



State of Ohio Environmental Protection Agency

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January 12, 2010

CERTIFIED MAIL

Melissa Clark-Dross
EHS&S Manager
Dover Chemical Corporation
3676 Davis Road, NW
Dover, Ohio 44622

Re: Notification of, and Invitation to Participate in, Dover Natural Resource Damage (NRD) Site, Tuscarawas County, Ohio Natural Resource Damage Assessment

Dear Ms. Clark-Dross:

The purpose of this letter is to provide Dover Chemical Corporation with formal notice that a Preassessment Screen for the Dover Natural Resource Damage (NRD) Site has been completed by the Ohio Environmental Protection Agency (Ohio EPA) and the U.S. Department of the Interior, who are natural resource Trustees for the Site. A copy of the Notification of, and Invitation to Participate in, Dover NRD Site Natural Resource Damage Assessment (NOI) and the Preassessment Screen (PAS) are enclosed for your reference.

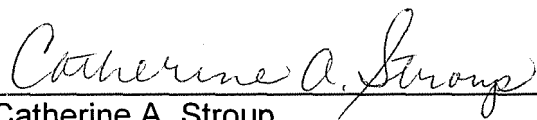
The Trustees have concluded in the PAS that natural resources under their trusteeship have been injured and may continue to be injured by the release of hazardous substances at the Site. The Trustees have determined that further investigation is warranted, and that an assessment plan should be developed and completed in the near future.

As discussed in the enclosed NOI and in accordance with applicable regulations, the Trustees are inviting Dover Chemical Corporation to enter into a cooperative agreement for assessment work at the Site. The cooperative agreement approach is beneficial because it increases efficiency, reduces transaction costs and focuses on restoration for all parties involved, including Dover Chemical Corporation, the Trustees and the public.

If you are interested in discussing entering into a cooperative agreement to assess and restore the injured natural resources at the Site, please provide a written response to the legal representatives listed below within thirty (30) days of receipt of this letter.

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

Notification and Invitation to Participate
Dover Natural Resource Damage Site
Page 2



Catherine A. Stroup
Senior Staff Attorney
Ohio EPA, Legal Section
P.O. Box 1049
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Kelly B. Bakayza
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United States Department of the Interior
Office of the Solicitor
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Attachments

cc: Dave Devault, FWS
Kevin Tloczynski, FWS
Sari Mandel, AGO, Ohio
Brian Tucker, Ohio EPA
Kurtis Herlocher, Ohio EPA
Brian Blair, Ohio EPA
Michael Sherron, Ohio EPA

Notification of, and Invitation to Participate in, Dover Natural Resource Damage (NRD) Site, Tuscarawas County, Ohio Natural Resource Damage Assessment

This document is sent on behalf of the U.S. Department of the Interior and Ohio Environmental Protection Agency (collectively the "Trustees") to notify your company of, and invite its participation in, the assessment of injuries to natural resources resulting from the release of hazardous substances into Sugar Creek, the Sugar Creek buried valley aquifer, and possibly the Tuscarawas River (the Dover NRD Site). This notice and invitation is issued pursuant to 43 C.F.R. §11.32(a)(2)(iii)(A).

The Trustees have concluded their preliminary investigation of potential injuries to natural resources under their trusteeship which may have occurred as a result of releases of hazardous substances at or from the Site. Pursuant to 43 C.F.R. Part 11, the Trustees have completed the enclosed Preassessment Screen (PAS) (see attached). Consequently, the Trustees believe that hazardous substances released at the Dover NRD Site have caused, and continue to cause, injuries to, destruction of, or loss of natural resources. Based upon the determination in the PAS, the Trustees have determined that it is appropriate to perform a natural resource damage assessment for the Site, and hereby provide you with notice of their intent to do so. The Trustees believe that the Dover Chemical Corporation is potentially liable for natural resource damages at the Dover NRD Site. Accordingly, the Trustees invite Dover Chemical to participate in the development of the type and scope of the assessment and in the performance of the assessment, including the funding of all phases of the damage assessment. A copy of a Funding and Participation Agreement can be provided upon your request.

