The final definition is also revised to delete references to information requirements and performance standards where the term "irreparable damage" appears. The term only appears in reference to subsidence damage to structures, so there is no need to qualify its use.

Definition of "material damage"

One comment was received in regard to the proposed definition of "material damage." The commentator noted that the definition was inconsistent with the Federal definition in that it included physical changes which result in significant loss in production or income to the owner or user of the land. The commentator noted that the Federal definition does not include the phrase "to the owner or user of the land."

Since the objective of defining material damage is to conform to the Federal definition, the phrase is deleted in the final definition.

Definition of "noncommercial building"

One commentator noted that the term "noncommercial building" was not defined in § 89.5. The commentator believed that a definition is necessary to ensure that the term includes all structures covered by the Federal definition. The commentator also noted that the term must include "community or institutional buildings" to be as effective as the Federal regulations.

A definition of "noncommercial building" is included in the final rulemaking. The term is defined in a manner which conforms to the Federal definition.

Definition of "permanently affixed appurtenant structures"

Four comments were received regarding the proposed definition of "permanently affixed appurtenant structures". One commentator was concerned that the term may exclude some structures covered under the Federal program because they are not permanently affixed. One commentator supported the inclusion of customer-owned utilities, while another commentator proposed revising the definition to include all utilities. One commentator also noted errors in the references that were included in the definition.

In regard to the first commentator's concern, the definition of "permanently affixed appurtenant structures" includes only those structures which are attached to the ground in a permanent manner. While this definition may not include all structures encompassed by the Federal definition, it does not render the Commonwealth's program less effective than the Federal program. Structures which are not permanently affixed are rarely susceptible to subsidence damage. In addition, the Commonwealth's program addresses damage to certain "improvements," a term which covers many structures that are not "permanently affixed."

The Board does not believe it is appropriate to include all utilities in the definition of "permanently affixed appurtenant structures." This could be interpreted to require repair of damage to pipelines owned by investor-owned utilities. The Board does not believe that the BMSLCA authorizes these provisions. The responsibility for repairing damage to investor-owned utilities is governed by the respective property rights of mine operators and utility owners. The final-form regulations therefore retain the reference to customer-owned utilities.

The reference to other structures in the first sentence of the definition is corrected to include § 89.142a(f)(1)(i) and (iii).

Definition of "public water supply system"

Four comments were received regarding the proposed definition of "public water supply system". One commentator believed that the definition may be less inclusive than the Federal definition. A second commentator recommended revising the definition to clarify that hunting camps and resorts are not included. Two commentators questioned the need to include water systems serving public buildings, churches, schools, hospitals and nursing homes since water supplies serving these facilities are already covered by replacement provisions. The commentator further noted that many of the systems covered by the definition could withstand temporary losses of water without creating an imminent hazard to human safety.

No changes were made in response to these comments. In reviewing the Federal regulations, it was noted that the term "public water supply system" is not defined in the Federal regulations. Consequently, there is no basis for the assertion that the Commonwealth's definition is less inclusive than the Federal term.

Even though the term is not intended to include hunting camps and resorts, there is no reason to specifically address them in the definition. The current definition includes sufficient criteria to exclude these facilities from coverage. Generally, neither of these facilities have year round residents, nor do they qualify as public buildings, churches, schools, hospitals or nursing homes.

The fact that public water supplies are covered by water supply replacement provisions has nothing to do with the protections afforded to source aquifers and water bodies that serve public water supply systems. These aquifers and water bodies are set aside for special protection under section 9.1(a) of BMSLCA (52 P. S. § 1406.9a(a)). Also, the requirement to prevent material damage to these features is not limited by the qualification that the material damage must also create an imminent hazard to human safety.

Definition of "rebuttable presumption area"

Two comments were received regarding the proposed definition of "rebuttable presumption area." One commentator noted that the Federal regulations do not include a rebuttable presumption of causation which is applicable to water supply replacement. The commentator further asserted that there is no basis for applying a rebuttable presumption to water supply impacts. The second commentator recommended that the term be revised to reference the 3-year limitation of liability for water supply replacement provided by the BMSLCA.

