
**A Report on the Evaluation and
Assessment of Off-Site Impacts
Resulting from Surface Coal Mining
Operations in Ohio**

**Final Report
Evaluation Year 2001**

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INTRODUCTION: BACKGROUND AND PURPOSE

OSM's oversight process involves reporting end-results and on-the-ground success as a measure of the effectiveness of individual State programs in protecting the public and the environment from impacts from coal mining operations. One method OSM uses to make this assessment of a State program is to identify and report on off-site impacts associated with coal mining and reclamation operations. The goal of this measurement is for States and OSM to initiate changes to reduce the occurrence of adverse off-site impacts.

OSM defines an off-site impact as a negative effect on a resource resulting from a coal mining and reclamation activity or operation. However, the following four criteria must be met for OSM to consider the impact.

- ! The mining and reclamation activity causing the off-site impact is under the regulation or control of the State program.
- ! The impact on the resource must be substantiated by the Ohio Division of Mineral Resources Management (DMRM) or OSM. This can be accomplished by a complaint investigation, a State inspection, or an oversight inspection by OSM.
- ! The impact must be outside the area authorized for coal mining and reclamation activities. Off-site impacts normally occur outside the permit boundary area. However, they can also occur within the permit boundary if they encroach into a prohibited area such as a stream buffer zone.
- ! The impact must not be permissible under the State program. This final criteria pertains to nuisance or permissible conditions such as those caused by blasting or underground longwall mining. For example, a complaint may occur as the result of blasting rattling a home or longwall mining causing damage to a home. However, these conditions are not considered off-site impacts if the blasting operation has maintained the allowable amount of explosives to be used and the required distance from the home; or, in the underground mining situation, the company repairs the damage or otherwise compensates the homeowner in accordance with the State program, and the subsidence occurs within the area authorized for mining.

Off-site resources affected by mining and reclamation operations are categorized as land, water, people, and structures. Water resources include surface and ground water quality and quantity. Fish and wildlife resources are considered part of water and land resources. In addition, all impacts have the potential of affecting more than one resource; i.e., a blasting impact may affect both land and people. Impacts to these resources may result from blasting, land instability, hydrologic disturbances, unauthorized encroachments onto protected or non-permitted areas, and other causes.

METHODOLOGY

The period for this evaluation was from July 1, 2000, to June 30, 2001. OSM identified off-site impacts by reviewing all State enforcement actions; all citizen complaints received by DMRM and OSM; and by conducting oversight inspections that focused on evaluating impacts that may have occurred outside the areas authorized for mining and reclamation activities. All identified impacts were categorized as being identified by State enforcement action, OSM inspection, or citizen complaint. We then list the type of impact, resource affected, and degree of impact for each impact shown.

The degree of impact was established by OSM and is somewhat subjective. However, the subjectiveness only involves a clear distinction between the moderate category and the bordering major and minor categories, and not a distinction between the far ranges of major and minor. General guidelines for assessing the degrees of impact are:

Minor

- Small amount of disturbance outside of the permit or authorized area.
- Small amount of sediment, flyrock, erosion outside of the permit or authorized area.
- Low volume or short duration water discharge that marginally exceeds effluent limits and has a marginally negative impact on the receiving stream water quality.

Moderate

- Anything not fitting the guidelines for minor or major impact.

Major

- Large amount of disturbance outside of the permit or authorized area.
- Large amount of sediment. Flyrock, or erosion outside of the permit or authorized area.
- High volume or long duration of water discharge with poor quality entering a high quality stream.
- Impact interferes with the postmining land use.
- Impact jeopardizes public safety or causes personal injury.
- Impact causes damage to uncontrolled structures or prohibitive areas.
- Mining without a permit or authorized approval.

OSM obtained information on the degree of each impact from inspections, inspection report narratives, DMRM enforcement records, violation assessment worksheets, and complaint information. The degree of impact is based on the disturbance or actual on-the-ground impact, not on the violation category or the ability to repair the impact. For example, an operator may spoil outside the permit boundary, causing a violation. Although the area may be permitted and/or reclaimed, obtaining a permit or reclamation are only corrective actions that enable the violation to be remediated. Site-specific conditions vary whenever mining occurs without prior

authorization and an approved plan. Therefore, it is those site-specific conditions that determine the degree of impact, rather than the corrective action.

