaluations indicates that the contaminated saturated zones at this site will not produce sufficient volumes of water or pumping rates to effectively support groundwater pumping.

(2) Interceptor Trench

Interceptor trenches are placed downgradient of contaminated saturated flow zones to collect and treat groundwater. An interceptor trench functions similar to a line of extraction wells and creates a zone of influence in which groundwater within the zone flows toward the drain. However, the local hydrologic conditions appear to indicate that an interceptor trench would not be a suitable remedy at this site. Calculations indicate that the groundwater discharge to a trench would be relatively small and, therefore, this alternative would take an inordinate amount of time to be effective. Further, capping of the landfill would reduce recharge and thus, the yield in interceptor trenches.

(3) Subsurface Barrier

Subsurface barriers can be used to isolate or divert groundwater flow. Barriers are constructed below grade using materials with low permeabilities relative to the existing subsurface media such as grouting or sheet piling. Subsurface barriers are not a recommended remedial measure to contain groundwater contamination over a long period of time given the types of contaminants encountered and the physical constraints of the site.

Chlorinated hydrocarbons tend to increase the permeability of a bentonite-soil slurry wall which could eventually lead to resumed contaminant migration. Geologic site conditions are not conducive to grouting or sheet piling.

3. In-Situ Treatment

The in-situ remedial measure would rely on biological treatment processes to remediate the constituent(s) of concern in place. Microorganisms would be used to degrade the contaminants of concern. Unfortunately, several of the chlorinated hydrocarbons present at this site can degrade into vinyl chloride under aerobic conditions. Vinyl chloride is also a toxic compound. The hydrogeology of a site must allow for the controlled and timely transport of nutrients, and the soil and water chemistry must be compatible with the introduction of nutrients and allow for the stimulation of the subsurface microbial community. Hydraulic conditions of the site and the nature of the contaminants are expected to render this technology ineffective and it has not been considered.

4. Treatment of Extracted Contaminated Materials

This remedial alternative would include removing the groundwater from the aquifer and then treating it for recovery or disposal purposes. However, since pumping the groundwater is considered infeasible for the site, this alternative has not been considered.

Comparison of Alternatives: The Ohio EPA selected alternatives for the Coopermill Road Dump/McGraw-Edison site is a combination of alternative 3 from the FFS and alternative 1 from the SFS. Alternative 3 will consist of (1) limited excavation of landfilled drums, (2) capping of the waste deposit landfill with a clay cap, (3) excavating the materials within the "cross-over" and sediments accumulated upstream of the "cross-over" with placement of these materials on the landfill area to be capped, (4) collection and treatment, if necessary, of the discharges located at the toe of the waste deposit area, (6) installation of

stormwater management controls, (7) developing a long-term monitoring program and (8) utilizing a land use deed restriction. Alternative 1 from the SFS will consist of (1) locating a compliance boundary, (2) installing one well in the deep zone of saturation, (3) installing four "trigger" wells in the intermediate zone of saturation and (4) quarterly sampling of all of the wells. In selecting the remedial alternatives, the Ohio EPA considered the following eight criteria:

1. Overall protection of human health and the environment

2. Compliance with all State and Federal Environmental laws and regulations

3. Long-term effectiveness and permanence

4. Reduction of toxicity, mobility or volume

5. Short-term effectiveness

6. Implementability

7. Cost

8. Community acceptance

The Selected Alternative

Capping the landfill area will protect human health and the environment by isolating the waste as well as containing the soils which are contaminated with elevated levels of lead, chromium and naphthalene, will comply with all appropriate state, federal and local regulations, and will reduce mobility of the constituents by preventing the infiltration of water into the waste and preventing exposure and wind dispersal of the asbestos. Excavating the sediments will reduce any risk associated with potential exposure to this material. Collecting and treating the spring discharge, if necessary, will address the source of surface water contamination. This remedy is implementable using currently available capping technology, will be effective in the long-term by keeping the waste isolated from the rest of the environment, and will be effective in the short-term through environmental controls used to minimize disturbance of the area and through isolation of the area.

Capping of the waste with limited excavation is a more effective remedy than capping without excavation. The limited excavation minimizes the possibility that there will be drums left inside of the capped area that could continue to degrade thus providing a

continuous source of contaminants to the aquifer. It is also cost effective because the difference in cost between simply capping the waste and performing limited excavation with off-site disposal is only $ 4,800.00.

Excavation of all the waste with off-site disposal was not chosen because of the presence of asbestos at the site. Asbestos is a carcinogen when inhaled. If all the waste were to be excavated, the potential for uncovering asbestos and releasing it to the environment would increase considerably. The short-term effectiveness of the remedy would be decreased. There is also the risk of encountering pockets of methane gas, and other unknowns when excavating into a pile of waste. The risks would outweigh the benefits achieved through excavation of the waste.

