
Final Report

**Longwall Mining - Impacts, Implementation, Interaction of
the Ohio Division of Mineral Resources Management,
the Mining Industry, and Landowners**

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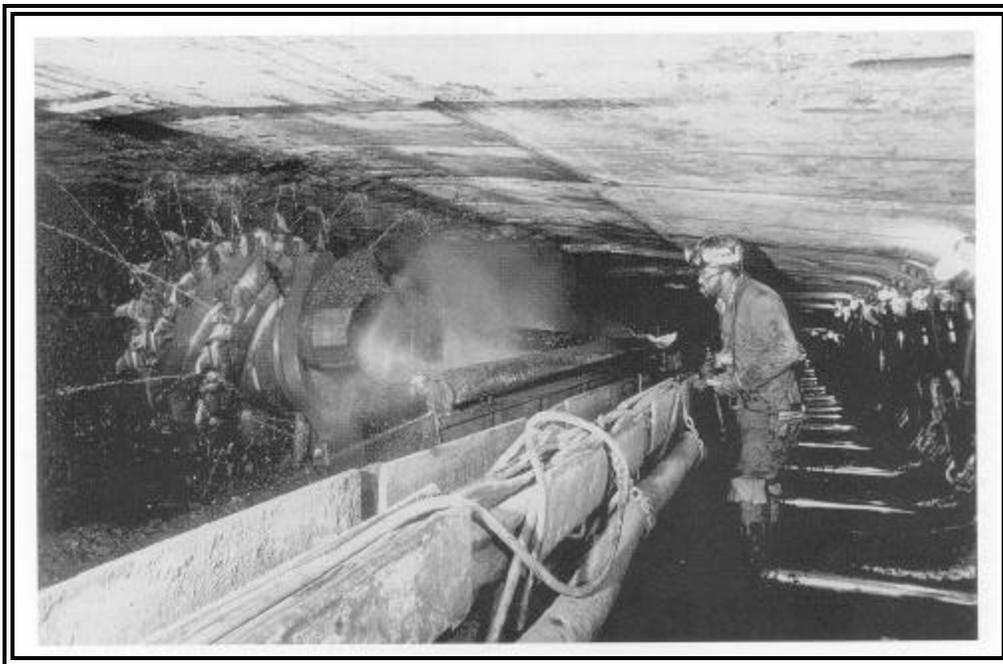
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Introduction:

Longwall mining is a method of underground mining where an entire coal seam is removed, causing the strata above the coal seam to subside. The extent of impacts to the land surface and ground water varies depending on many factors. In some areas, there may be little noticeable impact. In other areas, homes and other structures are damaged, cracks in the ground appear, landslides occur, and water supplies are disrupted.

Congress recognized the importance of longwall mining to the nation's energy needs when it enacted the Surface Mining Control and Reclamation Act (SMCRA) in 1977 and amended it in 1992 by the Energy Policy Act. Longwall mining maximizes recovery of coal resources and reduces the possibility of unplanned subsidence years after mining is completed. SMCRA further recognizes the impacts that longwall mining can cause. It seeks to balance the need for energy with providing adequate protection of the environment and private property through proper mitigation and compensation for impacts. Both Federal and State laws allow longwall mining and acknowledge that subsidence will damage land, water, and structures. Both Federal and State laws require mine operators to repair and/or compensate landowners for damage to structures, to repair damage to land, and to replace or repair damaged domestic water supplies. Ohio law also requires mine operators to replace or repair damaged agricultural, industrial, and other water supplies that had a legitimate use prior to mining.



Longwall mining produced approximately 35 percent of Ohio's total coal production in 1999, and 67 percent of the total coal produced by underground mining methods. Three companies in Ohio conduct longwall mining at four mines. Longwall mining has been conducted since the early 1980's. One of these companies and their one mine stopped production in the summer of 1999. There are reports that two other mines owned by one company may close or be sold within the next few years. A new company plans to re-open a mine that closed in the early eighties as a new longwall mining operation.

Subsidence from longwall mining is generally immediate and predictable. Impacts from subsidence are expected. However, to some landowners, the impacts may be devastating and, to others, they may be a temporary inconvenience. In most cases, coal companies obtained the right to mine the coal many years ago from previous landowners. Mining rights sometimes include a waiver for all damages to the land surface and structures. Past litigation regarding mining rights has been resolved by the courts. Due to the impacts that longwall mining has on structures, water supplies, and the land surface, SMCRA was amended and State regulatory programs were established to control these impacts while considering the terms of property deeds that granted mining rights. Proper regulation and timely mitigation of those impacts are very important to landowners.

In the past, some landowners impacted by longwall mining and other interested parties **have expressed concern to the Office of Surface Mining (OSM) and the Ohio Division of Mineral Resources Management (DMRM) that mining companies may not be mitigating subsidence impacts properly or in a timely manner. There is concern that regulatory agencies (DMRM and OSM) have not documented the overall extent of impacts caused by longwall mining. There is apprehension that some mining companies are not providing timely, permanent replacement of agricultural water supplies and that DMRM has not provided regulatory direction for addressing permanent long-term water replacement.**

Program data and available information show that mining companies are mitigating impacts. They are resolving most impacts through agreements negotiated with landowners, resulting in little contact with the regulatory agency. Some agreements include inconvenience compensation to landowners which is not required by law. The mining industry generally believes it is doing a good job of addressing impacts caused by longwall mining and that it is meeting or exceeding all regulatory requirements.

The mining industry is generally in compliance with the Ohio program requirements. One indicator supporting this statement is the small number of formal complaints directed to DMRM about longwall mining problems. DMRM received 18 complaints related to longwall mining operations between July 1, 1998, and July 1, 2000. This is about 8 percent of the total number of complaints received for the same period. Fourteen of the 18 complaints were related to water supplies. DMRM has issued few, if any, enforcement actions as a result of longwall mining problems. Although this report identifies some exceptions to full implementation of program requirements, the issues identified for improvement are mostly related to differences in interpretation, understanding, and implementation of policy.

Before conducting this study, OSM had a general idea of how DMRM and the mining industry addressed the impacts of longwall mining in Ohio. OSM had not comprehensively reviewed DMRM's implementation of its policies and procedures. DMRM did not have sufficient program data available to provide an overall view of the extent of impacts and practices regarding longwall mining. OSM had not talked with mining companies about their specific policies and procedures for mitigating impacts. OSM had only limited contact with landowners affected by longwall mining in order to fully understand how they have been impacted, and how DMRM and the mining companies have interacted with them. Individual DMRM inspectors report being aware of most impacts caused by longwall mining on individual properties and of the mitigation measures taken to address these impacts. This awareness comes from frequent communication with coal companies and periodic, on-site inspections. Through this review, we have gained a better understanding of the practices DMRM and the mining industry are currently implementing. We have identified areas where improvements should be considered, based upon current law, regulations, and policies. **The information we gathered will allow better response to concerns of the coal field citizens and others.**

Areas identified for improvement by this report are directed to a more collective knowledge of the impacts and documentation of timely and adequate mitigation efforts. These improvements may be accomplished through better implementation, record keeping, and more consistent interpretation of Ohio law and DMRM policies. We also suggest improved outreach and communication to better inform those impacted by longwall mining. We acknowledge that educating the public may not be mandated through law or rules. However, this study and OSM's contacts with individual landowners and support groups identified a need for DMRM to take advantage of opportunities that may help increase understanding of the obligations and responsibilities of the mining industry and DMRM.

Purpose:

We conducted this study to gain a better understanding of:

- \$ The short and long-term impacts of longwall mining on water supplies, land, and structures.
- \$ How the mining industry and DMRM implement the program requirements and mitigate the impacts of longwall mining.
- \$ How effectively DMRM and the mining industry interact with those affected by longwall mining.
- \$ How the mining industry educates landowners of their rights and the expected impacts and outcomes of longwall mining under their property.



- \$ How DMRM educates landowners of their rights and the expected impacts and outcomes of longwall mining under their property.
- \$ How DMRM and the mining industry identify impacts to domestic and agricultural water supplies, land, and structures.
- \$ How the mining industry mitigates these impacts and are they timely.

Methodology:

We reviewed the Ohio Program, including DMRM's policies and guidelines concerning longwall mining operations; Federal law and regulations; and some pertinent court cases relative to longwall mining and subsidence in Ohio.

We interviewed representatives of the three mining companies that conduct longwall mining in Ohio to identify the policies and practices of each company for addressing subsidence-related impacts. We interviewed DMRM inspectors and managers to determine policies and procedures they follow when receiving a complaint or investigating subsidence-related features.

We looked at impacts to the ground surface and streams in the active longwall mining areas. We also requested that each company provide an inventory of domestic and agricultural water supplies and perennial and intermittent streams impacted by their mining operations. Two of the three companies provided information about impacted water supplies.



We met and interviewed landowners impacted by each longwall mining operation to discuss and view the damage they experienced and the mitigation efforts of the mining company. Interviews included three landowners undermined by one mine and one undermined by a third mine. We also met with a

group of six landowners impacted by one mine and interviewed three of them while viewing their properties. We viewed impacts to land, public roads, major gas lines, streams, and structures that were undermined.

We limited the scope of the review to identifying the processes and procedures implemented by DMRM and industry, and reporting on how well those processes meet the requirements for mitigating impacts caused by longwall mining. Due to this limited scope, we fully acknowledge that we talked to only a few landowners impacted by longwall mining. Those we interviewed provided a limited, but very important cross-section of the many opinions that exist about DMRM and the industry's performance in carrying out the program requirements. We talked to those recently impacted by subsidence or currently in the process of repair or compensation to be sure we were getting information on DMRM's and industry's current approach to interacting with landowners. We also limited our interviews to landowners recently undermined to minimize the chance of re-opening discussion of individual landowner issues that may have been resolved several years ago. Some owners we spoke with were pleased with the way the coal industry and DMRM interacted with them and the manner in which they addressed repair/compensation for property damage. Others were displeased. However, the focus of the report is on implementation of the program provisions, rather than on measuring landowner satisfaction.



We considered information gained from past discussions with individual landowners and groups of concerned citizens about the overall impacts of longwall mining. We also considered information provided by an environmental organization.

We feel this report provides a balanced discussion of conflicting perceptions about longwall mining and how DMRM and the industry implement the Ohio program provisions. This report is based upon our review of State laws and rules, Federal rules, and Ohio court decisions; our field reviews; face-to-face interviews with representatives from DMRM, each mining company, and landowners; and comments we received on the draft report.¹ We asked DMRM for comments on the initial draft. We made some

¹ DMRM and industry have objected to our findings related to agricultural water supplies because the Federal standards do not obligate coal companies to replace agricultural water supplies. We fully acknowledge the limits of the Federal standards. However, the State standards apply and these are the standards that all OSM oversight is based upon. We commend Ohio for recognizing the importance of agricultural water supplies to the

revisions to the initial draft report based on DMRM's comments. Then we mailed copies of the draft report to each of the coal companies, the landowners we interviewed, an environmental organization that has expressed interest in longwall mining, an Ohio coal industry association, and a few other interested parties. In all, we sent copies of the draft report to 22 individuals or groups. We met with industry representatives, at their request, to discuss the draft report. We also met with DMRM to discuss their comments and the draft report in detail, and to discuss any actions DMRM may take in response to the findings and recommendations. DMRM will provide their response to the recommendations once they review this final report. We received written comments from eight sources and verbal comments from one. We revised the report, where appropriate, in response to comments. The summarized comments and our explanation of how we considered them are included in this final report as Appendix I.

Process and Policy

How does the mining industry educate landowners of their rights and the expected impacts and outcomes of longwall mining under their property?

Each of the three mining companies engaged in longwall mining have developed their own approach to meeting the program requirements and interacting with landowners. This report is not intended to highlight these differences or to compare companies, but we do identify the processes used and their relative effectiveness.² All three companies generally follow the same basic process for notifying landowners of future underground mining and explaining the landowners' and companies' rights regarding subsidence damage. Although the basic process is similar, the approach and effectiveness in carrying out the process differ.

citizens of Ohio and the environment. We fully recognize Ohio's leadership in regulating hydrologic impacts of mining. Since 1982 or before, Ohio has required mine operators to replace or repair legitimately used domestic, agricultural, and industrial water supplies impacted by mining, well before enactment of the Federal Energy Policy Act of 1992 which addresses domestic water supplies impacted by underground mining.