In response to the first comment, the Board notes that the configuration of the rebuttable presumption area is specified in the BMSLCA. It must therefore be included without regard to its technical basis. The Board does, however, note that the 35° angle used to define the area of probable impacts is generally consistent with figures published by researchers at the Pennsylvania State University and West Virginia University.

The Board does not believe that it is appropriate to insert language relating to the 3-year period of liability. The BMSLCA does not provide for the 3-year limit to serve as the basis for rebutting the presumption of liability. Rather, it provides for an operator to be relieved of liability in cases where water supply impacts occur more than 3 years after the completion of underground mining activities. The 3-year release only applies when the mine is closed and reclamation was completed more than 3 years prior to the time the impacts occurred.

Definitions of "underground mining" and "underground mining operations"

The Preamble to the proposed rulemaking assigned specific meanings to the terms "underground mining" and "underground mining operations" to distinguish the manner in which these terms are used in the revised regulations. IRRC recommended that the Board formally incorporate these terms and definitions in § 89.5. The Board has included these terms and definitions in the final rulemaking. The term "underground mining" is defined to mean the extraction of coal in an underground mine. The term "underground mining operations" is defined to include underground mining and other operations which take place underground, such as the operation and reclamation of shafts and adits, the operation of underground support facilities, in situ processing, hauling, storage and blasting.

Definition of "water supply"

Three comments were received regarding the proposed definition of "water supply." One commentator recommended amending the definition to include the phrase "as used in this chapter" to clarify that the meaning of the term does not apply outside the scope of Chapter 89. Another commentator questioned whether the term would include appurtenant delivery systems and water supplies which are used to irrigate noncommercial gardens and agricultural fields like the Federal regulations. A third commentator questioned whether the term would include water supplies used to irrigate noncommercial gardens and agricultural fields.

No changes were made in response to these comments. It is unnecessary to state that the definition of "water supply" in § 89.5 applies only to Chapter 89 because the lead sentence in § 89.5(a) already indicates this.

The definition does not include the term "appurtenant delivery system" because it is based on the language of the statute, which does not include the term. Further, the Board does not wish to include language which could be interpreted to include investor-owned water transmission and distribution mains which are rightfully classified as utilities. The Board notes that this definition does not limit in any way the duty of an operator to provide pumping equipment and connecting piping when the mine operator is required to replace a water supply under § 89.145a.

The definition of "water supply" is expected to include all water supplies covered under the Federal program, including those which are used for irrigating noncommercial gardens and noncommercial agricultural operations. The definition only excludes water supplies which are used in production agriculture and serve irrigation systems installed after August 21, 1994.

Predicting hydrologic consequences and protecting the hydrologic balance

Numerous comments were received regarding proposed revisions to §§ 89.35 and 89.36. Section 89.35 was revised to incorporate the Federal requirements to predict whether underground mining activities may result in contamination, diminution or interruption of water supplies within the permit or adjacent area. Section 89.36 was revised to require a description of the measures which will be taken to replace water supplies which are contaminated, diminished or interrupted by underground mining activities.

One commentator recommended that the existing language of § 89.35 be revised to require the use and verification of models to predict hydrologic impacts.

This recommendation was not adopted because models are only one method that a permit applicant may use to develop his prediction. Equivalent or better predictions can often be made by observing and reporting the hydrologic impacts of nearby mines.

Two commentators expressed concern that requirements to predict water supply impacts in § 89.35 and to describe replacement measures in § 89.36 could lead to permit denial, if this information indicated the mining would affect water supplies.

The Board does not believe that a prediction of impacts to water supplies will typically result in permit denial. The general requirement under the BMSLCA is to restore or replace those supplies which are impacted. The prediction in this part is intended to make the operator aware of the extent of his responsibilities and inform the public about the nature of impacts which are likely to occur. Nevertheless, the Department could deny a permit if it determined that mining would eliminate the available water resources over a large area (under authority granted by The Clean Streams Law (35 P. S. §§ 691.1—691.1001)).

