Rules of
Department of Natural Resources
Division 40—Land Reclamation Commission
Chapter 4—Permanent Performance Requirements for Special Mining Activities

Title 10—DEPARTMENT OF NATURAL RESOURCES

Division 40—Land Reclamation Commission

Chapter 4—Permanent Performance Requirements for Special Mining Activities

10 CSR 40-4.010 Coal Exploration Requirements

PURPOSE: This rule brings Missouri's regulations into line with the federal language.

Editor's Note: The secretary of state has determined that the publication of this rule in its entirety would be unduly cumbersome or expensive. The entire text of the material referenced has been filed with the secretary of state. This material may be found at the Office of the Secretary of State or at the headquarters of the agency and is available to any interested person at a cost established by state law.

(1) General Responsibility of Persons Conducting Coal Exploration. Each person who conducts coal exploration shall obtain a permit, as required under 10 CSR 40-6.020, and all operations which substantially disturb the natural land surface regardless of how much coal is removed shall comply with section (3) of this rule.

(2) Required Documents. Each person who conducts coal exploration which substantially disturbs the natural land surface, while in the exploration area, shall have available a copy of the exploration permit for review by the authorized representative of the director or commission upon request.

(3) Performance Standards for Coal Exploration.

(A) Habitats of unique or unusually high value for fish, wildlife and other related environmental values and critical habitats of threatened or endangered species identified pursuant to the Endangered Species Act of 1973 (16 USC 1531—1543) shall not be disturbed during coal exploration.

(B) All roads or other transportation facilities used for coal exploration shall comply with the applicable provisions of 10 CSR 40-3.140(1)—(23).

(C) If excavations, artificially flat areas or embankments are created during exploration, these areas shall be returned to the approximate original contour promptly after these features are no longer needed for coal exploration.

(D) Topsoil shall be separately removed, stored and redistributed on areas disturbed by coal exploration activities as necessary to assure successful revegetation or as required by the director or commission.

(E) All areas disturbed by coal exploration activities shall be revegetated in a manner that encourages prompt revegetation and recovery of a diverse, effective and permanent vegetative cover. Revegetation shall be accomplished in accordance with the following:

1. All areas disturbed by coal exploration activities shall be seeded or planted to the same seasonal variety native to the areas disturbed. If the land use of the exploration area is intensive agriculture, planting of the crops normally grown will meet the requirements of this paragraph; and

2. The vegetative cover shall be capable of stabilizing the soil surface from erosion.

(F) Diversions of overland flows and ephemeral, perennial or intermittent streams shall be made in accordance with 10 CSR 40-3.040(3) and (4).

(G) Each exploration hole, borehole, well or other exposed underground opening created during exploration shall be reclaimed in accordance with 10 CSR 40-3.020(1)—(3).

(H) All facilities and equipment shall be promptly removed from the exploration area when they are no longer needed for exploration, except for those facilities and equipment that the director or commission determines may remain to—

1. Provide additional environmental data;

2. Reduce or control the on- and off-site effects of the exploration activities; or

3. Facilitate future surface mining and reclamation operations by the person conducting the exploration.

(I) Coal exploration shall be conducted in a manner which minimizes disturbance of the prevailing hydrologic balance in accordance with 10 CSR 40-3.040(1)—(3), (5)—(7) and (9)—(12). The director or commission may specify additional measures which shall be adopted by the person engaged in coal exploration.

(J) Acid- or toxic-forming materials shall be handled and disposed of in accordance with 10 CSR 40-3.040(1) and (8) and 10 CSR 40-3.080. The director or commission may specify additional measures which shall be adopted by the person engaged in coal exploration.

Auth: section 444.530, RSMo (Cum. Supp. 1990.) Original rule filed Oct. 12, 1979, effective Feb. 11, 1980. Rescinded and readopted: Filed Aug. 4, 1987, effective Nov. 23, 1987. Amended: Filed May 15, 1992, effective Jan. 15, 1993.*

**Original authority 1971, amended 1983, 1990.*

10 CSR 40-4.020 Auger Mining Requirements

PURPOSE: This rule sets forth the requirements for auger mining pursuant to sections 444.810 and 444.855.2(9), RSMo.

(1) Any auger mining associated with surface mining activities shall be conducted to maximize recoverability of mineral reserves remaining after the mining activities are completed. Each person who conducts auger mining operations shall leave areas of undisturbed coal to provide access for removal of those reserves by future underground mining activities unless it has been determined in the permit and plan that the coal reserves have been depleted or are limited in thickness or extent to the point that it will not be practicable to recover the remaining coal reserves. This determination shall be made in the permit and plan only upon presentation of appropriate technical evidence by the operator.