² In order to preserve anonymity in the report, some references to mining companies in general may seem to apply to all mining companies when, actually, the reference may be directed to only one or two companies. We have tried to minimize any confusion this may cause.



The general approach taken by each company is to notify landowners in writing, at least six months prior to mining, that underground mining will occur under their property. This notice is required by Ohio Administrative Code (OAC) 1501:13-12-03(O). The notice includes the location of the mine office where the landowner can view the mine plan and may include a map of the projected mine area. At times, the companies provide notice before development mining and again before longwall mining.

The companies' initial contact with landowners is generally to obtain permission to monitor water supplies on the property. This contact may occur a year or more before mining. After the water monitoring begins, a company representative will again visit the landowner. This visit may be to explain mining rights and responsibilities to repair or compensate for damage; to obtain pre-mining agreements or settlements; and/or to conduct a pre-subsidence survey of the property.



DMRM Policy and Procedure Directive (PPD) Underground 89-1 (February 5, 1988) and Underground 90-3 (April 1, 1990) require companies to conduct a pre-subsidence survey of all structures they will undermine. A consultant for the mining company usually conducts pre-subsidence surveys. Companies must provide reports from the pre-subsidence surveys to the landowner. Some surveys include a video tape.

As mining approaches water supplies, the frequency of company representative visits and water sampling increases. Immediately preceding, during, and immediately after undermining, company representatives of the mining companies said they usually visit homes on a daily basis to monitor impacts to structures and to take interim measures to address damage. This was confirmed by the landowners we visited.

Two companies offer landowners the option of pre-mining agreements/settlements. The third company no longer routinely offers pre-mining agreements, but makes repairs and/or provides compensation after subsidence occurs. The pre-mining agreements/settlements provide right-of-entry to make repairs,

terms for repair and/or compensation for damage, and may include compensation for inconvenience. Company policies for inconvenience compensation vary, but are generally based on the appraised value of the home including one to two acres of land surrounding the home. One company offers an option to landowners to sell the home and two acres of land to the company at the appraised value plus inconvenience money.

Agreements offered by one company provided for compensation for damage and inconvenience. Inconvenience compensation is only paid if an agreement was signed. Based on the agreements we reviewed and our interview with a company representative, that company did not make permanent repairs, but compensated the owner based on a repair estimate from a contractor.

One company offers the pre-mining settlement option to all owners within the panel area and within the 45 degree angle-of-draw. This company reports that 99 percent of the owners accept the pre-mining agreement, based on approximately 150 homes undermined since 1982.

Two companies indicated that they have held public meetings in the mine area to explain their mining operation and answer questions.

How does DMRM educate landowners of their rights and the expected impacts and outcomes of longwall mining under their property?

During the permitting process, DMRM provides the public with an opportunity to comment on the permit application and to request an informal conference. On a day-to-day basis, the DMRM inspector is the point of contact for landowners concerned about longwall mining and impacts to their property. DMRM inspectors indicated that they try to visit some landowners before mining approaches their homes to explain the expected impacts and what is required of the mining company. Interaction between landowners and DMRM inspectors is mostly limited to complaint investigation after a home or property has



subsidied. During the investigation, DMRM inspectors explain the requirements and the process they follow to ensure that the landowners's interests under regulatory control are protected. The mining

companies will often encourage landowners to contact DMRM when they are unable to work out an agreement with the landowner or to satisfy the landowner's concerns.

DMRM inspectors indicated that they respond to verbal or written complaints and usually conduct a site visit within a day or two of receiving the complaint. They review complaints alleging water loss or contamination immediately. DMRM notifies the mining company of the need to provide temporary water within 48 hours. DMRM documents complaints about damage to land, water, and structures, and notifies the mining company through a damage report letter.

DMRM recently developed a citizen guide that includes a section on longwall mining. Upon request, DMRM representatives meet with individuals concerned about certain aspects of longwall mining. DMRM also developed a pamphlet that is a copy of the section of the citizen guide related to longwall mining. Very few of the people we talked with were aware of the pamphlet.

How are the impacts to domestic and agricultural water supplies, land, and structures identified by DMRM and the mining industry?

DMRM PPD Underground 90-2 (April 1, 1990) provides DMRM's policy for evaluating and notifying the mine operator of subsidence damage. The PPD states that DMRM inspectors will conduct monthly inspections of the active subsidence areas at all full coal recovery operations. Inspectors indicated that, although the goal is to inspect these areas monthly, at a minimum, they inspect the actual surface area above active longwall panels on quarterly complete inspections. DMRM inspectors conduct monthly inspections at the active mines and are aware of the location of the active longwall panels, the properties being undermined, and the status of most repairs.

When they discover surface damage, inspectors may issue a damage letter to the mine operator. This letter gives the mining company 30 days to provide either a plan and schedule for making repairs; a request for additional time to prepare the plans; a notice that repair of the land is not feasible; or notice that the landowner has refused access to the property to enable the repair. A copy of this letter is sent to the landowner. In most cases, the company is already aware of the damage through its own monitoring, may have notified DMRM, and has either begun repair or has made arrangements for repairs. In these cases, DMRM inspectors may choose not to issue damage letters. However, the inspector is required by PPD Underground 90-2 to complete a "Subsidence Damage Report" for each incident of subsidence damage. They can also document damage in an inspection report in place of the "Subsidence Damage Report." A significant disclosure of this study is that DMRM records show that documentation does not exist in all cases. DMRM field staff should use either the damage report or the inspection report to track all subsidence damage from date of discovery through date of final resolution to ensure identification and repair or mitigation of all subsidence damage.

Mining company representatives all indicated that they have staff who regularly monitor surface areas above active longwall panels. They also visit homes daily as mining progresses toward and passes

under homes. Landowners we talked with verified that company representatives were usually in the area frequently as mining passed under their homes. Therefore, mining companies are aware of immediate damage to structures and water supplies and can begin taking temporary measures to keep the home in a reasonable and safe condition until permanent repairs are made. Landowners usually notify the companies if they experience additional damage.

How timely and in what manner does the mining industry mitigate these impacts?

Companies take measures to maintain homes or other structures in useable condition immediately after subsidence occurs. In some cases, measures are taken prior to subsidence to lessen impacts to structures. Permanent repairs generally do not start for at least six months after an area is subsided. Companies prefer not to make permanent repairs to structures or provide compensation until subsidence is completed. Often, new damage may occur as the ground continues to shift and settle. In some cases, initial cracks may close and additional shifting may correct structural problems, lessening the need for repair. The timeliness of making permanent repairs to structures is based on case-by-case conditions, including such things as: whether future mining will further impact the structure; landowner-specific requests; the number of homes subsided at one time; individual agreements; time of year; amount and type of repairs necessary; and other factors.

PPD Underground 93-2 (February 15, 1993) requires mining companies to provide temporary water supplies within 48 hours of notification of loss. In cases where public water is available, companies usually connect landowners to public water prior to undermining. Company representatives and landowners indicated that they may also take temporary measures to provide other water supplies prior to subsidence. Landowners usually report diminution of domestic or agricultural water supplies either directly to the company or through DMRM. Temporary supplies include connection to public water, bottled water, water tanks, livestock watering systems, or other means.

PPD Underground 93-2 states that DMRM will determine whether a permanent water supply replacement is required. This determination may be delayed for one to two years after the water supply is impacted to allow time for water levels to reestablish after subsidence. Companies must provide interim supplies during this period. Mining companies may replace a permanent supply on their own initiative without waiting on a decision from DMRM.

Interviews with company representatives indicated that providing public water is usually their preferred option for permanent replacement of domestic water supplies when this option is available. However, some of the landowners we talked with had wells or springs that provided domestic water prior to mining. Some owners would like those supplies replaced, regardless of their current connection to public water. Some preferred the water quality they had over that of the public water. Some do not want to pay for public water in the future. Others were very pleased to be connected to a public water supply. DMRM indicated that the type of permanent replacement is preferably settled between the landowner and the company through private agreements. Although DMRM may accept public water as

an acceptable permanent replacement for domestic use, DMRM indicated that the landowner's preference should be honored whenever possible. There may be cases where public water is the only reasonable option, but, in some cases, other options may exist. The landowner should be aware of all options.

Permit applications for each of the three mining companies provide specific plans describing how the company will replace water supplies if they are impacted. All of the plans state that permanent replacement will be accomplished within 18 months after it is determined that the water supply was contaminated, diminished, or interrupted by the mining operation. The language contained in the plans is consistent with DMRM policy provided in PPD Underground 93-2. This PPD is based on the final outcome of an appeal of DMRM's approval of a mine permit (Citizens Organized Against Longwalling v. The Division of Reclamation, Ohio Department of Natural Resources and Southern Ohio Coal Company, Fourth District Court of Appeals, Meigs County, Case Nos. 380 and 410, 8/26/87 and 6/7/89). One company's plan defines a temporary as a period not to exceed two years following impact and, in most cases, a source will be repaired, replaced, or the owner compensated within one year. The other two companies' plans do not contain a similar statement. However, they clearly state that permanent replacement will occur within 18 months.

Findings

Finding I. Permanent replacement of impacted water supplies - *There are some domestic and several agricultural water supplies impacted several years ago by longwall mining that have not been permanently replaced.*

Timeliness of Water Supply Replacement

We fully acknowledge, as did most of the landowners with whom we spoke, that mining companies are almost always very timely in providing temporary water supply replacements, both domestic and agricultural, and no landowners were without water. We found from our interviews with landowners, company representatives, and DMRM representatives that, at two mines, there are water supplies, mostly agricultural supplies, that were impacted several years ago by longwall mining that have not been permanently replaced. DMRM had little or no information available to indicate whether there have been attempts to develop suitable permanent replacements or if the attempts were unsuccessful. Ohio law and regulations and DMRM policy require permanent replacement of domestic and agricultural water supplies impacted by mining operations.

The permits for each of these mines specify that permanent replacement will occur within 18 months after it is determined that mining caused the impact. Options for providing a suitable permanent replacement are identified in the water replacement plans in each permit. Although options may be limited, it is the mining company's responsibility to develop a viable replacement as described by each

permit application. It is DMRM's responsibility to ensure that the mining company meets this obligation in a timely manner.

Water replacement plans in two mining permits state: "Public water supplies are not considered to be primary water supply replacements and will not be utilized for permanent agricultural purposes." Water replacement plans in permits for the other two mines do not specifically identify public water as an option for permanent replacement of agricultural water supplies. However, they do not totally rule out that option. Based on the approved replacement plans, it is fair to consider that public water is a last resort for permanent replacement of agricultural water supplies. This consideration is further supported by the following quote from the decision in Citizens Organized Against Longwalling v. The Division of Reclamation, Ohio Department of Natural Resources and Southern Ohio Coal Company, Fourth District Court of Appeals, Meigs County, Case No. 380, 8/26/87:

Intervenor's resort to piped water as a replacement water source prompted appellant's president,, to testify:

*A*** (W)e don't consider a Leading Creek Water tap, piped water, an alternative to our springs and wells. Hydrological balance, I don't believe, is in a pipe."*

Ohio Adm. Code 1501:13-4-14, supra, requires the water replacement plan to protect the hydrologic balance. Ohio Adm. Code 1501:13-1-02(HH) and (GG) define "hydrologic balance" and "hydrologic regime" as follows:.....

We agree with appellant, that given the complexity inherent in a hydrologic regime, piped water will not ordinarily restore a disturbed hydrologic balance. Piped water involves a tremendous and continuous human intervention into an otherwise natural hydrologic regime.

