

**Final Report**

**Review of Ohio's Pre- and Post-Mining Land Use Provisions**

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**Prepared by**

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## **Introduction:**

The Surface Mining Control and Reclamation Act (SMCRA) section 515(b)(2) and the Ohio Revised Code (ORC) 1513.16(A)(2) require that mined land be restored “to a condition capable of supporting the uses which it was capable of supporting prior to any mining; or higher or better uses of which there is a reasonable likelihood...”

Land use statistics on Ohio's program show that a high percentage of permit applications identified the pre-mining land use as undeveloped land and proposed pasture/grazing as the post-mining land use. The public, environmental organizations, and government agencies have expressed concern that reclaimed mined areas are limited to mono-cultural grasslands with little or no diversity and practically no woody vegetation. The mining industry complains of restrictive success standards and the additional cost of tree planting that is unnecessary because they can achieve reclamation standards without incurring that cost.

This report provides information about Ohio's implementation of the land use provisions of their program with regard to verification of pre-mining land use and the outcome of post-mining land use designations.

## **Purpose and Scope:**

The purpose of this review is to report the results of Ohio's land use policies; to determine if the intent of SMCRA's land use restoration provisions is being met; and to consider whether other approaches may vary the results. This study will answer the following questions:

- How does Ohio verify pre-mining land uses during their review of permit applications?
- What outcomes do mining and the current regulatory program have on land use trends and do they meet the intent of SMCRA?
- Is restored land capable of supporting the uses that existed prior to mining?
- Are there other approaches to implementing Ohio's land use requirements that may vary the end-result of mining and reclamation on land use trends?

## **Methodology:**

We talked to two members of Ohio's permitting staff to verify the process or criteria Ohio uses to verify the applicant's designated pre-mining land use. We looked at how reclamation plans demonstrate that reclaimed land will be capable of supporting the uses it was capable of supporting prior to mining.

We compared pre-mining land use classifications approved on 20 permit areas, or portions of permits that had not been affected, to pre-mining site conditions in the field. This comparison determined if the stated pre-mining use was reasonable based on management practices identified at the site. The OSM person conducting the site visits

completed a data collection form that includes specific questions about land use and management practices. We considered findings and recommendations provided in an OSM report on land use completed in 1993.

This report also provides statistics on land use trends based on information gathered during OSM site visits, identifies Ohio's land use policies, and identifies potential benefits and deficiencies of Ohio's decisions on land use.

### **Background:**

An oversight study OSM completed in 1993 reached the following conclusions regarding Ohio's implementation of land use provisions of their program:

- Ohio's review and approval of post-mining land use and the interpretation, classification, and approval of the pre-mining land uses identified in applications are proper and comply with State regulatory requirements. However, there are no written guidelines for Ohio's permitting field staff to follow when evaluating the management of wooded areas. Without guidelines, Ohio cannot ensure that an accurate and consistent determination between a "forest" and "undeveloped" land use is made.

Ohio responded that their field staff was comfortable making land use determinations based on their experience and that no guidelines were necessary. Therefore, Ohio does not have written guidelines that provide standards for evaluating and identifying pre-mining land uses. With or without such guidelines, land use change provisions of Ohio and Federal programs allow such changes to occur.

- Ohio's approvals of land use changes comply with the State regulatory requirements with few exceptions. The majority of land use changes that occur are from undeveloped wooded areas to pasture. These changes, which result in an overall decrease of wooded acreage, are allowable under the Ohio Program.

Ohio has not changed the way they verify pre-mining land use or how they process requests for changing land use since 1993.

Ohio has had limited success encouraging permittees to plant trees, but efforts continue. Ohio developed an incentive to encourage mine operators to plant trees by creating the undeveloped post-mining land use classification in 1994. This land use requires tree planting on a percentage of the reclaimed areas with reduced ground cover standards and no success standard on tree survival. Few permits identify "undeveloped" as the post-mining land use, although most identify it as the pre-mining use. Ohio has worked with a mining company and a corporate landowner to develop different ways of soil handling to reduce compaction and enhance the success of tree plantings. On July 24, 2001, Ohio issued technical guidelines for tree planting stating: "Despite past efforts, the Division

believes acreage planted, as well as growth and productivity of trees planted on reclaimed land can be increased and improved.”