Based on the PAS, the Trustees have determined the initial scope of the assessment will initially include Sugar Creek from approximately river mile 2 to the confluence of the Tuscarawas River. The initial assessment will also include the Sugar Creek buried valley aquifer. The hazardous substances released include, but are not limited to: monochlorobenzene, *o*-dichlorobenzene, *p*-dichlorobenzene, *m*-dichlorobenzene, 1,2,4-trichlorobenzene, hexachlorobenzene, trichloroethylene, dioxins, dibenzofurans, hexachlorocyclohexane (BHC), carbon tetrachloride, and polychlorinated dibenzodioxins and dibenzofurans (PCDD / PCDF).

Natural resources injured or potentially injured include, but are not limited to: (1) ground water; (2) benthic organisms; (3) fish, wildlife, and supporting ecosystems; (4) migratory birds and supporting ecosystems; (5) threatened or endangered species; (6) surface water and sediments; and (7) geological resources.

The PAS, created by the Trustees as required by Federal regulations at 43 C.F.R. §11.23(a), is a public document and a precursor to the development of a Natural Resource Damage Assessment Plan. The goal of the assessment process is to efficiently and effectively quantify injuries and restore injured natural resources and their services to baseline conditions, and compensate the environment and the public for the interim losses as well as the costs of assessment. The public will be encouraged to

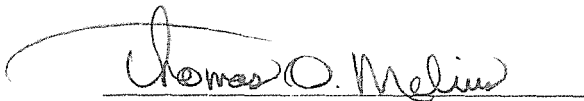
provide input into the assessment process, including reviewing and commenting on the development of the Assessment Plan, as well as any restoration proposals developed pursuant to the natural resource damage assessment regulations.

We recommend that Dover Chemical evaluate its potential responsibility and determine whether it will participate in the assessment process. Within thirty (30) calendar days of your receipt of this notice, please provide a written response indicating whether you intend to participate in the assessment. Please send your response to the following individuals representing the Trustees:

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Catherine Stroup
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If you have questions regarding this notice, please contact Ms. Bakayza at 412-937-4006 or Ms. Stroup at 614-644-3037.



Tom Melius
Regional Director
USFWS, Region 3



Chris Korleski
Director
Ohio EPA

Attachment

cc: Kelly B. Bakayza, DOI
Dave Devault, FWS
Kevin Tloczynski, FWS
Sari Mandel, AGO
Catherine Stroup, Ohio EPA
Brian Tucker, Ohio EPA
Kurtis Herlocher, Ohio EPA
Michael Sherron, Ohio EPA

**Preassessment Screen and Determination for
Natural Resources Damages Related to Releases from
the Dover Chemical Corporation Facility,
City of Dover, Tuscarawas County, Ohio**

Action:

This Preassessment Screen and Determination (PAS) has been developed to assess potential injuries to natural resources resulting from releases originating from the Dover Chemical Corporation facility located on Davis Street in the City of Dover, Tuscarawas County, Ohio. This PAS was prepared by the Ohio Environmental Protection Agency (Ohio EPA) and the United States Department of the Interior (DOI), collectively, the Trustees.

Authority and Delegations:

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended, 42 U.S.C. §9601 et seq., and the Federal Water Pollution Control Act (FWPCA), as amended, 33 U.S.C. §1251 et seq., authorize the federal government and states to recover, on behalf of the public, damages for injuries to natural resources and their supporting ecosystems, belonging to, managed by, appertaining to, or otherwise controlled by the federal government or a state.

The President has designated federal natural resource trustees in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.600 and through Executive Order 12580, dated January 23, 1987. Pursuant to the NCP, the Secretary of the DOI acts as a trustee for natural resources and their supporting ecosystems, managed or controlled by the DOI. In this matter, the U.S. Fish and Wildlife Service ("Service") is acting on behalf of the Secretary of the DOI as trustee for natural resources under its jurisdiction.

In accordance with 42 U.S.C. § 9607(f)(2)(B) and the NCP, the Director of the Ohio Environmental Protection Agency ("Ohio EPA") was designated the natural resource trustee by the Governor of Ohio on July 20, 2007. Ohio EPA acts on behalf of the public as trustee for natural resources, including their supporting ecosystems, within the boundary of the State of Ohio or belonging to, managed by, controlled by, or appertaining to the State of Ohio. The Ohio EPA has, or shares trusteeship with DOI over fish and wildlife in the Sugar Creek valley and supporting ecosystems.