Monitoring the groundwater is, currently, the most implementable alternative for addressing the groundwater contaminant plume. Although not necessarily a permanent remedy, it allows for protection of human health, provides short-term effectiveness and is cost effective. It is believed that the main source of recharge to the shallow and intermediate aquifers is the waste deposit area. When the waste is capped, the aquifer recharge zone will be reduced and the quantity of groundwater should decrease. In order to ensure that no groundwater contamination will migrate off-site, a boundary of "trigger" wells will be established which will be sampled every 3 months. The location of the "trigger" wells allows for a 2 year time period to implement an active remedy before the contaminated water will reach the compliance boundary of the site if, in fact, the contaminated groundwater does reach the "trigger" wells.

Monitoring the groundwater is not necessarily intended to be the permanent solution for the site. Regardless of whether any contaminated groundwater reaches the "trigger" wells, the groundwater remedy will be reevaluated in 5 years to assess the migration of the contaminants and to evaluate any new remedial technologies that may be implementable at that time.

Specific public comments on the selected alternatives are addressed within the Responsiveness Summary attached to this Decision Document. Upon evaluation of the public comments received, the Ohio EPA has determined that the selected remedy is acceptable to the community.

COOPERMILL ROAD DUMP/McGRAW-EDISON SITE
ZANESVILLE, SPRINGFIELD TOWNSHIP, MUSKINGUM COUNTY, OHIO

RESPONSIVENESS SUMMARY

Ohio EPA released for public comment the Agency's Preferred Plan for the remediation of contamination at the Coopermill Road Dump/McGraw-Edison site on July 2, 1991. A thirty (30) day public comment period followed in which all concerned parties were encouraged to provide written or oral comment to the Agency. During this public comment period the Ohio EPA held a public meeting to discuss the Remedial Investigation and the Preferred Plan and answer questions. A public hearing resulted in public testimony from three individuals. Written comments were also received from Cooper Industries.

Ohio EPA Response to the Coopermill Road Dump/McGraw-Edison site Public Comments:

MR MICHAEL WYATT commented that he does not believe that capping the landfill is the best remedy for this site because oxygen will be excluded and thus the waste will not be broken down. He prefers that the contents of the landfill be removed because "it's poison".

He was also concerned about the movement of the VOCs. He wondered how the VOCs would be stopped once detected in the various wells. He also wants to see Muskingum County involved in the Superfund process.

Finally, he commented on a recent article (6/5/91) from the local Zanesville paper which reported an elevated number of cancer cases in Muskingum County. He believes that the excess amount of tumors is due to the Zanesville water supply.

OEPA response: The use of a clay cap is designed to limit the infiltration of water into the buried waste. It is true that the permeation of oxygen will be severely inhibited if the cap is correctly engineered. However, in this instance, we do not desire degradation of the buried waste as it primarily consists of metallic waste with some paper products mixed in. If the metal was to degrade it would add iron and other metallic products to the surrounding environment which may be more harmful than the current situation.

The agency has evaluated the possibility of removing all of the buried material. At the present time, we do not feel that the added short term risk of exposing the area residents and workers to the possibility of airborne asbestos (a known carcinogen) would be an acceptable alternative to leaving the waste in place and capping it such that access to the waste is prohibited. However, a limited amount of excavation will occur in order to look for drummed wastes which may be leaking material into the groundwater. During the limited excavation only very discrete areas will be investigated and extreme caution will be used during this study.

If VOCs are detected in the "trigger" wells, then a easibility study will be conducted to evaluate an active remedy. The Ohio EPA does not believe that an active remedy is currently feasible due to the geology of the site. The site is situated on fractured rock and it is not conducive to an active remedy such as a pump and treat system. However, if the constituents are detected at the "trigger" wells then the groundwater will have moved to a new geologic area, an area where the groundwater flows more readily, and an active remedy should be feasible at that time.

Regarding the involvement of Muskingum County in the process, the Public Involvement Coordinator for this site spoke with one of the Muskingum County Commissioners over the phone on May 21, 1991 to conduct a community interview for the community relations plan. He also spoke with the Zanesville-Muskingum County Health Department. The agency will continue to inform the county commissioners as progress on the site continues.

MR. DOYLE STRAIN commented that the 2 foot clay cap be extended at least 15% beyond the average width and depth of the landfill. He also suggested if the landfill must remain in place that an eight foot chain link fence with a lockable gate be used to encircle the landfill.

OEPA RESPONSE: The cap of the landfill is currently designed to extend from approximately 10-75 ft beyond the perimeter of the landfill. The extension of the cap is designed to cover the soils which are contaminated with high lead content. Although this may not be 15% beyond the average width and depth of the landfill, it is an extension beyond the true landfill area and should serve to add an extra layer of protection from the rain as suggested.

The use of the chain link fence to encircle the landfill was one of the items considered by the Ohio EPA when the cap was being designed. However, due to the remote location of the site, and the fact that the property is currently encircled by a barbed wire fence, the Ohio EPA has agreed to use the property fence as a means to restrict access. However, if the property fence is shown to be ineffective in restricting access then the situation will be reevaluated by the Ohio EPA and the installation of a chain link fence will be considered at that time.