### **Discussion of Questions Considered by This Review:**

#### **1. How does Ohio verify pre-mining land uses during their review of permit applications?**

*Ohio permit application reviewers continue to correctly verify the pre-mining land use reported in permit applications based on their consideration of on-site management practices without the need for additional written guidelines.*

#### **Discussion:**

Ohio Administrative Code (OAC) 1501:13-9-17(C) and 30 CFR 701.5 state:

*Land use means specific uses or management-related activities, rather than the vegetation or cover of the land.*

Therefore, Ohio considers actual use and management activities of the land as the main factors in verifying the pre-mining land use. In addition, they may consider the way the property is valued for property taxes by the local taxing authority if there are indications that the land includes managed forest. Ohio's two field permit application reviewers use their years of field experience of reviewing permit applications and evaluating management practices as the main basis for verifying that pre-mining land uses identified in permit applications are correct. Based on their experience, it is uncommon that lands in the mining areas of Ohio include managed forests or managed fish and wildlife habitat.

As mentioned in OSM's 1993 land use report, there are no written guidelines to help application reviewers evaluate land management practices consistently. The same two Ohio staff members conduct the field reviews of all permit applications. In 1993, they were comfortable conducting these evaluations and making decisions without additional guidelines. There has been no change in their position.

OSM's field review of 20 permitted areas found no instances where we questioned the pre-mining land use designation approved in the permit, considering management practices, or lack thereof, on the undisturbed portions of the permitted area and surrounding areas. Based on this review, Ohio permit application reviewers continue to correctly verify the pre-mining land use reported in permit applications without the need for additional written guidelines. However, as experienced staff leave Ohio's permitting group, there will be an increased need for Ohio to provide specific guidelines for evaluating and verifying land uses and associated management practices.

## 2. What outcomes do mining and the current regulatory program have on land use trends and do they meet the intent of SMCRA?

*Seventy three percent of the permitted area includes a land use that had some amount of woody vegetation before mining. Only twelve percent of the permitted acres are restored to a use that requires woody vegetation after mining. Although, approval of land use changes results in a dramatic decrease in the area requiring woody species, Ohio's approval of land use changes continues to be in compliance with their approved program.*

### **Discussion:**

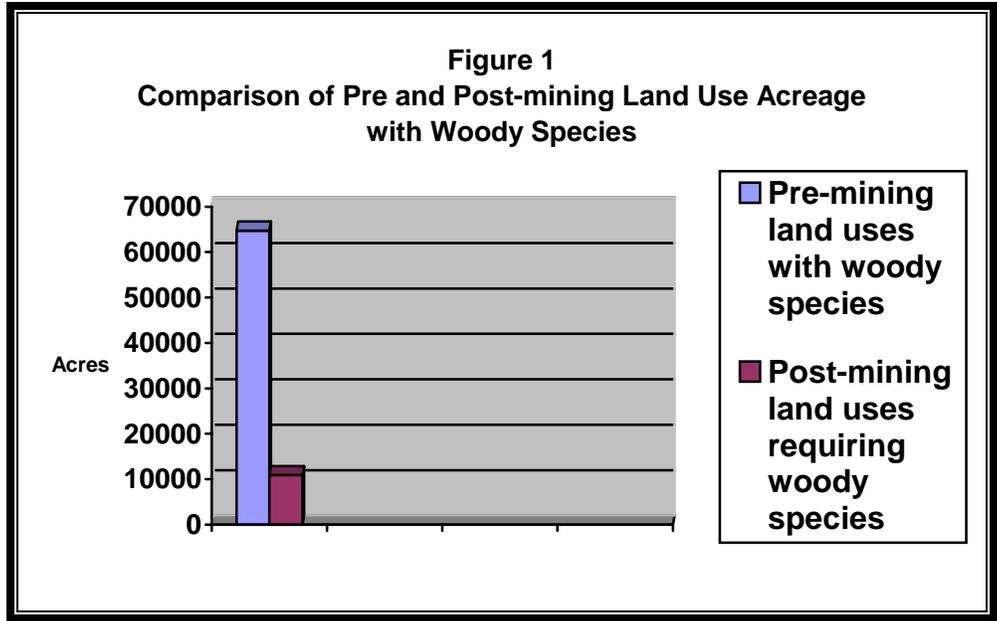
Data shows that the vast majority of land proposed for mining is classified as undeveloped, or land with no current use and no land management practices in place. These areas were allowed to return naturally to an undeveloped state by natural succession. Nineteen of the 20 permits that OSM included as part of this review identified part or all of the pre-mining acreage as undeveloped and proposed changing that use to pasture/grazing after mining. Appendix 1 provides the results from these 20 site visits.