The purpose of the PAS is to provide a rapid review of readily available information on releases of hazardous substances from the Dover Chemical manufacturing plant, and potential impacts on natural resources for which the Trustees may assert trusteeship, including but not limited to, releases to the Sugar Creek Valley. Federal regulations at

43 C.F.R. §11.23(a) require Natural Resource Trustees to complete a PAS and to make a determination as to whether a Natural Resource Damage Assessment (NRDA) shall be carried out at a site, before assessment efforts are undertaken pursuant to the regulations. This document fulfills that requirement for the Dover Chemical manufacturing facility, offsite lagoons and other associated properties, including Sugar Creek and the Sugar Creek buried valley aquifer (Dover NRD Site) and follows the structure of the Federal Regulations at 43 C.F.R. Part 11. The PAS is not intended to be a comprehensive examination of all existing data. Nonetheless, this determination recognizes that there is a reasonable probability that a claim for damages to natural resources within the trusteeship of the Trustees exists in this case on the basis of existing information.

This determination was prepared by the Trustees under the authority of Section 107(f) of CERCLA, as amended, 42 U.S.C. § 9607(f), the NCP as amended, 40 C.F.R. Part 300, the DOI Natural Resource Damage Assessment Regulations, 43 C.F.R. Part 11, and other applicable federal and state regulations and directives, which serve to designate Federal and State natural resource trustees, and which authorize the recovery of natural resource damages.

Information on the Site and on the discharge or release (43 CFR §11.24 (a)):

- 1) The time, quantity, duration, and frequency of the discharge or release:**
The Dover Chemical Corporation facility, located on Davis Street in the City of Dover, has been determined to be the source of hazardous substances released to the Sugar Creek buried valley aquifer, Sugar Creek and its surrounding ecosystem, and possibly the Tuscarawas River. The facility and associated impacts are currently being addressed under CERCLA and other authorities. Soils, sediments, and groundwater have been contaminated with several hazardous substances, including carbon tetrachloride, polychlorinated dibenzofurans and polychlorinated dibenzodioxins.

The Trustees have not identified reliable public information to quantify the duration and frequency of all of the releases from the Dover Chemical facility since it began operating. However, given the documentation in various regulatory agency files regarding the facility and the presence of elevated concentrations of several hazardous substances in soils, water, sediments, and fish in Sugar Creek, and off site lagoons, as well as in groundwater, it is likely that significant releases of hazardous substances have occurred.

2) The hazardous substances released:

Selected hazardous substances, and their Chemical Abstract Service (CAS) Registry Numbers, identified in water, sediments and/or biota in the Sugar Creek buried valley aquifer and Sugar Creek are shown below in Table 1. Additional information is provided in the next section.

TABLE 1: HAZARDOUS SUBSTANCES RELEASED	
Chemical Name	CAS Registry Number
carbon tetrachloride	56-23-5
polychlorinated dibenzo-p-dioxin	multiple
polychlorinated dibenzofurans	multiple
hexachlorobenzene	118-74-1
hexachlorocyclohexane (BHC)	608-73-1
<i>m</i> -dichlorobenzene	541-73-1
<i>o</i> -dichlorobenzene	95-50-1
<i>p</i> -dichlorobenzene	106-46-7
monochlorobenzene	108-90-7
1,2,4-trichlorobenzene	120-82-1
trichloroethylene	79-01-6

3) History of the current and past use of the Dover Chemical Site:

The 60 acre Dover Chemical facility is located along both sides of Interstate (I) 77 in Dover, Tuscarawas County, Ohio. Dover Chemical began production in 1949 and was operational prior to the construction of I-77. Impacts from the plant's operations have been documented on both sides of the highway. Dover Chemical is a producer of chlorinated paraffins, alkyphenols, polymer additives, liquid and solid antioxidants, flame retardants, and additives for metal working fluids.