Based on the approved replacement plans and the court decision, unless the permittee demonstrates how replacement of agricultural water supplies with public water will restore the hydrologic balance, public water should not be an acceptable permanent replacement for most agricultural supplies. It should only be accepted after the mining company demonstrates that development of other sources for replacement is not technologically feasible.

Concerned landowners and other interested parties have raised this issue informally for several years. The concern is especially heightened for several landowners above one mine, now that the mine is closed. Landowners fear that they will be left without permanent domestic and agricultural water supplies and that the company will stop paying for the temporary public water supply that has been provided for years. These landowners are also concerned that property values will be greatly diminished if acceptable permanent agricultural water supplies are not developed from natural sources rather than a regional supplier.

DMRM could not provide information on the number of water supplies impacted or the length of time between impact and permanent replacement at each mine. Therefore, we asked each company to provide this information. Two out of three companies provided some information about water supplies.

During the draft report review period, mining company representatives pointed out that they provide DMRM with quarterly monitoring reports for all water supplies that have been or will be undermined. Therefore, DMRM has information on those water supplies impacted by each mine. Based on our past experience, DMRM does not have a defined process for evaluating or reporting the results of quarterly water monitoring provided by the mining industry. Therefore, DMRM could not provide information on the extent of impacts to water supplies caused by longwall mining, how timely the companies were in mitigating the impacts, or the method of mitigation.

According to information provided by one company, there are at least 28 temporary agricultural water supplies being provided by either public or delivered water. Some of these supplies were impacted less than two years ago, but several were much longer than two years. There are some that were impacted prior to 1993 that have not yet been permanently replaced.

Company representatives from another mine acknowledged there are water supplies for which they have continued to provide temporary water for several years. Company representatives indicated that they will generally wait about two years before attempting to replace a well or relocate a spring, but will wait indefinitely for a landowner to decide whether they want public water or the source that existed before mining as a replacement source.

Although representatives at two companies are aware of the concern over water supplies, they do not consider it a problem. Their perspective is as long as they are providing a temporary supply, the concern is under control and they will address permanent replacement as the need arises.

Company representatives at a third mine indicated they have not had a problem with replacing permanent water supplies and do so, in most cases, within one year after they are impacted. This same company indicated, that on occasion, they will purposely continue providing public water temporarily while waiting to determine if a well or spring will reestablish or can be redeveloped before entering into an agreement to provide public water as a permanent domestic replacement. The company also stated that 99.5 percent of the agricultural supplies that are impacted are replaced by like sources or a substitute, if requested by the landowner. Few, if any, agricultural supplies are replaced with public water.

DMRM field representatives concurred that permanent replacement of agricultural water supplies is an issue, but attributed their inattention to this issue to staffing limitations and a lack of guidance or policy from their agency. A DMRM manager indicated that permanent replacement should be addressed when a mining company requests permission to stop monitoring water supplies or when providing a final response to a citizen complaint. When a company asks to stop monitoring, a DMRM hydrologist

must evaluate the request and determine whether additional monitoring is needed, if the supply was impacted, if the supply recovered, or if the impacted supply was replaced. If the mining company does not request to stop monitoring, if the landowner does not complain, or if DMRM field staff do not request a DMRM hydrologist to evaluate specific water supplies, DMRM does not make a determination on permanent replacement. Therefore, a determination on an acceptable replacement water supply remains unresolved indefinitely.

We found through our review that State court decisions, Federal rules, DMRM policy, and water replacement plans in approved permits all provide direction, policy, and standards for temporary and permanent replacement of impacted water supplies. In Citizens Organized Against Longwalling v. The Division of Reclamation, Ohio Department of Natural Resources and Southern Ohio Coal Company, Fourth District Court of Appeals, Meigs County, Case Nos. 380 and 410, 8/26/87 and 6/7/89, the court stated:

At the very least, the statute requires that the water replacement plan should contain the following.... (3) if liable, the plan must set forth a definite, specific time deadline within which the permit operator will replace or repair the water supply.

As a result of the court decision, DMRM issued PPD Underground 93-2 on February 15, 1993. This PPD states:

Subsequent to interim water replacement, the Division's Technical Section Hydrologist will determine the need for any permanent replacement of an affected water supply. Since water supplies impacted by subsidence may recover to pre-mining levels, the Division's final determination may be delayed by one to two years.

Each of the water replacement plans contained in the approved mining permits states that the company will complete permanent replacement within 18 months after it has been determined that mining impacted the water supply.

Based on these references, permanent replacement of impacted water supplies must be accomplished within a reasonably defined time limit. The time limit provided in each mining permit is 18 months. DMRM's written policy provides that one to two years may be necessary before they can make a conclusive determination on subsidence impacts to water supplies. This time allows for water levels to re-establish after subsidence. However, in most cases, there is no dispute that water supplies over a longwall mine are impacted by mining. Mining companies are already providing temporary water supplies. The unresolved issue is what is an acceptable permanent replacement and when must it be developed.

DMRM and industry indicated that permanent replacement within 18 months with a source other than public water may not be feasible in all cases. Seasonal fluctuations, complexity of investigation, accessibility to properties, and other circumstances can impact the permittee's ability to achieve permanent replacement within a specified time frame. Although these specific problems can exist, they do not alter permits that specify permanent replacement within 18 months. **DMRM established the 18-month criteria** based on an Ohio court decision. If DMRM believes this standard is unreasonable in some cases, there should be some formal documentation to support a different time frame, either in each permit or on a case-by-case basis. We did not obtain any information through our interviews with DMRM or industry representatives indicating that DMRM or industry had documented that a different standard was or should be established.

Waiver of Water Supply Replacement

During our review, we learned of one landowner who entered into an agreement that waived the coal company's obligation to replace impacted water supplies on the property. We do not have direct knowledge of additional agreements like this or the specific terms of this agreement. We did not search out other similar agreements that may exist as such agreements may be kept confidential between landowners and coal companies. It is important to address this issue to ensure the Ohio water replacement requirements are fully understood by landowners and to ensure that future agreements provide for full implementation of program requirements. The Ohio Program and Federal rules require that a waiver from replacement can apply only to installation of a water delivery system not needed for the present land use and only where the permittee has demonstrated that a water source comparable to that which existed before mining is available.

Ohio Revised Code (ORC) 1513.162 and Ohio Administrative Code (OAC) 1510:13-9-04(P) state:

*The operator of a coal mining operation **shall replace** the water supply of an owner of interest in real property who obtains all or part of his supply of water for domestic, agricultural, industrial, or other legitimate use from an underground or surface source where the supply has been affected by contamination, diminution, or interruption proximately resulting from the coal mining operation... (emphasis added)*

ORC and OAC require replacement of all legitimately used water supplies.³

³ During our interviews, we heard concerns about determining whether water supplies/sources are developed or have a legitimate use. Current DMRM policy provides little guidance on this issue. Additional

OAC 1501:13-12-03(E) addresses landowner/permittee agreements and states:

Any agreement between the operator and a surface owner which addresses the repair of or the compensation for damage to the surface owner's structures shall take precedence over the provisions of this rule and the provisions of this rule shall not apply to any damage to such structures.

This provision clearly applies only to structures and not to land or water resources. The Ohio Program does not provide for a waiver of an operator's obligation to replace a water supply affected by a coal mining operation.

Although Federal provisions only apply to domestic water supplies, they do provide some background regarding compensation in lieu of meeting replacement responsibilities. The following Federal citations are included only for the purpose of providing an additional perspective to this issue. SMCRA Section 720 and 30 CFR 817.41(j) both contain similar requirements. 30 CFR 817.41(j) states: "The permittee must promptly replace...." In the Federal Register announcing final rule 817.41(j), (60 FR, 16733, March 31, 1995) a comment and OSM's response is stated as:

A commenter recommended that compensation be available as an option for those limited circumstances where an impacted supply can't be restored.....OSM does not agree. The terms of the Energy Policy Act unequivocally require replacement.

In the same Federal Register, page 16727, OSM responded to other comments about the need to provide a replacement water supply that is not needed for the postmining land use. OSM requested comments on an alternative provision for water supply replacement (59 FR 37953). This alternative provided that, if a landowner confirms in writing that the owner does not desire replacement of a water delivery system and no such system was in use when the water supply was impacted and the delivery system is not needed to support the postmining land use, then the permittee may provide replacement by demonstrating that an equivalent water source exists and can be developed if desired by future owners. OSM decided to adopt this provision and stated:

...The only feature that may be waived is a water delivery system that would not be used for the postmining land use, and was not needed for the land use that

guidance on this topic may be helpful to DMRM staff, industry, and landowners.

existed before mining. Also, the permittee must demonstrate the availability of a water source equivalent to premining quality and quantity...

These Federal citations are clear that water supply replacement or the availability of a water source for future development of a water supply cannot be waived. In certain circumstances, a landowner may waive installation of a water delivery system if the permittee demonstrates that the water source can be developed by future users.

In addition, OAC 1501:13-4-14(E) requires that each permit application contain a plan for protecting the hydrologic balance. The plan must be specific to the local hydrologic conditions. It must describe the measures to be taken during and after mining: to minimize disturbance to the hydrologic balance; to prevent material damage outside the permit area; and to protect the rights of present users of surface and ground water within the permit and adjacent areas. Each of the permits contain a hydrologic protection plan and a water supply replacement plan that implement these rules. These plans state how the permittee will protect the hydrologic balance and how impacted water supplies will be replaced. The plans generally indicate that long-term damage to the hydrologic balance is not expected and aquifers and streams are expected to reestablish within a reasonable time. All indications in these plans are that the impacts to wells, springs, and streams will be temporary and that, if necessary, permanent replacements and/or repair will be provided. The plans commit the permittee to minimizing impacts to the hydrologic balance and to replacing water supplies, including streams, springs, wells, or other water supplies with a legitimate use.

Where DMRM is aware that water supplies with a legitimate use prior to mining are impacted by mining and have not been replaced, DMRM indicated that they will hold mining companies responsible for replacing these water supplies and correcting damage to land, regardless of the terms of private agreements.

Type of Permanent Replacement

During our interviews, we heard from some landowners who had wells and springs as domestic water supplies prior to mining. They would like to have these supplies restored even though they are now connected to public water. DMRM's policy that public water is the preferred replacement source for impacted domestic supplies does not support landowners who may desire to have an impacted well or spring replaced. DMRM prefers that this issue be negotiated between landowners and companies. However, landowners should be informed that accepting public water as a permanent replacement may not be the only option if a domestic well or spring can be replaced. DMRM and mining companies should consider the landowners's desires for a water supply similar to that existing before mining, whenever possible. In cases where a well or spring cannot be reasonably replaced, public water may be the only alternative for a permanent replacement.

Based on our interviews, DMRM's policy on permanent replacement issues is not clear to staff and landowners, probably because mining companies have addressed most issues without the need for DMRM's intervention. As a result, the company may not disclose all options or DMRM and landowners may accept public water as a permanent replacement when other viable options may exist that are more desirable to them.

We are not suggesting that DMRM be directly involved with private agreements between coal companies and landowners. However, DMRM should be aware of the basis and general content of agreements when evaluating the appropriateness of mitigation measures. We are suggesting that everyone involved should know what the law, rules, and DMRM policy provide to be better prepared when negotiating agreements and evaluating mitigation measures.

Timely, permanent replacement, especially of agricultural water supplies, is a matter that requires closer attention and increased scrutiny by DMRM and industry. DMRM has not directed adequate attention to ensuring that companies meet their obligation to permanently replace impacted water supplies in a reasonable time.

Recommendation - DMRM should develop and implement a clearly defined process that documents all impacted water supplies at all longwall mines. DMRM should ensure that all impacted supplies are replaced with an acceptable permanent water supply according to the Ohio court decision and time frames established in the permit and by DMRM policy.

DMRM should clarify and implement policy explaining: DMRM's and the permittee's responsibilities with regard to waiver of water supply replacement; informing landowners of the viable options for permanent replacement; and determining legitimate use of water supplies.