Pre-mining land use categories of undeveloped, fish and wildlife habitat, and forest generally include some amount of woody vegetation ranging from shrubs to established wood lots. Based on data from over 300 site visits conducted by OSM over the last four years, 73 percent of the permitted acres included one or more of these three pre-mining land use categories. In contrast, only 12 percent of the permitted acres include one or more of these three categories as a post-mining land use. Appendix 2 provides a breakdown by acreage and land use types. Figure 1<sup>1</sup> compares the pre-mining and post-mining acreage for land uses with woody species. Eighteen of the 20 permits reviewed by OSM, found that part or all of the post-mining uses included pasture/grazing.

As provided by both Federal and Ohio rules, Ohio approves many land use changes. Approval of changes to land use has a major impact on the final outcome of mining and reclamation activities when comparing the post-mining land use to the pre-mining use as demonstrated in Figure 1.

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<sup>1</sup> Data in Figure 1 and in Appendix 2 is based on data collected on over 300 site visits conducted by OSM in evaluation years 1999-2002.



OSM's 1993 review stated that land use changes, which result in an overall decrease of wooded acreage, are allowable under the Ohio Program. Many permit applications propose land use changes resulting in a different use after mining than existed before mining. Land use changes can only occur when the post-mining use(s) is considered a higher or better use than the pre-mining use(s). OSM stated in the preamble to the Federal rule defining land use (48 FR 39892-93, September 1, 1983) that:

*The ten categories of land use in the existing definition of land use are not hierarchical. That is, one land use category is not automatically a higher or better use than another. In each situation, the regulatory authority has to compare the values and benefits of the postmining alternative land use to the values and benefits of the premining land uses.*

With two exceptions, Ohio generally accepts changes from most land use categories to any other if the reclamation plan shows that the area will be restored to the capabilities that existed before mining and the landowner concurs. Ohio, with very limited site-specific exceptions; i.e., the post-mining use is a commercial landfill regulated by another agency, requires land with a pre-mining use of cropland to be restored to cropland after mining. An undeveloped post-mining use is not allowed unless the pre-mining use was undeveloped.

Ohio requires that permit applicants provide landowners an opportunity to concur with proposed land use changes. Ohio considers input from landowners prior to approving any land use change. Ohio generally does not approve a change if the landowner expresses his/her objection.

There has been no change with Ohio's implementation of the land use change provisions since OSM's review in 1993. That review confirmed that Ohio was properly

implementing land use change provisions of their program. Although, approval of land use changes results in a major decline in the number of acres required to be planted with woody species, Ohio's approval of land use changes continues to be in compliance with their approved program.

### **3. Is restored land capable of supporting the uses that existed prior to mining?**

*The sites that OSM reviewed demonstrated the capability to support the multiple uses that existed before mining.*

#### **Discussion:**

Restored land must be capable of supporting the uses that existed before mining. Only a very small percentage of the permitted acreage in Ohio is actually planted with woody vegetation because only a very small percentage of the approved post-mining land uses require it. That does not mean that the reclaimed area is not capable of supporting woody vegetation.

Mining companies and landowners often successfully plant trees on reclaimed areas after regulatory jurisdiction is terminated. Some reclaimed areas with a pasture/grazing/crop post-mining use that are not used, managed, or maintained after mining eventually become wooded through natural succession. Both situations demonstrate that reclaimed land is often capable of supporting land uses with woody vegetation.

Some land that is classified as undeveloped may have been productive cropland at one time and may still have the capability of supporting cropland if proper management practices are implemented. Ohio's revegetation success and productivity standards are nearly the same for cropland (non-prime farmland) and pasture/grazing land. Considering nearly identical productivity standards, a case can be made that once productivity on pasture/grazing land is restored, the reclaimed land also has the capability to support cropland.