Hazardous substances that have been released from the Dover Chemical facility include: monochlorobenzene, *o*-dichlorobenzene, *p*-dichlorobenzene, *m*-dichlorobenzene, 1,2,4-trichlorobenzene, hexachlorobenzene, trichloroethylene, polychlorinated dibenzodioxins, polychlorinated dibenzofurans, hexachlorocyclohexane (BHC), and carbon tetrachloride. These hazardous substances have been detected in groundwater, soils, surface water and biota.

4) Relevant operations occurring at or near the Dover Chemical Site:

Dover Chemical has a release history that includes process spills and leaks as well as deposition of dichlorobenzene still bottoms in a low lying area in the southwestern corner of the facility. The impacts of these releases are continuing to be studied under a 1988 joint RI/FS order among Ohio EPA, U.S. EPA and

Dover Chemical. Cleanup activities are currently being conducted at the Dover Chemical plant under a 2000 U.S. EPA Remedial Action order using CERCLA authority.

5) Additional hazardous substances potentially released from the Dover Chemical Site:

At this time, the Trustees have not identified additional hazardous substances released from the Dover Chemical site, other than those identified herein.

6) Potentially responsible parties:

Dover Chemical Corporation
3676 Davis Road NW
Dover, Ohio 44622

Damages excluded from liability under CERCLA (43 CFR §11.24 (b)):

The release of hazardous substances listed in Table 1 did not occur wholly before enactment of CERCLA, nor the 1977 amendments to the Federal Water Pollution Control Act (FWPCA). Injuries to natural resources from the release did not occur wholly before enactment of CERCLA, nor the 1977 amendments to the FWPCA.

Injuries resulting from the release of hazardous substances listed in Table 1 did not result from the application of a pesticide product registered under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, 7 U.S.C. 136.

Injuries resulting from the releases of hazardous substances listed in Table 1 did not result from any federally permitted release as defined in section 101(10) of CERCLA. No exclusion from damages is applicable to this site, pursuant to CERCLA and the FWPCA.

Preliminary identification of pathways (43 CFR §11.25 (a)):

Hazardous substances were released from the Dover Chemical facility over the course of several decades. These released hazardous substances have migrated downstream contaminating and causing injury to natural resources including on-site soils, groundwater in the Sugar Creek buried valley aquifer, as well as, sediments and surface water and fish in Sugar Creek and, possibly, the Tuscarawas River.

Injuries to trust resources as a result of Dover Chemical's operations are related to both direct and indirect effects of hazardous substances through direct and/or indirect contact with, ground water, surface water, sediment, and food chain pathways.

Hazardous substances are present at concentrations likely sufficient to cause direct toxicity to trust resources. In addition, hazardous substances are present at

concentrations exceeding U.S. EPA Region 5, Resource Conservation and Recovery Act (RCRA), Ecological Screening Levels, and are therefore likely to cause toxicity to food organisms. This injures trust resources indirectly by reducing the ability of Sugar Creek to provide the supporting services required by other trust resources.

Exposed areas (43 C.F.R. §11.25 (b)):

Hazardous substances have migrated from the Dover Chemical facility into Sugar Creek and the Sugar Creek buried valley aquifer. Impacts from these contaminants have been documented for more than one mile down gradient of the Site. These contaminants have impacted groundwater, surface water, sediments and fish. The extent of contamination in Sugar Creek and in the Tuscarawas River (Sugar Creek is a tributary to the Tuscarawas River) has not yet been fully documented.

While data are not available at this time, it is probable that flood plain soils and wetland areas adjacent to Sugar Creek may have also been contaminated by Site-related COCs.

Exposed water estimates (43 C.F.R. §11.25 (c)):

Water column concentrations of hazardous substances in Sugar Creek have not been thoroughly documented. However, limited sampling conducted in the early 1990s suggests substantial contamination. Polychlorinated dibenzodioxins and polychlorinated dibenzofurans were measured in water, sediments and fish from Sugar Creek in 1991 by Weston Consultants. Detectable concentrations were observed in all media. Concentrations of all detectable polychlorinated dibenzodioxins and polychlorinated dibenzofurans were expressed as 2,3,7,8 tetrachloro dibenzodioxin equivalents. The highest surface water concentration was observed downstream of the Dover Chemical discharge at 0.17 ug/l.