MR. ERNEST L. HETTLE commented that he agreed with Mr. Wyatt that the landfill should be removed. He stated that he does not believe that the cap will remedy the situation. He also mentioned that the cost would probably be enormous but that there are companies capable of doing the work.

OEPA RESPONSE: The Ohio EPA acknowledges Mr. Hettle's and Mr. Wyatt's concerns regarding the use of a clay cap. However, it must be emphasized that the waste in this landfill is not the type to be easily degraded with or without oxygen. It is the opinion of the Ohio EPA that the short term risk of possibly exposing area residents and workers to asbestos and other contaminants during the excavation would outweigh the benefits of having the waste completely removed. There is also the possibility of encountering highly explosive pockets of methane gas when excavating into buried waste. We have therefore concluded that waste removal and off-site disposal, as described in the FFS, does not provide

adequate short-term effectiveness due to risks to human health and the environment during implementation. In addition, excavation is not as implementable as the chosen remedy. Regarding cost, although cost is not the primary factor used to decide on a remedy, it is one of eight criteria which Ohio EPA considers when evaluating response actions. Those actions which do not adequately protect human health and the environment are not evaluated further for cost effectiveness. In this case, we conclude that the removal and off-site disposal of the entire contents of the waste disposal area, which was proposed, does not adequately protect human health and the environment because it is ineffective in the short-term.

Ohio EPA response to Cooper Industries comments:

COOPER POWER SYSTEMS COMMENT: Installation of a chain link fence around the perimeter of the landfill area. Alternatives 1 and 2 on page 9 and 10 of the Plan under Focused Feasibility Study (Landfill Operable Unit) both provide that the remedial action would include the installation of a chain link fence around the perimeter of the landfill area. In addition, in the first full paragraph on page 15 of the Plan, the Ohio EPA preferred alternative for the Site is a combination of alternative 3 from the Focused Feasibility Study ("FFS") and alternative number 1 from the Site Feasibility Study ("SFS") and includes installation of a chain link fence around the capped area. The requirement to install a chain link fence around the landfill area is inconsistent with the May 1990 Remedial Design for Landfill Operable Unit prepared by Baker and Associates Professional Engineers. Page 25 of the Remedial Design contains a footnote that states "The use of the property fencing as sufficient security for the covered landfill was mutually agreed upon by OEPA and Cooper Industries during the February 1, 1990 meeting held at the OEPA's office in Columbus, Ohio". Evidence of the agreement reached between Cooper and Ohio EPA is also contained in Cooper's internal notes from the meeting. At that meeting, Ohio EPA agreed that the existing barbed wire fence surrounding the perimeter of the Hildenbrand property was sufficient to limit access to the Site and access to the contaminated soil. Accordingly, the requirement for the installation of a chain link fence should be eliminated from the Plan.

OEPA RESPONSE: The Preferred Plan was written based on the Approved Focused Feasibility Study which was written by Baker/TSA, Inc. Within the FFS, it clearly states that a chain link fence will be installed around the capped area. The Remedial Design later deviated from the FFS. Ohio EPA and Cooper Industries did agree to use the existing barbed wire fence around the perimeter of the property as long as it restricts access to the landfill area. The Decision Document has been written to reflect this agreement.

COOPER POWER SYSTEMS COMMENT: Collection and treatment of the discharges located at the toe of the waste deposit area. The first full paragraph on page 15 of the Plan in (4) refers to the "collection and treatment of the discharges located at the toe of the deposit area." In addition, the second full paragraph on page 15 of the Plan states that "collecting and treating the spring discharge will address the source of surface water contamination." The Ohio EPA's summary of its preferred alternatives for the Site is inconsistent with alternative 3 from the FFS and alternative 1 from SFS. With respect to the spring discharge, alternative 3 of the FFS contains the same remedial measures as alternative 2 of the FFS which provides in (3) under "Capping of Landfill Area" on page 9 of the Plan for "the installation of french drains to collect discharges from the springs located at the toe of the waste deposit and direct their flow to a discharge point along Chaps Run". Since alternative 3 of the FFS does not require the installation of any type of treatment system, the "and treatment" and "and treating" should be eliminated from (4) in the first paragraph on page 15 of the Plan and from the second sentence in the second full paragraph on page 15 in the Plan.

OEPA RESPONSE: It is true that the chosen alternative from the FFS does not specify treating the spring discharge prior to its discharge to Chaps Run. However, the preliminary evaluation of the contaminants contained in the discharge water by the Ohio EPA Division of Water Pollution Control (DWPC) was that treatment may be necessary in order to comply with the NPDES permit which is required at this site for discharge (see letter dated 9/14/90 to Dave Hupe). If DWPC's final determination is that the water must be treated in order to comply with the NPDES permit, then treatment must occur. The Decision Document has been changed to read that treatment may be necessary. The final decision will be based on the discharge limits contained within the NPDES permit.