Each of Ohio's post-mining land use categories have specific revegetation success standards that permittees must meet. Meeting these standards demonstrates that capability is restored for, at least, the designated post-mining use. Federal or State rules do not provide specific standards for demonstrating capability other than for the designated post-mining land use. Therefore, there is some degree of subjectivity built into evaluating capability. Capability to support other uses that could be supported prior to mining is most likely demonstrated through past experience with reclaimed lands using similar reclamation practices.

Cropland may be the most critical land use for demonstrating capability to support the pre-mining use(s). However, Ohio's policy of requiring that land with a cropland pre-mining use be restored to cropland after mining simplifies the capability demonstration for this land use category. If land is capable of supporting cropland, past experience has

shown that it will be capable of supporting the other uses by implementing different management practices.

Ohio also considers slopes in evaluating post-mining land use capability. Ohio is currently considering policy that would limit the types of post-mining land uses on steeper areas. The policy under consideration may specify that areas with slopes over a yet-to-be-determined steepness may not be capable of supporting pasture/grazing as the post-mining land use. This policy, if adopted, could increase the number of acres planted to woody species.

OSM site visits found no cases where we questioned the capability of the restored areas of the permit to meet uses that existed before mining. The sites that OSM reviewed demonstrated the capability to support multiple uses.

**4. Are there other approaches to implementing Ohio's land use requirements that may vary the end-result of mining and reclamation on land use trends?**

*Voluntary initiatives, development of different reclamation techniques, technology transfer, education, and policy changes regarding the capability of steeper slopes to support limited land uses provide the best opportunities for increasing acreage planted with woody species.*

**Discussion:**

The trend of not replacing wooded areas removed by mining is a valid concern to many. Even though the land may be capable of supporting woody species, in most cases, it will be many years before wooded species are established through natural succession, unless landowners or management agencies implement practices to develop woody species soon after areas are reclaimed.

At least two corporate landowners are planting trees after reclamation bonds are released either to receive credit for carbon sequestration or for developing commercial forests for future production of paper products. The U.S. Forest Service plants trees on areas that were mined in the Wayne National Forest. There are likely some private landowners who plant trees on reclaimed land as their property management plans change. Ohio plants many trees as part of their abandoned mine land program. These few examples demonstrate that mined land can support woody vegetation. All of these examples occur after reclamation standards are met, bond is released, and success standards for vegetation on each category of land use no longer apply.

Based on experience over the past 25 years, providing incentives or mandating that mining companies plant trees, as part of their reclamation plan has not been successful in Ohio. Both the Federal and Ohio reclamation performance standards provide land use alternatives that most mining companies choose in lieu of planting woody vegetation. In the majority of cases, corporate, private, and even public landowners choose a post-

mining land use that does not require woody vegetation. Mining companies opt not to plant woody vegetation for several reasons including:

- Reclamation standards for land use categories not requiring woody vegetation are easier and less expensive to meet
- Reluctance to change current reclamation practices so that survival of woody vegetation is enhanced
- Many landowners prefer pasture/grazing land because it provides potential for a profitable use very quickly
- Land use categories enabling a dense fast-growing herbaceous cover offer better protection against erosion
- Herbaceous cover that provides adequate protection against erosion hinders tree success due to competition
- Unsuccessful tree plantings substantially lengthen the revegetation liability period for the permittee and delay return of the land to the owner for their use

A corporate landowner recently began working with a coal company and Ohio to change the company's reclamation process. The objective is to establish commercial forest as the post-mining land use. Their efforts focus on ways to reduce compaction when backfilling, grading, and resoiling the mined areas. Voluntary initiatives such as this will likely provide the best opportunities to increase the number of acres planted with woody species.

Ohio may further encourage the successful implementation of new tree-friendly reclamation practices through technology transfer, sponsoring demonstration projects, and distributing reports and results of different reclamation techniques implemented in Ohio or other states.

Since Ohio strongly considers landowner comments on proposed post-mining land uses, educating landowners of options that exist when coal companies approach them about mining their land and choosing a post-mining land use may also provide some positive benefit. However, convincing a landowner to select a certain post-mining land use may cost a coal company less than planting and maintaining trees on a property until bond is released.