(2) Undisturbed areas of coal shall be left in unmined sections which—

(A) Are a minimum of two hundred fifty feet (250′) wide at any point between each group of auger openings to the full depth of the auger hole;

(B) Are no more than two thousand five hundred feet (2500′) apart, measured from the center of one section to the center of the next section, unless a greater distance is set forth in the permit application under 10 CSR 40-6.060(6) and approved in the permit and plan; and

(C) Shall have, for multiple seam mining, a width of at least two hundred fifty feet (250′) plus fifty feet (50′) for each subjacent workable coal seam. The centers of all unmined sections shall be aligned vertically.

(3) No auger hole shall be made closer than five hundred feet (500′) in horizontal distance to any abandoned or active underground mine workings, except as approved in accordance with 10 CSR 40-3.070.

(4) In order to prevent pollution of surface and ground water and to reduce fire hazards, each auger hole, except as described in section (5) of this rule, shall be plugged so as to prevent the discharge of water from the hole and access of air to the coal as follows:

(A) Each auger hole discharging water containing toxic- or acid-forming material shall be plugged within seventy-two (72) hours after completion by backfilling and compacting noncombustible and impervious material into the hole to a depth sufficient to form a watertight seal or the discharge shall be treated commencing within seventy-two (72)

hours after completion to meet applicable effluent limitations and water quality standards under 10 CSR 40-3.040(2), until the hole is properly sealed; and

(B) Each auger hole not discharging water shall be sealed as described in subsection (4)(A) of this rule to close the opening within thirty (30) days following completion.

(5) An auger hole need not be plugged if the commission or director finds—

(A) Impoundments of the water which would result from plugging the hole may create a hazard to the environment or public health or safety; and

(B) Drainage from the auger hole will not pose a threat of pollution to surface and ground water and will comply with the requirements of 10 CSR 40-3.040(1) and (2).

(6) The permit and plan shall prohibit auger mining if it is determined that—

(A) Adverse water quality impacts cannot be prevented or corrected;

(B) Fill stability cannot be achieved;

(C) The prohibition is necessary to maximize the utilization, recoverability or conservation of the solid fuel resources; or

(D) Subsidence resulting from auger mining may disturb or damage powerlines, pipelines, buildings or other facilities.

Auth: section 444.530, RSMo (1986). Original rule filed Oct. 12, 1979, effective Feb. 11, 1980.*

**Original authority 1971, amended 1983, 1990.*

10 CSR 40-4.030 Operations on Prime Farmland

PURPOSE: This rule outlines the procedure for surface coal mining and reclamation on prime farmland and reflects recent changes in federal rulemaking.

Editor's Note: The secretary of state has determined that the publication of this rule in its entirety would be unduly cumbersome or expensive. The entire text of the material referenced has been filed with the secretary of state. This material may be found at the Office of the Secretary of State or at the headquarters of the agency and is available to any interested person at a cost established by state law.

(1) Special Requirements. Surface coal mining and reclamation operations conducted on prime farmland shall have a permit for those operations obtained under 10 CSR 40-6.060(4).

(2) Scope and Purpose. This rule sets forth special environmental protection, performance, reclamation and design standards for surface coal mining and reclamation operations on prime farmland.

(3) Responsibilities.

(A) The United States Soil Conservation Service within each state is responsible for establishment of specifications for prime farmland soil removal, storage, replacement and reconstruction.

(B) The Land Reclamation Commission shall use the soil reconstruction specifications of subsection (3)(A) of this rule to carry out its responsibilities under 10 CSR 40-6.060(4) and 10 CSR 40-7.

(4) Applicability. The requirements of this rule shall not apply to—

(A) Water bodies that have been approved by the Land Reclamation Commission as an alternative postmining land use in accordance with 10 CSR 40-3.130(1), 10 CSR 40-3.300(1), 10 CSR 40-6.040(6), 10 CSR 40-6.050(10), 10 CSR 40-6.110(6) and 10 CSR 40-6.120(6), as applicable, and where the Land Reclamation Commission has determined that the water bodies will not result in an aggregate loss of prime farmland acreage in the permit area. The creation of water bodies must be approved by the regulatory authority and the consent of all affected property owners within the permit area must be obtained. These water bodies shall meet the requirements of 10 CSR 40-3.040(9) and 10 CSR 40-3.200(9); or

(B) Prime farmland that has been excluded in accordance with 10 CSR 40-6.060(4)(A).

(5) Soil Removal and Stockpiling.

(A) Prime farmland soils shall be removed from the areas to be disturbed before drilling, blasting or mining.

(B) The minimum depth of soil and soil materials to be removed and stored for use in the reconstruction of prime farmland shall be sufficient to meet the requirements of subsection (6)(B).