One commentator thought that the term "underground mining activities" should be replaced with the term "underground mining" to clarify that the predictions and descriptions required in §§ 89.35 and 89.36 pertain only to water supplies which are impacted by the extraction of coal in an underground mine.

This recommendation was not adopted because the predictions and descriptions required by these sections must address the hydrologic impacts of the entire mine, including those impacts resulting from underground mining, underground mining operations and activities conducted at surface sites.

Several commentators expressed disappointment that § 89.36 and the regulations in general allowed for the contamination, diminution or interruption of water supplies.

The Board acknowledges the concerns of these commentators but notes that the BMSLCA clearly allows for a water supply to be impacted as long as it is replaced or the affected landowner or water user receives appropriate compensation. The regulations follow the parameters established in the statute by the General Assembly for addressing contamination, diminution or interruption of water supplies.

One commentator recommended that § 89.36 be revised to require site specific descriptions of the replacement measures that will be taken for each impacted water supply. The commentator felt that general descriptions such as "will drill deeper or wider" were insufficient.

The Board does not believe that it is necessary to provide details that are applicable to the level of an individual water supply. It is likely that many water supplies in a given area will be able to be replaced by the same means. Further, simple proposals such as drilling to a deeper aquifer may be sufficient if the permit application documents the presence of suitable water in the general area where replacement may be necessary.

One commentator recommended revising § 89.36 to incorporate the statutory provision that "nothing contained herein shall be construed as authorizing the Department to require a mine operator to provide a replacement water supply prior to mining as a condition of securing a permit to conduct underground mining."

Section 89.36 is revised to reflect the proviso in section 5.2(j) of the BMSLCA. However, the Board also notes that section 9.1 of the BMSLCA provides that nothing in the act shall be construed to amend, modify or otherwise supersede standards related to the prevailing hydrologic balance requirement of the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C.A. §§ 1201—1328) (Federal SMCRA). In accordance with this provision, the Department would have authority to deny permits in situations when mining would eliminate the available water resources over a large area or where a replacement source was not available.

Requirements for support activities

Four comments were received regarding proposed revisions to § 89.67 relating to support facilities. Three of the commentators favored retaining the existing language of the section. Two of these commentators objected to narrowing the scope of the regulation, while the other supported keeping the language the same as the Federal counterpart regulation. Two commentators recommended adding the provision that a mine operator's responsibility to protect utilities would be limited in accordance with its property rights.

The Board believes that it is appropriate to narrow the scope of this regulation to address only those activities which take place at surface sites associated with an underground mine. There is sufficient authority in Chapter 89, Subchapter F (relating to subsidence control) to regulate those aspects of the underground mining activity which take place underground. Together, these requirements are no less effective than the Federal regulation in 30 CFR 817.180.

In regard to concerns about mining rights, the Board believes that it is appropriate to restrict surface operations in the vicinity of utilities without regard to a mine operator's right to mine the coal. Activities at surface sites associated with an underground mine are regarded as surface mining activities and are therefore subject to the Federal SMCRA. Furthermore, the activities which typically take place at surface sites do not involve the mining of coal.

Subsidence control plans

Numerous comments were submitted regarding proposed revisions to § 89.141(d). Proposed changes included inserting new requirements relating to water supply replacement and repair of subsidence damage and revising language to clarify several existing information requirements.

Two commentators noted that subsidence control plan requirements did not include potential impacts on "renewable resource lands." The commentators noted that Federal regulations require these impacts on renewable resources lands to be assessed.

The Board does not believe it is necessary to revise § 89.141(d) to include references to renewable resource lands. Chapter 89 does not use the term renewable resource lands, per se. Chapter 89 does, however, address aquifers, water supplies, perennial streams and surface lands, to cover all features which may fall within the scope of the term, as it is used in the Federal regulations. Section 89.141(d) currently includes specific references to aquifers, water supplies, perennial streams and surface lands and the means which will be used to protect these features.