Finding II. Cost of public water as a permanent domestic water supply replacement - *In cases where public water is provided as a permanent replacement for domestic use, responsibility for paying for future costs of this water is generally addressed through agreements between the company and the landowner.*

DMRM PPD Underground 89-1 states: *Public water will continue to be recognized as a preferred replacement water supply for residential use.*@

DMRM PPD Technical 93-1 Water Supply Replacement (June 30, 1993) states: *The Division shall consider payment of user's fees (i.e., monthly water bills) to be a private matter between the permittee and the affected party.*@

DMRM and the mining companies are following these policy guidelines. Each of the mining permits contain slightly different information and commitments about how each company will address permanent replacement by providing a public water source. The permits acknowledge the company's

responsibility to provide and pay for replacement water supplies. Each company includes a slightly different statement addressing costs of public water after the initial tap-in. A fair summary of the three permits is that each company reserves the right to enter into agreements with landowners about how they will compensate landowners for future water costs after the connection to a public water supply is completed.

For example, one mining permit states: *While it will be the policy of to replace a water source, payment of water bills will be the responsibility of the water user, unless otherwise agreed upon by and the water user.*

Another permit states: *Alternative supplies may include...a public waterline tap-in... Costs of such alternative source will be borne by* The plan goes on to say: *All costs of repair and/or replacement to provide the affected property owner with an equivalent water supply to that which he had prior to mining (based on the pre-mining survey) shall be paid by*

A third permit includes similar statements. It also indicates that the company reserves the right to develop an alternative water supply in consultation with the landowner and to enter into agreements with landowners that include terms about how the water supply will be replaced and responsibility for costs for the replacement.

Based on interviews with company representatives and landowners, we found that one company's general approach concerning water replacement with a public water supply includes an offer to pay the equivalent of 20 years of water bills based on normal usage. Another company's general approach is to pay for public water until mining is completed under the property and to offer \$2500 for each domestic well or spring that was replaced by a public water supply as compensation for paying future water bills.

We were unable to obtain information about the third company's general approach, but believe that it is site and landowner-specific.

In *Citizens Organized Against Longwalling v. the Division of Reclamation, Ohio Department of Natural Resources*, Court of Appeals Meigs County, Case no. 380, August 26, 1987, the court stated:

...More importantly, from appellant's point of view, piped water involves a monthly water bill which intervenor apparently expects the landowners to pay. In order for piped water to be a true replacement water source, we believe the coal mining operator would have to pay the bill. We note R.C. 1513.162(A) contemplates a cost-free water supply replacement for the landowner:...

This case concerned deficiencies in an applicant's approved water replacement plans at the time. The Court ordered revisions to the plan. DMRM required all three companies to revise their water replacement plans in response to the decision. The issue of payment for costs of public water is addressed in the revised plans as mentioned above. The revised plans address the court decision by acknowledging that individual agreements may address payment for permanent water replacement.

OSM rule-making reached a similar conclusion concerning the permittee's responsibility to pay the entire cost of public water used as a permanent replacement. The preamble in the Federal Register (60 FR, March 31, 1995, 16726) to 30 CFR 701.5, definition of "replacement water supply," stated:

OSM maintains that payment of replacement water supply operation and maintenance costs in excess of premining costs is a logical aspect of the requirement to replace the water supply. This provision would ensure that the owner or user of the water supply is made whole, and that no additional costs are passed on to the water supply user after the replacement water supply is installed...

A lump sum payment may be preferable to annual or other periodic payments because only one transaction is needed. Annual payment is not assured if the permittee encounters financial difficulties or goes out of business. Periodic payments could involve complex calculations and excessive and unproductive paperwork and record-keeping. Provision for a lump sum payment should reflect the predicted useful life of a water supply delivery system. For example, 20 years could be a reasonable amount of time to hold a permittee responsible for costs when the delivery system from a spring or well would likely have required repairs within the 20-year period even if the spring or well had not been affected by mining.

The Ohio court decision and Federal rule-making are clear that the permittee is responsible for paying for any additional cost of installation and provision of a replacement water supply beyond that normally expected of the water supply prior to its being affected by mining. In some cases, this means that the permittee is responsible to pay for public water for an indeterminate time, or until another acceptable replacement is provided, or an agreement is reached.

DMRM preferably defers the issue of "user's fees" (monthly water bills) to agreements between the landowner and the permittee. We are not aware of any cases that required DMRM to resolve instances where the landowner and the mining company could not reach agreement on this issue. However, DMRM has recognized that they could be faced with a situation of establishing a value of increased operation and maintenance costs if an alternative supply similar to that existing before mining cannot be provided free of charge. DMRM believes that determining these costs is best left to negotiation between the mining company and the landowner. DMRM indicated that, if negotiations between the parties were unsuccessful, they would determine the reasonableness of such costs. DMRM is currently reviewing a process used by another State for determining these costs in case this matter develops in the future.

Since DMRM's policy generally defers Auser's fees@to negotiations between the permittee and the landowner, we are concerned that everyone may not be aware of the obligations of the mine operator to pay the cost of a permanent water supply replacement as stated by the Ohio court decision. We encourage agreements that address compensation of future Auser's fees,@but believe all parties must be fully aware of the regulatory requirements when negotiating agreements. DMRM staff should be fully knowledgeable of the program requirements so they can provide guidance to landowners seeking assistance from DMRM.

Recommendation - DMRM should clarify its policy about permittees' responsibilities to pay the cost of permanent water replacement as specified by the Ohio court decision. DMRM should provide a better source of information for landowners and better enable their staff to respond to inquiries from landowners about obligations for paying Auser's fees.@

Finding III. Documenting the extent of impacts and mitigation - DMRM does not have an inventory or other documented source of the overall impacts caused by longwall mining at each mine or of the mitigation efforts taken to correct all impacts.

Our review found that DMRM is not implementing its policy regarding documentation of impacts and mitigation. PPD Underground 90-2 (April 1, 1990) directs inspectors to document and track all subsidence-related damage, including that identified by the permittee and that identified through monthly inspections and by complaints. The PPD states:

For each incident of subsidence damage including subsidence damage that the operator notifies the Division of, the attached form entitled ASubsidence Damage Report@will be completed by the inspector. This report will be used by the Division to track all subsidence damage from the date of discovery through the date of final resolution. Such follow-up will ensure that all subsidence damage has been identified and repaired or mitigated.

Landowners and other interested parties are concerned that no agency or person, other than the individual mining companies, has a good idea of the overall extent of the impacts from longwall mining. DMRM has little documented information about how effectively and timely impacts are mitigated. DMRM receives complaints and conducts investigations on a small percentage of the properties that are undermined. In many respects, the small number of complaints can be attributed to the success of the mining companies addressing subsidence-related impacts. Another reason for the low number of complaints is that impacted landowners are satisfied with mining companies' mitigation or compensation efforts; otherwise, landowners would be filing more complaints.

A negative aspect of DMRM's not documenting all impacts, especially environmental impacts and how they are mitigated, is that compliance with the environmental protection standards may not be evaluated.

DMRM should document all impacts and mitigation, especially impacts to land and water resources.

Although individual DMRM inspectors may be aware of most impacts caused by mining and mitigation measures on a site-by-site basis, there is no collective source of information. Collective data and information could help DMRM ensure that all impacts are mitigated properly and timely, and provide DMRM with a tool to better manage and report on the overall impacts.

Underground mine permit applications include an inventory of renewable resources. This could provide baseline data to supplement data collected during inspections. Full implementation of DMRM's policy would provide a comprehensive inventory of subsidence-related impacts and mitigation action taken on each impact at each mine. It would provide documentation of the timeliness and adequacy of mitigation and repairs. It would also provide a public source of information on the overall impacts of longwall mining on the environment and how the industry mitigates those impacts. DMRM, industry, and the public could use this information to report on the success of the longwall mining program in Ohio.

Recommendation: DMRM should fully implement PPD Underground 90-2 by documenting and tracking subsidence-related impacts and mitigation of each impact to ensure that all environmental standards are addressed and that proper mitigation measures are completed in a timely manner. Documentation will provide a source of information on the impacts of longwall mining and mitigation of those impacts.

Finding IV. Repair of and/or compensation for damage to structures - *the timeliness of providing repairs to or compensation for damaged structures varies among companies and specific situations.*

There are many legitimate reasons that repair times vary from site to site. Some of these reasons include: potential impacts from future mining, landowner requests, number of homes subsided at one time, terms of individual agreements, time of year, amount and type of repairs necessary, availability of materials, and other factors. The permanent repairs to the homes that we visited that were completed or in process appeared well

done. It was apparent that the mining company was working with the landowner and that repairs, in some cases, may have exceeded minimum requirements. Based upon site visits to eight homes undermined by three mining companies, we found that two companies made permanent repairs to structures or compensated owners for damages. The third company does not make permanent repairs to structures, but compensates owners for damages.



Three homes undermined by one company had not been repaired and the owners had not yet been compensated based on the terms of the agreements signed by the owners, according to the company representative. The agreements said that damage compensation would not occur until one year after mining was completed under the properties, not just the home. One year had passed on these three homes. The owners said that the company took some minimal temporary measures such as filling cracks in foundations during this period. However, each of the owners had been concerned about the condition of their home for several months since they were undermined. One home experienced severe structural damage both to the interior and exterior about six months prior to our visit. Another home was subsided a year before our visit. The company representative indicated that damage estimates would be conducted and settlements negotiated in the near future, per terms of the agreements with each landowner.

We talked to two of these homeowners again in April 2000, to determine the current status of their situation. One reported that they just recently received a letter from the company stating that they would be coming to the home to do a damage review and estimate in May 2000. She also indicated that the company had not contacted them or done anything since we visited their home in October 1999. The second homeowner provided a similar report. He said that the landslide that was repaired last fall had recurred, and the company had not compensated him for trees that were lost due to the repair of the landslide. He indicated that the company has been unresponsive to his telephone calls.

Another company reached a monetary settlement for damages to structures with two landowners in lieu of making actual repairs. The same company repaired a third landowner's house.

We visited with one of these homeowners in June 1999, after his property was undermined in the fall of 1998. The company had not yet made any permanent repairs to the house because it was likely that the next mining panel would impact the property again.

We talked with the homeowner again in April 2000.

He reported that he accepted a monetary settlement for damages.



We visited another home undermined by the same company before, during, and after repairs were completed. Damage to this house included cracks in the foundation walls, separation of drainage lines, cracks in the chimney, some buckling of flooring, damage to a porch, and wet areas in the yard, among other things. The company replaced the entire foundation, provided a full basement where a crawl-space previously existed, installed a new exterior chimney, replaced flooring in part of the house, and reestablished drainage in the yard, along with other repairs. We talked to the homeowner again in April 2000. He was mostly satisfied with the work that was accomplished. He had a couple of lingering problems with construction that he is working with the company and the contractor to resolve.

We visited a third property in July 1999 that was mined by this company, and spoke with the owner. He had accepted a monetary settlement for damages to structures on his property that were undermined in August and September 1998. We revisited the site in May 2000 and found that the owner sold the property.

The third mining company was in the process of repairing a house on the day we visited the property in September 1999. The owner said that he was pleased with the work being done, including replacement of portions of the concrete block walls and foundation, improved drainage around the house, installing a patio, and other repairs and improvements. Company representatives showed us the exterior damage to barns and a house on another property. The company took measures, prior to subsidence, to limit damage to the foundation and the cistern. We did not talk with the owners at this property.

We talked to DMRM and company representatives in April 2000. Both indicated repairs were completed on both properties except for some final work restoring the yards. The foundation was replaced under one home and repairs were made to the cistern and barns. We spoke with one homeowner again in April 2000. She said that the repairs to the house and garage were completed in

January and that the company was now making repairs to the yard. She indicated that the company had done a good job and that, even though things didn't go exactly as they initially expected, they were able to work with the company. She said that the experience worked out to a happy conclusion.



DMRM field representatives said that once agreements are signed, their involvement and ability to enforce a time schedule for repairs and/or compensation for damages to structures is limited. This approach is based on OAC 1501:13-12-03(E) that states:

Any agreement between the operator and a surface owner which addresses the repair of or the compensation for damage to the surface owner's structures shall take precedence over the provisions of this rule and the provisions of this rule shall not apply to any damage to such structures.