Impacts to groundwater in the Sugar Creek buried valley aquifer are well documented. The contamination of groundwater by Dover Chemical has created a plume which originates at the Dover Chemical plant and extends approximately 6,800 feet (1.3 miles) south toward the Tuscarawas River. At the widest point, the plume is approximately 1,200 feet wide. Within the vertical aquifer profile, at the depths where impact is detected, the plume is approximately 30 feet thick. An equivalent land surface area of over 7.5 million square feet (~174 acres) was calculated based on an estimation of the area where the plume reaches non-detect values for volatile organic chemicals (VOCs). At any point in time, the Dover Chemical plume is impacting nearly 400 million gallons of water in the aquifer.

Estimates of concentrations (43 C.F.R. §11.25 (d)):

Dover Chemical's Long Term Groundwater Monitoring Program Status Report #16, dated April 16, 2009, describes concentrations of contaminants that have been identified in the groundwater plume. The contaminants that were found to be in the highest concentration above federally promulgated drinking water standards are summarized in Table 2, below. Sampling was conducted from April 2004 through December 2008 for VOCs, pesticides and dioxins.

TABLE 2: SUMMARY OF DIOXINS, VOCs, PESTICIDES IN GROUNDWATER						
	Dioxin (pg/L)	VOCs (µg/L)			Pesticides (µg/L)	
	TEQ **	Carbon Tetrachloride	Chloroform	1,4- Dichlorobenzene	alpha- BHC	gamma- BHC
USEPA MCL <i>(USEPA Regional Screening Levels)</i>	30	5.0	80	75	0.011	0.2
Groundwater	≤ 9,000	≤ 110,000	≤ 130,000	≤ 25,000	≤ 2.7	≤ 0.29

BHC - hexachlorocyclohexane

TEQ - Toxicity Equivalent (using International Toxicity Equivalent Factors).

** TEQ calculated with EMPCs and estimated detection limits (EDLs).

Concentrations of polychlorinated dibenzodioxins and polychlorinated dibenzofurans were observed downstream of the Dover Chemical discharge with maximum concentrations of 0.23 ug/kg and 32.3 ug/kg sediments and fish respectively. Hexachlorobenzene was also measured in fish downstream of Dover Chemical at 730 ug/kg. In addition, concentrations in surface waters of Sugar Creek and in the off-site groundwater plume, exceed maximum contaminant levels (MCLs) established by U.S. EPA for safe drinking water.

Potentially affected resources (43 CFR §11.25 (e)):

1) Natural resources for which the Trustees may assert trusteeship under CERCLA have been or are likely to have been adversely affected by the release:

The following natural resources and their supporting ecosystems have been, or potentially have been, affected: geologic resources and ground water in the Sugar Creek buried valley aquifer; surface water (including sediments); and biological resources including benthic organisms, fish, fish eating birds, wading birds, water fowl, bald eagles and fish eating mammals in Sugar Creek. The following services to the public have or potentially have been affected: potable use of ground water, sport fishing, hunting, bird watching, boating (canoe/kayak),

tourism, and passive values provided by wilderness areas, parks, forests, waterways, and a healthy ecosystem.

Migratory bird species in the vicinity of Sugar Creek include, but are not limited to: bald eagle (*Haliaeetus leucocephalus*), mourning dove (*Zenaida macroura*), northern harrier (*Circus cyaneus*), sharp-shinned hawk (*Accipiter striatus*), cooper's hawk (*Accipiter cooperii*), red-tailed hawk (*Buteo iamaicensis*), wood duck (*Aix sponsa*), Canada goose (*Branta Canadensis*), great blue heron (*Ardea herodias*), mallard duck (*Anas platyrhynchos*), and kingfisher (*Ceryle alcyon*). Numerous species of migratory neotropical songbirds inhabit the area seasonally.