One commentator observed that subsidence control plan coverage could be limited to areas within a 30° angle of draw of the proposed mine. The commentator believed that this could provide less coverage than the Federal regulations which require subsidence control plans to consider all areas where the value or reasonably foreseeable uses of structures and renewable resource lands will be diminished by mine subsidence.

The Board notes that § 89.141(d) provides that subsidence control plans must address all areas where structures, facilities and features may be damaged by mine subsidence, and that the 30° angle of draw is only used as a minimum criterion for defining this coverage. Subsidence control plans prepared under subsection (d) should therefore be no less inclusive than those required by the Federal regulations.

Two commentators recommended adding planned and controlled subsidence to the list of available options for protecting public buildings and other structures listed in § 89.141(d)(3) and (6). The commentators also recommended eliminating references to support areas which they assert were eliminated when section 4 of the BMSLCA (52 P. S. § 1406.4) was repealed.

The Board did not adopt this recommendation because planned and controlled subsidence by itself does not meet the intent of the statute. These paragraphs pertain to the special protection afforded to public buildings and facilities, churches, schools, hospitals and impoundments and water bodies with volumes of 20 acre-feet (2.47 hectare-meters) or more. If any of these structures or features are to be subsided, it will usually be necessary to take surface measures in conjunction with planned and controlled subsidence to achieve the necessary level of protection. It is these surface measures which constitute the means of protection rather than the planned and controlled subsidence. Furthermore, there is a need to retain the concept of support areas beneath structures and features which have been set aside for special protection under the BMSLCA. Even if alternative protection measures are proposed, these measures must be taken prior to the time mining advances into the area where it could damage the structure or feature.

Two commentators noted that proposed § 89.141(d)(6) included contradictory provisions. One provision prohibited mining within the support area of public buildings and other protected structures. Another provision required 50% coal support while allowing planned and controlled subsidence if the latter would provide protection equivalent to that provided by coal support.

After reviewing this matter, the Board decided to delete proposed subsection (d)(6) in its entirety. Subsection (d)(6) was found to be both internally inconsistent and repetitive of requirements specified in § 89.141(d)(3). Information requirements relating to the protection of public buildings and facilities, churches, schools, hospitals and other selected features are now covered entirely in subsection (d)(3).

Another commentator thought that the subsidence control plans should include more detailed information concerning the steps to be taken to prevent subsidence damage to utilities, homes and other structures.

In response, the Board notes that the BMSLCA limits the operator's responsibility to prevent material damage to a small list of structures and features, that is, public buildings and facilities, churches, schools, hospitals and large water bodies. Dwellings and certain agricultural structures are protected against irreparable damage but not against lesser levels of damage. While the BMSLCA does protect "public facilities," it does not require the

prevention of material damage to investor-owned utilities. Section 89.141(d) requires permit applicants to describe the measures that will be taken to comply with the various performance standards in the statute and the regulations. Generally, this information is provided in a manner that addresses groups of structures. Because of similarities among structures within the same group, the measures that are proposed for a particular group can be expected to apply to any structure within the group. It is usually unnecessary to tailor descriptions to individual structures unless an applicant can predict in advance that a specific structure within a group will require special treatment. In addition, if a new structure is built after permit issuance, approved measures are already in place to provide for its treatment. In some cases, it may be acceptable for an applicant to propose several options so that he can decide upon the best method nearer to the time the structure is undermined.

One commentator recommended using the term "underground mining" rather than "underground mining activities" and "underground mining operations" in § 89.141(d)(6) and (9). The commentator noted that these paragraphs address subsidence concerns which are associated with coal extraction.

The Board agreed with this recommendation and incorporated these revisions into the final-form regulations.

One commentator recommended inserting the terms "material" or "materially" to modify the word "damage" in § 89.141(d) and in paragraphs (2), (3) and (5). The commentator also recommended modifying subsection (d)(5) to clarify that damage minimization measures with respect to dwellings and agricultural structures are only required if "irreparable damage" will occur. The commentator further recommended deleting the reference to preventing damage to dwellings, agricultural structures and surface land as found in paragraph (7).