And OAC 1501: 3-12-03(H) that states:

If and when subsidence causes material damage to structures or facilities ... and if the operator has not reached an agreement with the owner of the structures or facilities:

(1) The underground operator or permittee shall submit to the chief within thirty days after receipt of the notice provided under paragraph (C) of this rule....

(2) The operator shall fully perform the obligations specified in any plan submitted in accordance with paragraph (H)(1) of this rule within the time period stated in the plan....

DMRM policy differs somewhat from the views expressed by field staff. A DMRM manager clarified that, whenever a mining company is not meeting its responsibility to provide timely repairs or provide compensation for damage to structures, DMRM should issue the company a damage notice and require the company to provide a repair schedule as they do when an agreement is not in place. DMRM stated that repairs and/or compensation must be in accordance with the rules, regardless of the content of an agreement. DMRM also pointed out that a very high percentage of the landowners obtain agreements regarding structural damages and water supplies and usually do not call DMRM to resolve any of these issues. DMRM encourages resolution of these issues between parties, due to the unique situations that arise in each case and the fact that private agreements may address other issues that they do not regulate (such as inconvenience compensation). DMRM acknowledges its obligation to inspect for land damages, to know the status of repair of structures and replacement of water supplies, and to properly evaluate requests to stop hydrologic monitoring.

In most cases, mining companies abide by the terms of the agreements, work with landowners, and make repairs or provide compensation within the time specified by the agreement. However, in some cases, landowners may be vulnerable to delays or inaction by the mining company in fulfilling all of the terms of the agreement. Once an agreement is signed, DMRM has stated that it maintains an ability to enforce repairs of structures or compensation for damages in a timely manner, regardless of the terms of agreements. However, the DMRM field staff do not appear to be aware of this interpretation, resulting in their being less than fully responsive to some landowners' concerns.

We are not discouraging agreements, because agreements allow individual interests beyond the regulatory reach to be addressed to the satisfaction of the parties involved. We are also not suggesting

that DMRM become directly involved with negotiation of private agreements. However, DMRM inspectors should be completely aware of the mitigation efforts that are or are not being accomplished. In some cases, DMRM staff may need to get more involved to ensure that mitigation efforts comply with program requirements and are occurring in a timely manner, regardless of the terms of private agreements.

Recommendation - DMRM should clarify its policy concerning timely repair and/or compensation for subsidence damage to the field staff so they can better respond to concerns expressed by landowners. DMRM should also reinforce guidance to staff concerning the responsibility to be aware of the status of repairs to structures, land, and water supplies and to document when repairs are accomplished. Also, see recommendations under Finding V.

Finding V. Communication, information, and understanding - *Based on our interviews, mining companies and DMRM do not always communicate well with landowners and take the time necessary to help them understand the obligations, responsibilities, and expectations related to the impacts from longwall mining. Landowners, understandably, may not always fully comprehend initial company and/or DMRM explanations, but may not seek out additional information that will help them better understand their rights and the coal companies' responsibilities.*

There is no easy way for a mining company representative or anyone to convey to landowners the fact that future mining could damage their home and water supplies and that the law allows this damage to occur. Regardless of requirements and promises that the company will repair damage, compensate for the cost to repair the damage, and offer compensation for inconvenience, landowners can be naturally unsettled with the circumstances they are facing. Therefore, there is a tendency for the relationship between the company and the landowner to be contentious. The effectiveness of the company's approach in communicating with landowners directly relates to its success in managing this tension.

Our interviews indicated that landowners undermined by one company were very frustrated, based on their perceived lack of communication from the company and, especially, with the manner in which company representatives presented agreements to them. Three landowners said that this company approached them with agreements either just before or on the same day that their homes were being undermined. Each expressed feelings of vulnerability with little option other than to accept the company's offer. These owners did not seem to have a good understanding of the terms of the agreements they signed. They were irritated because they didn't understand why their home had not yet been repaired or they had not been compensated.

Landowners undermined by the other two companies expressed some degree of concern about the length of time between undermining and repairs. This concern was generally directed at a perceived lack of communication from the company about when they would start and complete the repairs. Some landowners knew why repairs had not yet been accomplished. One was displeased about the way the mining company treated him. He said the company had not addressed his concerns, but he accepted a monetary settlement for damage to his home, property, and water supply.

The predominant complaint we heard from the landowners at each mine is that companies do less than an effective job of communicating with them, especially concerning when and how repairs or compensation will be accomplished. One way to minimize this concern is to provide frequent updates to landowners concerning repair schedules and methods, either in person, by phone, or in writing. The frequency of the updates should be based upon each landowner's specific situation. Another way is to be responsive to phone calls and concerns voiced by landowners. Although these suggestions are not requirements, they could improve working relationships and landowners will at least know what to expect and when.

The mining industry may help lessen the controversy and improve the public's and landowners' perceptions about longwall mining, by being willing to continually improve their public relations and communication efforts. Increased public outreach to those involved would help to clearly explain all of the terms of agreements, explain those obligations the company must meet regardless of agreements, and provide a reasonable time for owners to consider the terms of any agreements well before undermining. During and after mining, affected landowners should be advised of exactly what repairs will be made and when, notified as early as possible of any changes to repair schedules, and frequently contacted after undermining and during the repair process. Based on our interviews with company representatives, each company believes they take extraordinary efforts to explain all of these factors to landowners.

DMRM could initiate efforts to provide better information that may improve communication with landowners prior to mining. The information should clearly explain the obligations of the permittee. Unless a complaint has been filed, DMRM may not have a clear opportunity to get involved with communication between the landowner and the company. Arranging to meet individual landowners ahead of mining would provide an opportunity to answer questions they may have and for the DMRM inspector to explain the legal obligations of the company. Another way that DMRM could improve communication is providing landowners with basic information in an easy to understand pamphlet. The pamphlet should explain the basic requirements the mining companies must meet and where landowners can obtain additional information. DMRM has developed a pamphlet, but the content and efforts to distribute the information may not be effective. DMRM inspectors could leave a copy of the pamphlet and the inspector's business card at homes with a message stating when the inspector can be contacted with questions. DMRM could also mail copies of these pamphlets to all landowners who will be affected by longwall mining at the time the permit is issued. Another option is that DMRM ask mining companies to include a copy of the pamphlet at the same time they send their premining notices. These are ways that DMRM could help improve communication and better inform landowners of the obligations of the mining companies and what to expect as mining progresses.

Our interviews with landowners indicated that some owners may have taken little initiative to learn about the mining process and the laws and rules that regulate it before mining approached their property. Some landowners naturally felt intimidated, were frustrated, lacked little knowledge of the mining regulations, and had no experience with this type of situation. Others we spoke with were very knowledgeable and had obviously taken the time to learn about the mining process and the legal obligations of the coal company. One even encouraged others to seek out information from DMRM and OSM. Some were totally dependent on the mining company representative and some were unaware that DMRM existed. Some were unfamiliar with the terms of agreements they signed and were upset with the mining company, even though the company was fulfilling the terms of the agreement.

Each company notifies each landowner at least six months ahead of mining. The notice provides the name and address of the mining company, location of the mine plan, and some include the phone

number of a DMRM office where additional information may be obtained. Landowners should take advantage of the time provided by the premining notice to learn about the mining process and the legal obligations of the mining company. Landowners should be aware of protections that exist under the law and options that exist so they can make informed decisions when negotiating agreements. Landowners, for their own protection, are encouraged to seek out information and to understand the issues they will face before their property is undermined.

Recommendation - DMRM and/or the mining companies should distribute to all landowners who will be affected by longwall mining, an informative pamphlet developed by DMRM that clearly explains the obligations and responsibilities of mining companies and DMRM related to longwall mining. Landowners are encouraged to help themselves deal with the undermining of their property by seeking out information from DMRM and the mining companies concerning the longwall operation and the company's obligations under the law before mining approaches their property.

Summary:

Longwall mining is a mining method that has a physical impact on private property and on the hydrologic system, and an emotional impact on affected property owners. Therefore, it is very important that all affected parties know and understand the obligations of the mining companies; the responsibilities of the regulatory authority; and the protections provided to landowners under the law and regulation. We are not suggesting any changes to current Ohio law or rules, as we found that the existing Ohio Program meets or exceeds Federal standards. We are suggesting that DMRM clarify and reinforce policies that currently exist to provide more consistent understanding and better implementation by DMRM and industry.

Overall, the mining industry does an admirable job of addressing its obligations concerning impacts from longwall mining. However, there are some areas where the mining companies and DMRM could more effectively meet and carry out regulatory requirements. Mining companies, DMRM, and landowners do not always take advantage of the opportunity to improve communication and understanding of the program requirements and each other's responsibilities and obligations. We acknowledge there will always be some opposition and disagreement concerning longwall mining. However, better communication may lessen some of the emotional stress associated with longwall mining by providing a better understanding of the program requirements and obligations and expectations.

We found that all mining companies are meeting their obligations to provide a temporary water supply. Two mining companies are not meeting the time standards contained in their permits for providing permanent replacement of impacted water supplies. An Ohio court decision imposed an obligation on industry and DMRM to include a specified reasonable time for replacing impacted water supplies in water replacement plans in permits. DMRM has not directed adequate attention to ensuring that companies permanently replace impacted water supplies, especially agricultural supplies, within a reasonable time. DMRM should clarify its responsibility and the obligation of mining companies to

comply with permit requirements to provide timely permanent water supply replacement to field staff. DMRM should also clarify its responsibility to ensure that all legitimate water supplies are replaced and that regulatory requirements are not improperly waived through a private agreement with a landowner.

Current DMRM policy requires inspectors to document and track impacts resulting from longwall mining to ensure proper and timely mitigation. Documenting the overall impacts of longwall mining and mitigation of those impacts is necessary to ensure that each mine operator meets the repair and/or compensation and environmental restoration requirements. DMRM should document and track impacts and assess the timeliness of repairs and/or compensation and the appropriateness of mitigative measures, especially those related to water supply and land repair.

To help improve communication, DMRM should take a more proactive effort to educate staff and landowners about the obligations placed on mining companies under the law so that landowners are more aware of these obligations when considering agreements offered by mining companies. This could be accomplished by providing a well written, informational pamphlet explaining the Ohio program provisions related to longwall mining to all landowners who will be impacted by longwall mining.

Appendix I

Summary of Comments on the Draft Report and our Response

We provided copies of the draft report and asked for comments from: DMRM, three coal companies who conduct longwall mining in Ohio, 15 landowners who have either been undermined or have expressed interest to our office on longwall mining issues, one environmental organization, one coal industry association, and a person in the Ohio Geologic Survey. At their request, we met with representatives of two mining companies and the coal industry association to discuss the draft report. We also met with DMRM. We received written comments on the draft report from DMRM, three coal companies, the coal industry association, one landowner, a person with the Ohio Geologic Survey, an environmental organization, and a verbal response from another landowner. We are providing this summary of the comments and our responses to better explain and present this report.

1. One commenter took exception to the report's reliance upon subjective, anecdotal observations, and its focus upon exceptions rather than trends. The commenter objects to the basis of the report without placing the data in some context to show if the comments are anomalies or identify a trend. Another commenter questions our methodology, the few number of landowners included in the study, and the way in which they were chosen. Both commenters suggest there were not enough landowners included in the study to make inferences of program implementation or identify any trends and does not represent the opinion of the majority of the landowners affected by mining. A third commenter recognizes there is always room for improvement in any system, but that no system will ever achieve 100 percent satisfaction. The commenter further states that, if it was OSM's intention to find a few dissatisfied landowners, then OSM was successful. The commenter suggests that the rules and policies will not fit every situation and that common sense and logic must override policies and procedures on occasion, and regulatory agencies must allow flexibility.

We acknowledge that the study was not designed to be a scientific or statistical analysis with the purpose of identifying trends. We revised the report to clarify this point. The purpose was only to gain a better understanding of the policies and practices implemented by DMRM and the mining industry in carrying out their obligations under the Ohio program regarding impacts of longwall mining.