In EY 2000 and EY 2001, OSM evaluated off-site impacts on every inspection, including bond release and general oversight inspections. Prior to EY 2000, OSM only evaluated off-site impacts on general oversight inspections, and inspections were only considered in the total number evaluated if an impact was identified.

ASSESSMENT OF IMPACTS

OSM identified a total of 35 off-site impacts during the evaluation period by reviewing State enforcement actions, conducting OSM inspections, and evaluating citizen complaints. The result of each review category is discussed separately below, and shown numerically in **Tables 1 through 3**. The total number of 35 impacts was determined by counting only once those impacts that are identified in more than one Table.

A. State Enforcement Actions and Associated Violations

A review of 167 DMRM enforcement actions identified 29 separate off-site impacts. These are listed in **Table 1**. A couple of trends or observations stand out. Fourteen of the 29 impacts were the result of acid water discharges, with all 14 occurrences having a minor degree of impact. Twelve were the result of some type of mining activity outside the approved mining area, such as affecting within a buffer zone prior to approval or conducting mining activities outside the permit boundary. Two of the 29 off-site impacts were moderate in their degree of impact due to the effect on the landowners and their property.

Acid water discharges and effluent violations continue to be the most frequent off-site impacts from mining operations. These problems are related to acidic or toxic overburden, or coal waste. OSM continues to address this concern through our joint effort with DMRM to conduct inspections annually on every permit with acid mine drainage (AMD) to collect water data, and to reassess and evaluate each situation individually. This effort should help us to identify what site-specific factors are contributing to the AMD and lead to solutions for improvement and prevention.

B. OSM Inspections

OSM conducted 241 inspections during this review period in which seven off-site impacts were identified. Three impacts were the result of sedimentation, and four were due to acid water discharges or AMD. The seven off-site impacts are listed in **Table 1**. DMRM took the appropriate corrective action in all instances.

C. Citizen Complaints

Table 3 lists five off-site impacts that were identified from the 106 citizen complaints received by DMRM during EY 2001. Four were water-related and one was dust related. DMRM required the necessary corrective actions in each instance following verification.

This year's review of complaints continues to validate the conclusion that citizens play a significant role in the identification of off-site impacts. For example, a landowner can suffer water loss, and no one may know until the landowner complains. Consequently, DMRM and OSM cannot overlook the public's role in identifying off-site impacts.

D. Summary

A total of 35 off-site impacts were identified on 28 separate permits by reviewing DMRM's enforcement actions and complaints, and by conducting OSM inspections. The total number of impacts was determined by counting only once those impacts that were identified in more than one Table or review category. DMRM inspected approximately 365 inspectable units during the review period. This equates to the identification of off-site impacts on 8 percent of the permits, or conversely, 92 percent of the permits had no impacts identified. OSM considers evaluating and reporting the number of off-site impacts as an effective measure of the success of the Ohio regulatory program in controlling the adverse impacts associated with mining activities.

The 35 off-site impacts resulted in 42 resources being affected. The data shows that the majority of the impacts in EY 2001 are water-related. This trend has existed since OSM began evaluating off-site impacts in EY 96. Of the 35 impacts identified, 28 were minor in their degree of impact and seven were moderate. In comparison to the total number of violations, inspections, and complaints, the total number of off-site impacts identified is minimal. Despite this observation, OSM's continues to work with DMRM to further reduce the occurrence of off-site impacts by pursuing improvements to the Ohio program.

The numbers of off-site impacts for EY 96 through EY 2001 are shown in **Table 4**. **Table 4** shows the number of off-site impacts ranging between 35 and 46, with the exception of EY 97. In EY 97, the number of off-site impacts was 22. **Table 4** is displayed in graph form in **Figure 1**.

OSM believes that improvements can be made to consistently reduce the occurrence of off-site impacts. To achieve this, DMRM will assume the responsibility of collecting and reporting off-site impact data in place of OSM in EY 2002. This change is expected to occur following the completion of DMRM's off-site collection form and the training of their inspection staff. Implementation of DMRM's process should help both agencies work together in identifying and reducing off-site impacts.