Fish species in Sugar Creek include, but are not limited to: least brook lamprey (*Lampetra aepyptera*), yellow perch (*Perca flavescens*), white bass (*Morone chrysops*), pumpkinseed (*Lepomis gibbosus*), white crappie (*Pomoxis annularis*), goldfish (*Carassius auratus*), emerald shiner (*Notropis atherinoides*), gizzard shad (*Dorosoma cepedianum*), carp (*Cyprinus carpio*), brown bullhead (*Ictalurus nebulosus*), smallmouth bass (*Micropterus dolomieu*), log perch (*Percina caprodes*), freshwater drum (*Aplodinotus grunniens*), white suckers (*Catostomus commersoni*), johnny darter (*Etheostoma nigrum nigrum*), greenside darter (*Etheostoma blennioides*), rainbow darter (*Etheostoma caeruleum*), northern hogsucker (*Hypentelium nigricans*), golden redhorse (*Moxostoma erythrurum*), and stonecat madtom (*Noturus flavus*).

An amphibian species historically found in lower Sugar Creek includes, but is not limited to, the hellbender (*Cryptobranchus alleganiensis*). The hellbender is a federal species of concern and listed as endangered by the state of Ohio.

2) Preliminary estimate of resources potentially affected:

Available data indicate that polychlorinated dibenzodioxins and polychlorinated dibenzofurans are present in sediments and fish in Sugar Creek at concentrations known to adversely impact fish eating birds, including the bald eagle.

Adverse impacts to fish and macro-invertebrates are supported by biological data collected by Ohio EPA. The Ohio EPA uses biological indices to assess river and stream quality. Based on previous studies of Sugar Creek conducted by Ohio EPA, at least one and one-half (1½) miles of stream have been impacted by releases from the Dover Chemical Corporation Site. Sugar Creek upstream of Dover Chemical fully attained Ohio's Water Quality Biocriteria for a warm water

habitat stream, while downstream of Dover Chemical's facility, Sugar Creek did not attain this biocriteria designation.

A comparison of biological diversity in indicator aquatic insect species recorded upstream and downstream of Dover Chemical's facility indicated a decline from 33 taxa to 10, a reduction of approximately 60%. A review of fish species upstream and downstream showed similar declines in species diversity from 27 upstream of the facility to 18 downstream. In addition to the overall decline in species, the study revealed a significant decline in the measure of biomass, the cumulative weights of the collected fish, which was recorded at 47.2 kg per 0.3 km upstream of the facility and 1.9 kg per 0.3 km downstream of the facility. Additional observations indicated that sensitive sucker species were reduced downstream of the facility.

In addition, an equivalent land area of approximately 174 acres of ground water has been impacted by Dover Chemical's contaminant plume.

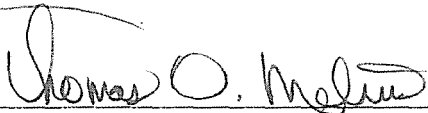
Preassessment Screen Determination:

Based upon a review of readily available data and an evaluation of the preassessment determination criteria, summarized in this document, the Trustees have reached the following conclusions:

- Releases of hazardous substances have occurred;
- Natural resources for which the trustees may assert trusteeship under CERCLA and FWPCA have been adversely affected by the discharge of release of hazardous substances;
- The quantity and concentration of the released hazardous substances are sufficient to potentially cause injury to natural resources;
- Data sufficient to pursue an assessment are readily available or likely to be obtained at a reasonable cost; and
- Response actions planned will not sufficiently remedy the injury to natural resources without further action.

The Trustees hereby determine that further investigation and assessment is warranted and should be carried out at this site in accordance with 43 C.F.R. §11, Subparts C and E. The Trustees further determine that current information indicates that there is a reasonable probability of making a successful natural resources damage claim pursuant to Section 107 of CERCLA and Section 311 of FWPCA and that all criteria and requirements in 43 C.F.R. Part 11, generally, and 43 C.F.R. §11.24 and §11.25, specifically, have been satisfied.

The information provided and conclusions made in this preassessment screen shall be used to direct further investigations and assessments and is not intended to preclude consideration of other resources later found to be affected or other parties found to be responsible for releases.



Tom Melius, Regional Director
U.S. Fish and Wildlife Service, Region 3
Authorized Official for the Department of
the Interior

Dec. 2, 2009

Date



Chris Korleski, Director
Ohio Environmental Protection Agency

1/11/10

Date