We cannot agree that the report relies on subjective and anecdotal observations. The findings are based upon interviews that were conducted with the regulated industry, the regulators, and some of the landowners impacted. The findings are supported by information or, in some cases, lack of information available from DMRM.

In response to the comment that we did not interview enough landowners, we did not find it necessary to seek out additional landowners to achieve the purpose stated in the study outline. Those we interviewed provided adequate information for us to gain a basic understanding of the processes DMRM and the industry follow to implement the regulatory standards. We revised the report to clarify this point. We wanted to talk to those recently impacted by subsidence or actively in the repair or compensation process for two reasons. One was to be sure we were

getting information on the current policies and practices of DMRM and industry. The second was to minimize the chance of re-opening past individual landowner issues that may have been resolved, but not to everyone's satisfaction. We will support any efforts by DMRM or industry to undertake a more comprehensive review.

The report acknowledges both positive and negative feedback we received from landowners. We are certain that had we interviewed more people, we would have found those that were very satisfied and those that were very unsatisfied with their experience with longwall mining. We revised the report to explain that the report is not about being satisfied or unsatisfied, but about DMRM and industry meeting program requirements.

2. Three commenters believe that OSM has over-reached its authority by addressing parts of the Ohio Program that are more stringent than the Federal statute and rules. Their comments specifically relate to Ohio's requirement that mine operators are responsible for replacing agricultural water supplies impacted by mining operations while the Federal law does not require the operator to replace those water supplies. One commenter suggests that all of OSM's evaluation of this program component be removed from the report because it is beyond OSM's jurisdiction. Another commenter recommends that OSM allow DMRM some latitude in how it regulates water replacement.

The final report acknowledges the Federal standards do not require replacement of agricultural water supplies. We have also stated that the Ohio program approved under SMCRA is the standard for review of all of our oversight activity. OSM has the obligation and jurisdiction to fully evaluate the approved Ohio program including this program area. Therefore, we have not removed discussion about agricultural water supplies from the report. We note in the final report that Ohio has been ahead of the Federal program in this area for many years and that Ohio recognizes the importance of agricultural water supplies to their citizens and the environment.

3. Two commenters suggest that our use of one example of an inappropriate agreement to waive water supply replacement obligations does not make a trend. One of these commenters says that far too much text is devoted to this one instance in the report, even though the commenter acknowledges the issue. The other commenter suggests that the report does not provide adequate detail to show whether this issue is attributed to minor DMRM implementation problems, program deficiencies, coal operators' deference to landowner wishes, or a combination. The commenter implies that, irrespective of the detail of rules and policies, many damage claims are resolved in their own unique way because of specific circumstances or landowner desires.

We revised the report by combining the discussion about waiving replacement obligations with the discussion under Finding I, instead of under a separate finding. This places the issue in better perspective while continuing to identify it. The report clearly states that the issue was identified by one person. We elaborate on the issue and support our discussion based on current

law and rules to make it clear that water supply replacement can only be waived under very specific circumstances.

4. A commenter suggests that any reference to the feelings of landowners (i.e., being unhappy) are purely anecdotal and subjective and are inappropriate for inclusion in a technical program review.

We revised our description of the landowner's perceptions. However, we do not agree that the landowner's perceptions are inappropriate for this report. We believe that landowner's and others' perceptions or understanding of DMRM's and industry's implementation of the program requirements are important factors to better implement the provisions of the program.

5. Three commenters state that it is not the proper place of an regulatory authority to be a party of the private business affairs of citizens. The commenters say the report suggests that DMRM be involved in negotiations between landowners and mining companies and that OSM is attempting to eliminate private agreements, reduce flexibility, and impose OSM opinion. One commenter states that DMRM should understand the basis for the agreements, but should not be a part of the negotiations.

We clarified that DMRM should not be a party of private agreements, but should be aware of any cases where agreements result in program requirements not being met. We have revised the report to more clearly emphasize that we do not object to private agreements and acknowledge that private agreements provide benefits to both parties that are not part of the regulatory requirements. The report acknowledges DMRM's position that, regardless of the terms of private agreements, the program standards will be carried out. As now stated under Finding V, we believe that DMRM, industry, and landowners, to a smaller degree, all share some responsibility for providing adequate information so the public can make informed decisions and develop agreements that meet all legal requirements.

6. A commenter suggests that the report's theme and focus should be based upon the mining industry's compliance as being reflective of DMRM's general performance.

The report's theme and focus are on implementation of the Ohio Program provisions related to longwall mining. We added a paragraph to further explain this point. As the report documents, the industry, for the most part, is doing an admirable job of meeting their obligations for repair and/or compensation for damages caused by subsidence. Areas where DMRM and industry could improve their implementation are also documented.

7. A commenter suggested specific wording changes to better describe subsidence and the impacts of longwall mining on Page 2 of the draft report. Specifically, they suggested changing the phrase - *A...allowing the strata above the coal to subside.* to *A....causing the strata above the coal to subside.* They also suggested changing the phrase - *AOther times, structures are damaged....* to reflect that most of the time homes and other structures are damaged. The commenter believes that including *Ahomes*

better recognizes that mining impacts places where people live as opposed to a generic description of structures.

We agree with the suggestions and revised the report accordingly.

8. A commenter suggested that the sentence in the Introduction, "Some have expressed concern that regulatory agencies have not documented the extent of impacts caused by longwall mining" be changed to also include a phrase indicating that the regulatory agency has not adequately enforced mining regulations. The commenter also suggests that the sentence "Mining companies are correcting impacts" be changed to say "some of these impacts." These suggestions are supported by the commenter's statement that those expressing concern about longwall mining have also alleged that DMRM has not enforced regulatory requirements.

Although we understand the commenter's perspective, we have chosen not to revise the report. We believe the most prevalent issues brought directly to our attention were related to the lack of information about the overall impacts of longwall mining and were not related to DMRM's not enforcing mining regulations. In fact, we heard very little alleging that DMRM was not enforcing the requirements. We also believe our statement about mining companies correcting impacts is appropriate and have added some additional support for the statement.

9. One commenter recommended that a distinction be made in the Methodology that DMRM policy concerning pre-subsidence surveys may only require companies to "offer to conduct" surveys. The commenter also recommends adding the following phrase - "Many residents have reportedly not received copies of the surveys of their property." These suggestions are based on the ability of a landowner to refuse right-of-entry to carry out the survey and the response to a survey conducted by an environmental group that indicated that 52 percent of the respondents did not receive a copy of the pre-subsidence survey.

We disagree with the distinction made by the commenter between "offering" to conduct and the program requiring that surveys be conducted. DMRM's policy actually requires pre-subsidence surveys. We do not believe the suggested distinction is necessary to cover the rare instances when a landowner may deny entry to conduct the survey. Concerning the second comment, from the landowners we talked with, most, if not all, had received a copy of a video or other form of pre-subsidence survey from the permittee. We believe it more accurate to simply state that the permittee is required to provide the survey to the landowner.

10. A commenter asked that we add the word "usually" as a modifier in the sentence in the Process and Policy section: "Where public water is available, each of the companies usually connect landowners to public water..." The commenter indicates this will be more consistent with other sections of the report.

We agree and have revised the report as suggested.

11. A commenter, in reference to the recommendation for Finding III, implies that OSM should be more specific and direct with its recommendation to DMRM concerning responsibility for paying the cost of permanent water. The commenter suggests that OSM should make it very clear that the operator bears the responsibility of full payment of all expenses incurred as a result of connection to public water for an indeterminate time, including payment of monthly water bills or a lump sum payment in lieu of monthly water bills.

We believe the Ohio court decisions and Federal Register citations referenced in the report give clear direction on responsibility for paying future water costs associated with a public water supply as a permanent replacement. From our review, it was evident that DMRM's implementation of this provision should be clarified. We believe our recommendation to improve policy is adequate and more effective than repeating what the Ohio court has already stated.

12. One commenter suggests that the recommendation for Finding IV be revised to state that tracking of all subsidence-related impacts be accomplished, in part, through DMRM's monthly inspections and complete reporting required under PPD Underground 90-2.

We revised the recommendation to reference the actual PPD. DMRM's policy is already clear that monthly inspections are required and subsidence impacts are to be documented. We also added a statement that DMRM does monthly inspections on active mines. Our recommendation suggests that DMRM implement their policy. Adding the suggested language about monthly inspections does not improve the recommendation.

13. A commenter asks that OSM eliminate a landowners in reference to improving communication from Finding VI. The commenter objects to OSM's suggestion that landowners, as well as industry and DMRM, should improve avenues of communication. The commenter states that landowners are under no obligation to communicate with anyone and suggests that it is arrogant and insensitive for OSM to make this recommendation. Another commenter expressed an opposing view and suggests that few landowners avail themselves of the opportunity to review permit applications during the public review period. Few take the opportunity to contact the experts at the mining company to ask questions or to view maps or plans. A commenter objects to OSM's suggestion that DMRM and industry should do a better job of educating landowners. The commenter places this responsibility on the landowners. Another commenter objects to the report being critical of DMRM in situations where no one has filed a complaint or sought assistance. The commenter goes on to say that DMRM cannot be responsible for a person's hesitation to speak up.

Communication only works when there is at least a two-way exchange of information. One commenter is correct that landowners are under no regulatory obligation to communicate with anyone. However, we find that landowners exhibiting this attitude will not help their position in

negotiating agreements with the mining company or help relationships with DMRM representatives. The report encourages landowners to take advantage of opportunities to become better educated before mining approaches their property. One landowner suggested that other owners seek out information independently and talk with as many as possible, including DMRM, to become educated to improve their negotiations with the coal company.

We believe that DMRM and industry are the organizations in the best position to initiate efforts to provide information that describes the longwall mining provisions and obligations under the Ohio Program to those who will be impacted by mining. The finding and recommendations were re-written to better describe our position and our suggestions for improvement. The finding now reflects that landowners do not always seek out information that may help them better understand the responsibilities of the coal company. We also point out that landowners will be better served if they take the time to become familiar with the mining requirements through additional sources and through open communication with industry and DMRM. We agree that DMRM is not responsible if people do not speak up. However, if DMRM is not aware of all of the impacts and documenting them, as required by their own policy, DMRM cannot assess the mitigation measures to determine if the program requirements are met.

14. One commenter recommends that OSM should not let DMRM off the hook by suggesting that communication with landowners before mining may not always be possible. Two other commenters suggested that DMRM inspectors visit landowners or hold meetings well ahead of mining to explain requirements and processes. A commenter suggests that OSM revise its recommendation under Finding VI to require that DMRM and/or mining companies distribute an informational brochure to all residents who will be affected by longwall mining. In addition, the commenter asks that the recommendation include a statement that DMRM should offer to meet with all affected landowners individually or as a group to explain their rights and the mining process. Another commenter questioned whether DMRM had distributed a guide on longwall mining that he helped to create.

We agree, as reflected in our recommendation, that DMRM could do a better job of communicating to the public on longwall mining issues. We have added some additional ways that DMRM should consider to improve communication. However, the program does not require the regulatory agency to conduct public outreach beyond those ways identified in the report; during the permitting process and through the citizen complaint process. We believe our recommendation that DMRM develop a well-written brochure explaining the longwall process and regulatory obligations and distributing it to all who will be impacted by longwall mining is a viable solution. However, there is no requirement that DMRM do this.

15. A commenter asks OSM to change the phrase *also have a responsibility* under Finding VI and elsewhere in the report to *are encouraged* when suggesting that landowners also need to improve communication and become more educated about the mining process.

We agree and have revised the report as suggested. We also revised some of the text to better describe our position on communication.

16. A commenter objected to our description in the Summary that the mining industry does an admirable job of addressing their obligations. The commenter states, among other things, that the description conflicts with other portions of the report.