Ohio's development of policy regarding the capability of steeper slopes to support only limited land uses should also increase the acreage planted to woody species. Determining that certain slopes do not support a pasture/grazing land use will increase the extent of undeveloped land, commercial forest, or fish and wildlife habitat as post-mining uses. Each of these three land uses require that woody vegetation be planted, and in some cases that a successful stand be established before bond is released.

Under current regulatory standards and policy, there will likely be little increase in the number of acres planted with woody species. Voluntary initiatives, development of different reclamation techniques, technology transfer, education, and policy changes

regarding the capability of steeper slopes to support limited land uses provide some of the best opportunities for increasing acreage planted with woody species.

<b>Appendix 1</b>			
<b>OSM Site Visits in EY 02 That Specifically Evaluated Land Use for This Review</b>			
Permit	Pre-Mining Use(s)	Pre-Mining Management Practices	Post- Mining Use(s)
D-282	Crop/Undeveloped	None	Crop/Pasture
D-0692	Undeveloped/Industrial	None	Undeveloped/Industrial
D-928	Undeveloped	None	Undeveloped/Pasture
D-950	Undeveloped	None	Pasture
D-958	Undeveloped	Mowing/Harvesting	Pasture
D-997	Undeveloped	None	Pasture
D-1011	Pasture/Undeveloped	None	Pasture
D-1012	Crop/Pasture/Undeveloped	None	Crop/Pasture
D-1019	Undeveloped	None	Pasture
D-1059	Crop/Pasture/Undeveloped	None	Crop/Pasture
D-1092	Crop/Pasture/Undeveloped	Mowing/Harvesting	Crop/Pasture
D-1109	Crop/Pasture	Mowing/Harvesting/ Rotation	Crop/Pasture
D-1125	Pasture/Undeveloped	None	Pasture
D-1185	Undeveloped	None	Pasture
D-2022	Pasture/Undeveloped	None	Pasture
D-2062	Crop/Pasture/Undeveloped/ Residential	None	Crop/Pasture/Residential
D-2063	Undeveloped	None	Pasture
D-2075	Pasture/Undeveloped	None	Pasture
D-2091	Undeveloped	None	Pasture
D-2114	Undeveloped	None	Pasture

<b>Appendix 2</b>										
<b>Comparison of Pre-Mining to Post-Mining Land Use</b>										
	<b>EY 2002</b>		<b>EY 2001</b>		<b>EY 2000</b>		<b>EY 1999</b>		<b>Four Year Total by Land Use</b>	
Number of sites that OSM reported land use data <sup>2</sup>	57		102		75		84		318	
	Pre-Mining Acres <sup>3</sup>	Post-Mining Acres	Pre-Mining Acres	Post-Mining Acres						
Crop	665	608	1407	1297	844	744	660	580	3576	3229
Pasture/Grazing	4623	17029	3548	14848	4000	25549	5320	13152	17491	70578
Industrial	1225	1252	57	412	112	166	325	195	1719	2025
Commercial	5	2	66	36	92	92	60	40	223	170
Recreation	6	6	20	20	275	15	0	0	301	41
Residential	19	17	24	21	0	0	11	19	54	57
*Forest	7	0	10	0	275	75	127	429	419*	504*
*Fish & Wildlife	0	986	1418	4083	143	349	465	1514	2026*	6932*
*Undeveloped	14094	633	15700	1446	23164	1136	9316	243	62274*	3458*
<b>Total</b>	<b>20644</b>	<b>20533</b>	<b>22250</b>	<b>22163</b>	<b>28905</b>	<b>28126</b>	<b>16284</b>	<b>16172</b>	<b>88083</b>	<b>86994</b>

\* Indicates land uses and acreage with some expected amount of woody vegetation.

<sup>2</sup> Some of these site visits may have occurred on the same permit more than once. Therefore the data may be repeated in some cases. Does not include all site visits conducted by OSM during the EY, only those in which land use information was collected.

<sup>3</sup> All acreage figures are approximate. Therefore pre and post-mining totals may not match but provide a general idea of land use trends.

### **Appendix 3**

Ohio had no comments on the draft report. Therefore, no substantive changes were made in this final report.