Table 1 Off-Site Impacts Identified by State Enforcement Actions (7/1/2000-6/30/2001)			
NOV/IHCO Number	Type of Impact	Resource Affected	Degree of Impact
N19602	pond construction outside permit	land	minor
N19604	road construction outside permit	land	minor
N19610	topsoil storage outside permit	land	minor
N21110 ***	flooding	land/people	minor
N21402	acid water discharge	water	minor
N21403	acid water discharge	water	minor
N21410	acid water discharge	water	minor
N21472	acid/iron water discharge	water	minor
N21528	pond construction outside permit	land	minor
N21538	flooding	land/people	minor
N21907	sedimentation	water	minor
N23762	acid water discharge	water	minor
N23764	acid water discharge	water	minor
N23776 **	sedimentation	land/water	moderate

Table 1 (continued)
Off-Site Impacts Identified by State Enforcement Actions
(7/1/2000-6/30/2001)

NOV/IHCO Number	Type of Impact	Resource Affected	Degree of Impact
N23777	acid water discharge	water	minor
N23782	acid water discharge	water	minor
N23795 **	acid water discharge	water	minor
N23798 **	acid/iron water discharge	water	minor
N25212	acid water discharge	water	minor
N25249	acid water discharge	water	minor
N25288	acid/iron water discharge	water	minor
N25346	acid water discharge	water	minor
N25984 **	sedimentation	water	minor
N25992	haul road construction outside permit	land	minor
I-11656	pond construction outside permit	land	minor
I-11675	disturbance outside permit	land	minor
I-11695	landslide disturbance outside permit	land	minor

Table 1 (continued) Off-Site Impacts Identified by State Enforcement Actions (7/1/2000-6/30/2001)			
NOV/IHCO Number	Type of Impact	Resource Affected	Degree of Impact
I-11699	landslide disturbance outside permit	land	minor
I-186	mining outside permit	land	moderate
167	Total number of NOVs & IHCOs issued by Ohio between 7/1/2000 and 6/30/2001		
29	Total number of off-site impacts identified by state enforcement actions ** identified in Table 2 *** identified in Table 3		

Table 2 Off-Site Impacts Identified by OSM Inspections (7/1/00-6/30/2001)			
Permit Number	Type of Impact	Resource Affected	Degree of Impact
D-0159 ** (25288)	acid water discharge	water	minor
D-230	AMD contamination	water	moderate
D-1139	sedimentation	water	minor
D-1162 ** (N23776)	sedimentation	land/water	moderate
D-1191 ** (N25984)	sedimentation	water	minor
D-1192 ** (N23795)	acid water discharge	water	minor
D-1192 ** (N23798)	acid/iron water discharge	water	minor
241	Total number of OSM inspections conducted		
7	Total number of negative off-site impacts identified by OSM inspections ** identified in Table 1		

Table 3 Off-Site Impacts Identified by Citizen Complaints (7/1/2000-6/30/2001)			
Complaint Number	Type of Impact	Resource Affected	Degree of Impact
00-CA-029 ** (N21110)	flooding	land/people	minor
00-CA-030	water loss	water/people	moderate
00-CA-35	water loss	water/people	moderate
00-CA-049	dust (permit requires control)	structures/ people	minor
01-CA-028	water loss	water/people	moderate
106	Total number of complaints received by Ohio		
5	Total number of off-site impacts identified by state complaint investigations ** identified in Table 1		

Table 4
Total # of Off-Site Impacts/Year/Category

	# of State Enforcement Actions Issued	# of O-S Impacts Identified	# of OSM Inspections Conducted	# of O-S Impacts Identified	# of Citizen Complaints Received	# of O-S Impacts Identified	# of Total Impacts **
EY 2001 12 mo Evaluation	167	29	248	7	106	5	35
EY 2000 12 mo. Evaluation	244	39	195	5	146	2	43
EY 99 12 mo. Evaluation	231	30	159	7	81	13	46
EY 98 9 mo. Evaluation	121	29	56	4	39	11	38
EY 97 11 mo. Evaluation	141	19	56	7	40	3	22
EY 96 9 mo. Evaluation	109	33	25	9	44	4	40

** Total was determined by counting only once those impacts identified in more than one category, and may not equal the sum of all three review categories.

Figure 1 - Graph Display of Table 4
of Off-Site Impacts/Year/Category