We appreciate the commenter's point of view. However, we found that industry continues to address the impacts of longwall mining. We noted some areas that disputably could imply that industry does not always meet the requirements. However, the biggest problem area we identified was permanent replacement of agricultural water supplies. Even though permanent replacement has not always occurred in the time specified by the permits, the companies have continued to provide water on a temporary basis either through public water or delivered water. They are meeting their obligations to provide water, albeit a permanent solution has not yet been developed.

Repairs to properties we viewed were done very well and, in some cases, beyond minimum requirements. Most companies offer inconvenience compensation which is not a regulatory requirement. DMRM receives few complaints about longwall mining, an indication that industry is resolving and addressing most issues. We acknowledge there may be inequities in the way landowners are compensated, but this is beyond OSM's and DMRM's authority as long as the program requirements are met. Inequities may be minimized through better communication with and education of landowners about the coal companies' obligations. Although there are exceptions, based on our experience, we stand by our statement that, overall, the mining industry does an admirable job of meeting their obligations under the law.

17. A commenter asks that we further clarify the summary by adding the phrase **A...there are some areas where the mining companies and DMRM are not in compliance with statutory obligations.** The commenter states that stronger language is necessary to ensure that the report clearly states that DMRM is not fulfilling its own law, rules, and policy. The suggestion also implies that the summary should include the recommendations of the report.

We reworded the summary. However, with the exception of the permanent replacement of agricultural supplies not meeting permit standards, we found that DMRM and industry are generally in compliance with statutory obligations. There are policy and implementation areas that should be improved, but we certainly did not find a disregard of the requirements. The permanent water supply replacement issue is one that has lacked attention. Therefore, we believe a need for improvement in implementation better describes the current conditions. We did not repeat the recommendations in the summary, since they are clearly identified in the report.

18. One commenter questioned why OSM was raising the issues contained in the report in this manner. The commenter assumed that the issues were not serious problems or OSM would have addressed them through a 30 CFR Part 732 action.

OSM routinely conducts special studies as part of oversight of State programs. In this study, the findings are all directed at implementation issues. The 30 CFR Part 732 process is intended to address deficiencies in Ohio's law or rules. During this study, we did not find any deficiencies in that area. We added a statement to the summary affirming that no changes to Ohio's law or rules are needed.

19. Three commenters objected to a recent report from an environmental organization about longwall mining in Ohio. One of these commenters objects to any assistance OSM provided to this group with its survey and resulting report and is suspicious of OSM's intentions with this report. Another commenter objects to any reference to the survey in the OSM report and alleges that by its reference, the OSM report is clearly biased. A third commenter says that OSM considered the environmental organization's survey but did not mention that OSM drafted the survey and the survey responses are not representative. One of the commenters questions the value of the recommendations because of this perceived bias. One commenter also references a meeting between OSM and a group of landowners who were hand-picked and delivered to OSM for purposes of influencing the outcome of the study.

We acknowledge the commenters' objections to the environmental organization's report. However, their report was totally independent from OSM's oversight study. Contrary to the commenters' assertion, OSM did not draft the survey. The environmental organization asked for our comments on their draft survey. We provided suggestions that we thought would improve the questions to better reflect actual program requirements. Upon request, we also provided names and addresses of landowners from the underground mine permits, which is considered public information. The survey was not directed, created, supported, or accepted by OSM in any other way. We said that we considered information provided by the group in our report as only one of many sources of information we considered in developing our own independent report.

The commenters must recognize that for OSM to achieve the stated purposes of the study, it was necessary to interview people with varying opinions and experience with longwall mining. This includes the regulators, the regulated, and those affected. One commenter seems to be recommending that the report should be biased, but only toward the commenter's point of view and that other perceptions or points of view should not be included. This suggested approach is not reasonable nor equitable.

The one meeting mentioned in the report was initiated by OSM's contacting one landowner who has expressed concern about longwall mining for several years. This person asked some neighbors to attend. A representative of DMRM attended. Following the meeting, we viewed three properties that had been recently undermined and interviewed those owners. The results of

these field reviews are reported. The outcome of this meeting did not influence the study any more than our meeting with industry and DMRM representatives. We are confident that this study is very balanced and well supported.

20. A commenter cautions OSM's using broad generalizations given the limited landowner base used in the study. The commenter objects to OSM's conclusion that some mining companies are not meeting the time standards contained in their permits for providing permanent replacement of impacted water supplies. The commenter asks if "some" refers to all companies all of the time or all companies some of the time. Another commenter perceives OSM's report as creating a situation where one company is compared against another. The commenter says that OSM suggested PPD's be developed to address these differences. The commenter also suggests that OSM should not be concerned about differences in company programs.

See our response to Comments # 1 and #4. In addition, based upon comments from DMRM, we eliminated any reference to specific companies and landowners from the report. However, under Finding I, we discuss information provided by two companies concerning impacted water supplies. The third company did not provide the information we requested. One company's information showed that they do not have a problem providing permanent replacement of agricultural water supplies within the time provided by their permit. A second company's information reports at least 28 agricultural water supplies impacted that have not been permanently replaced. We don't know how many exist at the third company's mine. In terms of the comment, we would have to say that some of the companies, some of the time, have not met the permit standards for permanent water supply replacement. We added language to clarify differences in the three company's approaches and a footnote to explain limitations of some references due to the desire for anonymity.

In response to the second comment, we are not familiar with any section in the report that recommends development of PPD's. We do recommend that DMRM clarify or reinforce current policies to field staff so that a more complete understanding and consistent implementation of current policy exists. This suggestion is not directed at differences in company policies, but to DMRM's implementation. We are not concerned with differences in the way companies carry out program requirements as long as they comply with all requirements.

21. A commenter recommends that OSM include some of the advantages of longwall mining over room and pillar mining. The commenter also suggest that we further elaborate on how well the industry compensates and/or repairs damage and replaces water.

We revised the introduction of the report to reflect some facts about longwall mining. Also, see our response to Comment # 16.

22. A commenter stated that he agreed with 75 - 80 percent of our report. He went on to provide several suggestions that other landowners should follow based on his past experience with longwall mining, including encouraging others to contact DMRM. He reported several of the repairs that the coal company made on his property. He also stated that he is aware of only a very few agricultural water supplies that the coal company has replaced with public water. His main comment was about impacts to streams and that some of his springs and streams have not returned to their pre-mining condition after two and a half years. He comments that the mining company has not been responsive to these concerns.

The report addresses agricultural water supplies, which, on a site-by-site basis, could include streams. We included the suggestion that other landowners learn more about the mining process before mining approaches their properties by talking to DMRM and others.

23. One commenter noted that the report discussed the impacts to ground surface, domestic and agricultural water supplies, and buildings, but didn't mention anything about impacts to vegetation, specifically trees, due to longwall mining. The commenter suggested that DMRM or OSM should develop a policy to require this type of documentation.

The scope of this study did not include an evaluation of the impacts to vegetation. The suggestion that OSM and/or DMRM develop policy has merit. We believe independent studies about the impact subsidence may have on vegetation are being conducted in Ohio and Pennsylvania by industry or the regulatory authority.

24. A commenter suggests revising the report to fully acknowledge that DMRM inspectors do evaluate and deal with subsidence-related issues on a monthly basis, and that industry provides DMRM with quarterly monitoring reports that provide extensive information on impacted water supplies.

We have revised the report to acknowledge both of these points.

25. A commenter suggests that OSM does not have a full and accurate understanding of how and why the Ohio Program has evolved to the point it has. Therefore, OSM cannot conduct credible oversight. The commenter further questions how OSM expects the improvements to be implemented when the study relied upon incomplete information and that the information was not sufficiently free of biased opinions.

The stated purpose of conducting this study was so that we would better understand how DMRM and industry implement and meet the program requirements. Although the commenter may disagree, we firmly believe that we have achieved this purpose and that we now have a better understanding of this program area. We recognized the many perceptions, diverse opinions, and disagreements regarding longwall mining and went to great lengths to provide a non-biased study of this program area. We obtained information from industry, DMRM, and landowners so

that we could sort through the opinions and base the findings on implementation of the law, rules, and DMRM policy. We considered litigation history in developing our legal perspective on longwall mining. Each finding is supported by program citations. We changed the report to better reflect this position.

26. A commenter states that it should be clear to OSM that industry and DMRM are in full compliance with Ohio law and are dealing with complex issues in a responsible manner. The commenter suggests that OSM should defer to DMRM relative to programmatic decisions based on their years of experience.

We have added statements to the report that recognize the overall compliance with program requirements and properly note the exceptions we identified. OSM defers to DMRM whenever possible. However, oversight is intended to objectively evaluate State program implementation. When oversight identifies areas needing improvement or areas of non-compliance, we must address these with DMRM. We revised the report to acknowledge DMRM's experience with longwall issues.

27. A commenter recommends that the report be modified to identify that longwall mining was preferred by Congress when enacting SMCRA in 1977. The commenter also suggests that the Energy Policy Act of 1992 was based on voluntary programs already in place which should be reflected in the report. The commenter also would like the report to strengthen its emphasis that none of the people interviewed were without water or face a threat of losing water supplies.

We have revised the report to include some description of SMCRA and the Energy Policy Act as it applies to longwall mining. We also provided a better description of the positives and negatives of longwall mining. We did not revise the report to state that longwall mining was preferred by Congress as we have no basis to support that statement. The report clearly states that none of the landowners we interviewed were without water and we recognize that industry is very timely in providing temporary water supplies. We did not change the report to include any statements about the threat or lack of threat of landowners losing their water supplies as many people have lost the water supplies that existed prior to mining. The report provides an accurate description of the current process and concerns with water supply replacement.

28. A commenter asks that the report make a distinction between a water source and a water supply because the program requires replacement of only water supplies that had a legitimate use.

We agree with the suggestion and have revised the report to make this distinction.

29. Two commenters object to our reference to Federal requirements regarding prompt replacement of domestic water supplies as support for the report's discussion about prompt replacement of agricultural

water supplies. The commenters point out that the Federal standards do not address agricultural water supplies.

*Although the reference was intended to provide a point of reference concerning the term **Aprompt**,@the comment has merit. We have removed this particular reference from the report.*

30. A commenter objects to OSM's use of its **Apinion**@in the report and suggests that may cause more controversy than existed prior to the report.

*We have removed statements that include our **Apinions**@or what we **Athink**@and improved the statements based on facts we identified during the study.*

31. A commenter is concerned that OSM's report suggests there are major problems or concerns with the longwall programs in Ohio. The commenter recognizes that all three companies have varying policies on how to address issues. The commenter further states that OSM should only be concerned with whether the mining industry and DMRM are meeting the requirements of the law. The commenter believes that OSM only listened to a few discontented landowners, addressed their issues, and drafted the report that indicates significant problems need to be addressed. The commenter wonders why OSM is trying to fix something that is not a problem.

We disagree that the report identifies major problems with the way the program provisions regarding longwall mining are being implemented in Ohio. We have revised the report to acknowledge many of the accomplishments of industry and DMRM in carrying out the program. The report, however, does identify some areas where improvements are needed. We have not characterized these areas as program failures or being in non-compliance. The one exception is with the timely permanent replacement of agricultural water supplies. Two of three companies are not meeting the standards of their permits in this area. However, the report recognizes that temporary water is being supplied and is usually provided very timely.

As mentioned in responses to several other comments, we did not listen to only a few discontented landowners. We interviewed representatives from DMRM and industry and obtained their perspectives as well as several landowners, some of which were complementary of their interactions with DMRM and industry. We have revised the report to better explain our contacts. The report provides the many perspectives we encountered, not just positive and not just negative. OSM's report is not trying to fix something that isn't broken. We identified areas for improvement and are very willing to work with DMRM, industry, and landowners to assist in developing the improvements that are needed.