The Board agreed with the commentator's recommendation to use the term "material damage" in § 89.141(d)(2), (3) and (5). These changes are in accordance with the protections provided by the BMSLCA. Paragraph (5) has been revised to delete the reference to structures identified in § 89.142a(f)(1) since the specific plans to minimize irreparable damage to a particular structure are best determined near the time of mining rather than at the time of permit application. Paragraph (5) has also been revised to require correction of damage rather than mitigation of damage. No changes were made to paragraph (7) since this requirement only pertains to situations where an operator opts to prevent irreparable damage using a subsidence monitoring program. It is further noted that paragraph (7) restates a Federal program requirement.

One commentator recommended that "facilities" associated with churches, schools and hospitals should also be protected against material damage under § 89.141(d)(3) and (6). The Board did not adopt this recommendation.

One commentator asserted that there should be no requirement to minimize subsidence or subsidence-related damage in cases where planned subsidence is proposed. The commentator further asserted that the Federal regulations include this provision.

The Board does not agree with this assertion. Public buildings and facilities, churches, schools, hospitals, large impoundments and water bodies, and aquifers and bodies of water which are significant sources to public water supply systems have been set aside for special protection under the BMSLCA and the Federal regulations. It is, therefore, appropriate to restrict coal extraction when necessary to prevent material damage or reductions in the reasonably foreseeable uses of these structures and features. The Federal program follows the same approach.

One commentator recommended that § 89.141(d)(3) or (6) should be revised to provide for owners of public buildings and facilities, churches, schools and hospitals to waive the protection afforded to their structures under section 9.1 of the BMSLCA.

The Board did not adopt this recommendation because the BMSLCA does not provide that this protection can be waived by the owner of these structures. Even so, it may be possible to conduct full extraction mining under certain protected structures if the structure owner consents and the mine operator takes surface measures to prevent material damage.

Eleven commentators recommended revising § 89.141(d)(11) to require more detailed descriptions of the measures a mine operator will take to protect overlying utilities. One commentator recommended revising subsection (d)(11) to simply restate the Federal requirement and include a provision that notice to the utility company is sufficient to fulfill the utility protection requirement. One commentator recommended that subsection (d)(11) should be revised to require information that will enable the Department to identify situations involving imminent hazards to human safety. IRRC recommended defining the term "utilities" to clarify the scope of paragraph (11).

After reviewing these and other comments regarding the protection of utilities, the Board decided to revise the final-form regulations in subsection (d)(11) to require additional information about utilities and the measures which mine operators or utility companies, or both, will take to minimize damage, destruction or disruption in service. This information will enable the Department to identify situations which could lead to imminent hazards to human safety and serve to inform interested members of the public about the measures which will be employed to protect utilities. In some circumstances, proposing notice to the utility owner will constitute a satisfactory protection plan. The Board also added a cross reference to § 89.142a(g) to clarify the specific utilities covered by subsection (d)(11).

One commentator expressed concern that the requirements in proposed § 89.141(d) lacked the clarity needed to guide permit reviewers. As an example, the commentator suggested that the description of potential impacts on overlying structures in subsection (d)(2) could be satisfied by the response there will be no impacts.

The Board does not share this view. Section 89.141(d) was revised to match information requirements with the performance standards in § 89.142a. In addition, § 89.141(d)(3) was added to clarify the requirements for mining beneath public buildings and facilities, churches, schools, hospitals and other protected features.

Mining beneath shallow cover and maximizing mine stability

Several comments were received regarding the proposed revisions to § 89.142a(a). One commentator recommended reinstating the language allowing development of mine openings without the need for stability demonstrations. Another commentator was concerned that the added language on stability demonstrations would open shallow cover areas to mining. The second commentator noted the history of mine subsidence problems associated with shallow cover mining in this Commonwealth.