32. A commenter defends his company's success in providing permanent replacement of agricultural water supplies and quotes his company's permit language. The commenter states that they have never varied from the permit language concerning replacement of agricultural supplies. The commenter also

provides a question. *Are the water source covered by law, which sites (sic) any water supply used regularly for agricultural, industrial, or domestic purposes?@*

*We have clarified the report to point out that two of three companies were not meeting permit requirements related to agricultural water supplies and to further recognize that one company does not have problems replacing agricultural supplies in a timely manner. We also quoted a portion of the permit language provided by the commenter related to public water not being considered a primary water supply replacement and that it will not be utilized for permanent agricultural purposes. The commenter's quote from the law is incorrect. ORC 1513.162(A) does not include the word *regularly* in its description of legitimately used water supplies. We provide a direct quote of this section of the law in the report. We also added a note suggesting that DMRM provide guidance on legitimate use of a water supply.*

33. A commenter addresses OSM's concern about timely repair of structures. The commenter includes a discussion on those opposed to longwall mining not wanting repairs to be conducted until 12 months after mining. The commenter believes repairs are possible in as early as 60 days, and that generally agreements call for repairs after six months or sooner based on landowners's wishes. The commenter agrees that communication between the landowner and the company are critical to the successful completion of the project.

No section of the report is critical of repairs being accomplished too soon. We did not hear any suggestions from landowners that repairs were being made sooner than they wanted or any suggestion that repairs be delayed for at least one year. Revised Finding IV acknowledges that the timing of repairs varies, based on case-by-case situations. We added additional text under this finding to describe some of the reasons. Further discussion under Finding IV identifies three landowners who had not been compensated or had repairs completed within one year after mining was completed. These examples highlighted frustration on the landowners' part due to little communication from the company and misunderstanding about the terms of the agreements. We agree with the commenter that communication between the company and the landowner is critical for successful completion of mitigation efforts as addressed under Finding V.

34. A commenter summarized the way his company works with DMRM inspectors regarding keeping track of damage and repairs to structures. This description indicates that OSM should not be concerned about DMRM's tracking damage and repairs. The commenter also explains experience with landowners attempting to use an inspector to gain additional concessions above those previously agreed upon or required by law.

Our discussion under Revised Finding III describes the requirements of Ohio's PPD Underground 90-2 that requires inspectors to document each incident of subsidence damage and to track mitigation of the impact to ensure final resolution meets program requirements. Our

recommendation is that DMRM fully implement this policy. We revised the report to acknowledge that individual inspectors may be aware of site-by-site damage and mitigation, but there is not a collective documented source of this information.

35. A commenter posed three questions to OSM concerning the draft report: What are other states doing? What deficiencies were discovered that would require a rule change? Should OSM have first investigated the complaints that initiated the study to see if they were valid?

The report describes the purposes of the study in detail. What other states are doing may be of interest, but the purpose of the study was not to compare state to state, but to gain a better understanding of how Ohio and the industry are carrying out the standards of the Ohio program. Each state has their own requirements, and how they are carried out is not relevant to our oversight of the Ohio program. We added some text to the report to clearly state that we identified no law or rules that need to be changed. We did not receive specific complaints that initiated the study. We have received general inquiries and talked with people who were concerned about longwall mining. Longwall mining has a big impact in Ohio and is a major part of the Ohio program. Not only is it responsible for a significant percentage of the coal produced in Ohio, it does have an impact on the environment and on private property. We did the study based on public input into our 1999 work plan, DMRM's concurrence of the need for a study in this area, and the fact that we had not conducted a specific oversight study on longwall mining in Ohio.

36. A commenter suggested that OSM revise part of the Introduction to better explain OSM's knowledge of the longwall mining program in Ohio. The commenter also questions OSM's use of perceptions of those people interviewed.

We revised the Introduction in response to these comments and clarified portions of the report that reference perceptions of those interviewed.

37. A commenter suggests the Methodology does not fully describe OSM's landowner interviews as including complainants that sought OSM out as another source for voicing their complaints, since they did not get what they wanted from DMRM or the mining company. The commenter suggests that the report is related too much to landowner concerns and relations.

We acknowledge that some of the interviews were with landowners who contacted us with questions and concerns about program requirements and interactions with industry. We did not consider these contacts as complaints. We took the opportunity to meet with these contacts to obtain their perspective and understanding of the program and how DMRM and industry were interacting with them. Had we considered them as complaints, we would have issued Ten-Day Notices to DMRM. In fact, none of the people we spoke with wanted to file a complaint and most were already working with DMRM and the coal company. Some were pleased with the way

things were going between them and the coal company. Others clearly were not. As mentioned in response to other comments, the report provides a balanced discussion of the many opinions and perceptions that exist, including industry, DMRM, and landowners.

38. A commenter questions how the OSM study can yield meaningful results if OSM did not identify complaints, enforcement actions, etc?

The report states that there are very few complaints filed with DMRM concerning longwall mining. The report also attributes this fact, in part, to the industry's efforts to address landowner concerns. We are also aware there are few, if any, enforcement actions taken due to longwall mining issues. We believe that the number of complaints or enforcement actions would not provide the information we were seeking about overall program implementation and understanding of the processes used by DMRM and industry. We understand that the low occurrence of complaints and/or enforcement actions is one indicator of the success of the program and have added a statement to that effect in the report.

39. A commenter asks for clarification that initial company contact with landowners may occur sooner than one year prior to mining. The commenter also states that the frequency of monitoring is tied to water supplies only, and not to structures in the Process and Policy Section of the report.

We revised the report in response to the comments.

41. A commenter makes a distinction between an approved underground mining area and a permit as used in the Process and Policy section of the report. The commenter indicates that the approved mining area (shadow area) is not subject to the requirements that a permit area is.

The commenter is correct that the shadow area is not part of the Apermit area.@ However, DMRM issues a mining permit for the underground operations, even though it does not include the land surface. This permit authorizes underground mining in the areas designated using the mining methods and plans identified in the application. The same public participation provisions apply which is the point being described in the report.

41. A commenter states that the Process and Policy section of the report does not indicate if the practice of tracking damage by DMRM is done or not. The commenter also indicates that landowners are connected to public water, regardless of their desire, in order to provide water without interruption. In the same area of the report, in reference to mitigation of impacts, the commenter says that action is taken prior to subsidence instead of after subsidence occurs.

This section of the report is intended to describe DMRM's policy and process for identifying subsidence impacts. We did not make judgments about how effectively these procedures were carried out in this section of the report. We address this matter under Finding III. We revised

the report in reference to the comment about public water connection and to clarify when action is taken related to subsidence.

42. A commenter asks if OSM asked DMRM or industry whether a different time standard for replacement of water supplies should be established in lieu of the 18-month standard in the permits. The commenter states that our discussion of there being no evidence that industry or DMRM had sought another standard is too general, because it only refers to those people interviewed.

We did not ask about establishing another standard because the permits are quite clear. Our discussion relates to DMRM field staff's indication that there had been little guidance provided concerning timeliness of permanent replacement. Our review clearly identified that the guidance is contained in the permits, based on the 1989 Meigs County court decision. As stated in the report, if 18 months was not reasonable, we would expect that industry or DMRM would have revised the permits or addressed individual circumstances on a site-by-site basis to properly document the inability to meet the time required by the permits. The key point is that two mining companies and DMRM were not actively addressing the issue. We added a statement in the report to clarify that one company did not have a problem meeting the standard.

43. A commenter disagrees with our reference in Finding II to post-mining land use as it applies to water supply replacement. The commenter states that post-mining land use only applies to permit areas and not to shadow areas.

The reference is taken from the Federal Register. We do not agree with the commenter's assertion. 30 CFR 817.41 states: All underground mining and reclamation activities shall be conducted to minimize disturbances of the hydrologic balance within the permit and adjacent areas, to prevent material damage outside the permit area, and to support approved post mining land uses....@ 30 CFR 817.121(A)(1) requires operators to: A...maintain the value and reasonably foreseeable use of surface lands...@ 817.121(c) requires the operator to: Acorrect any material damage resulting from subsidence caused to surface lands.... by restoring the land to a condition capable of maintaining the value and reasonably foreseeable use that it was capable of supporting before subsidence damage.@ OAC 1501:13-12-03 contains similar provisions.

44. A commenter requests we make a distinction between water supplies with a legitimate use and water sources. The commenter also suggests that the discussion only apply to domestic water supplies and not to streams or springs unless they are used for that purposes.

We revised the report based on the comment about water supplies and water sources. The comment about domestic water supplies does not acknowledge that the Ohio Program also requires replacement of legitimately used agricultural supplies that are impacted.

45. A commenter asks In what cases must the permittee pay the cost of water?@ as it applies to our discussion under Finding III.

We defer to the referenced court cases, Ohio law, and to the Federal Register citations in the report. All of these answer the question about the responsibility of the permittee for paying the cost for replacement water supplies. The report recommends that DMRM provide additional guidelines or clarify existing policy concerning this issue, as we found that the policy is not clear to staff or landowners.

46. A commenter states it is not a condition of the law for a landowner to have the choice in what water supply he/she gets.⁶ The commenter notes that it may be best for companies and landowners to work out the best solution. The issue is not what the landowner wants, but that the landowner has water. The commenter further provides an opinion about the reliability of wells and springs and the negative attributes of these water supplies.

The commenter's statement about the law is one interpretation. Another interpretation is that when the law says "shall replace the water supply," it means with a like source that existed before mining. We are not advocating either interpretation. We agree with the commenter that it is best for companies and landowners to work out the best solution. Our discussion under Finding III suggests that mining companies should provide landowners with an opportunity to have what they had before, if possible, and if that is what the landowner wants. Our objection is that public water may be presented as the only option. DMRM's policy states that public water is the preferred alternative. We do not agree that public water is a preferred alternative in every case. We revised the recommendation to suggest that companies inform landowners of the options that exist for permanent replacement. We are fully aware that, in some cases, public water may be the only option. However, if there are other options and the landowner is interested, we feel it is reasonable and supported by the program and court decisions that the owner be able to work with the company in developing the replacement option that best compares to the supply existing before mining. We recognize the attributes of public water and we also recognize attributes of springs and wells. We are not making a judgment on the best water supply for the landowner. We believe the owner should have some voice in that determination, when possible, by being aware of the options that exist.

47. A commenter questions our discussion in support of Finding IV regarding DMRM documenting the overall impacts of longwall mining. The commenter discusses landowners' distrust of coal companies to provide information on the overall impacts. The commenter states that no amount of education will improve this trust. The commenter also asks if OSM has proof that impacts are not being mitigated or that environmental standards are not being evaluated. The commenter then suggests that the renewable resource inventory that is provided in each permit application (Attachment 31) be used as a starting point for tracking damage and mitigation efforts.

Our discussion under Revised Finding III identifies a concern raised by some interested in longwall mining impacts that there is little information available from DMRM or other sources

that documents the overall impacts of longwall mining. Part of this study was to see if this concern was reasonable. We identified existing DMRM policy that, if implemented, would provide a documented source of data that would describe most of the impacts, the mitigation, and the timeliness of mitigation. This section of the report is not suggesting that landowners should go to coal companies to get this information. We fully understand the conflicting interests that exist. We see DMRM's documenting this information as a very important way to tell the story about longwall mining, including the extent of impacts and how they are mitigated. The main point is that DMRM policy already requires inspectors to collect this information. By implementing the policy and placing the data in some collective database or file, it would be accessible to the public and could be used by DMRM and industry to demonstrate the success of the longwall program in Ohio. We agree with the suggestion that the renewable resource inventory in each permit would serve as an excellent baseline and have added this suggestion to the report.

48. A commenter suggested minor wording changes to correct three specific statements under Finding VI and the Summary.

We revised the report in response to the suggestions.

49. A commenter points out that the report doesn't mention rights obtained by the mining companies to mine and subsidence properties and that the rights generally provide waiver of all damages. The commenter suggests that landowners become educated with the terms of their property deeds. *We added a discussion to the Introduction about property rights and regulatory programs being established to control impacts. Discussion under Finding V acknowledges that everyone could do a better job of communicating.*

50. In commenting on Finding III, a commenter questioned the amount of compensation that companies offer for a lifetime of water bills resulting from public water replacing wells or springs. His opinion is that \$2500 is not adequate. He also commented that the company mining in his area does a good job of making repairs and keeping owners informed about repairs.

The revised report addresses both of these comments.