(C) Soil removal and stockpiling operations on prime farmland shall be conducted to—

1. Separately remove the topsoil or remove other suitable soil materials where these other soil materials will create a final soil having a greater productive capacity than that which existed prior to mining. If not utilized immediately, this material shall be placed in stockpiles separate from the spoil and all other excavated materials; and

2. Separately remove the B or C horizon or other suitable soil material to provide the thickness of suitable soil required by subsection (6)(B). If not utilized immediately, each horizon or other material shall be stockpiled separately from the spoil and all other excavated materials. Where combinations of the soil materials created by mixing have been shown to be equally or more favorable for plant growth than the B horizon, separate handling is not necessary.

(D) Stockpiles shall be placed within the permit area where they will not be disturbed or be subject to excessive erosion. If left in place for more than thirty (30) days, stockpiles shall meet the requirements of 10 CSR 40-3.030(3) or 10 CSR 40-3.190(3).

(6) Soil Replacement.

(A) Soil reconstruction specifications established by the United States Soil Conservation Service shall be based upon the standards of the National Cooperative Soil Survey and shall include, as a minimum, physical and chemical characteristics of reconstructed soils and soil descriptions containing soil horizon depths, soil densities, soil pH and other specifications so that reconstructed soils will have the capability of achieving levels of yield equal to, or higher than, those of nonmined prime farmland in the surrounding area.

(B) The minimum depth of soil and substitute soil material to be reconstructed shall be forty-eight inches (48″) or a lesser depth equal to the depth to a subsurface horizon in the natural soil that inhibits or prevents root penetration or a greater depth if determined necessary to restore the original soil productive capacity. Soil horizons shall be considered as inhibiting or preventing root penetration if their physical or chemical properties or water-supplying capacities cause them to restrict or prevent penetration by roots of plants common to the vicinity of the permit area and if these properties or capacities have little or no beneficial effect on soil productive capacity.

(C) The operator shall replace and regrade the soil horizons or other root zone material with proper compaction and uniform depth.

(D) The operator shall replace the B horizon, C horizon or other suitable material specified in section (5) to the thickness needed to meet the requirements of subsection (6)(B) of this rule.

(E) The operator shall replace the topsoil or other suitable soil materials specified in section (5) as the final surface soil layer. This surface soil layer shall equal or exceed the thickness of the original surface soil layer, as determined by the soil survey.

(F) The operator shall assure that nutrients and soil amendments are applied as approved in the permit and plan. The application rates shall be both sufficient to quickly establish vegetative growth prior to proving vegetative productivity and also during the phase III bond release period to insure that desired levels of productivity are attained.

(7) Revegetation and Restoration of Soil Productivity.

(A) Following prime farmland soil replacement, the soil surface shall be established with a vegetative cover or other means that effectively controls soil loss by wind and water erosion.

(B) Prime farmland soil productivity shall be restored in accordance with the following provisions:

1. Measurements of soil productivity shall be initiated in accordance with 10 CSR 40-3.120;

2. Soil productivity shall be measured on a representative sample or on all of the mined and reclaimed prime farmland area using the crops determined under paragraph (7)(B)6. of this rule. A statistically valid sampling technique at a ninety percent (90%) or greater statistical confidence level shall be used as approved by the Land Reclamation Commission in consultation with the United States Soil Conservation Service;

3. The measurement period for determining average annual crop production (yield) shall be a minimum of three (3)-crop years prior to release of the operator's phase III liability. These three (3) years need not be consecutive but must be within the five (5)-year phase III liability period;

4. The level of management applied during the measurement period shall be the same as the level of management used on nonmined prime farmland in the surrounding area;

5. Restoration of soil productivity shall be considered achieved when the average yield during the measurement period equals or exceeds the average yield of the crop established for the same period of nonmined soils of the same or similar texture or slope phase of the soil series in the reference area under equivalent management practices;

6. The reference crop on which restoration of soil productivity is proven shall be selected from the crops most commonly produced on the surrounding prime farmland. Where row crops are the dominant crops grown on prime farmland in the area, the row crop requiring the greatest rooting depth shall be chosen as one (1) of the reference crops for one (1) of the three (3) years. If hay is the most commonly grown crop, then the second most commonly grown crop will be used. In the other two (2) years, other commonly grown crops on prime farmland within the county will be used;

7. Under the procedure in subsection (7)(B) of this rule, the crop yield may be adjusted, with the concurrence of the United States Soil Conservation Service and approval of the director, for—

A. Disease, pest- and weather-induced seasonal variations; or

B. Difference in specific management practices where the overall management practices of the crops being compared are equivalent; and

8. Plans for proving phase III bond release on prime farmlands, including crops to be grown and location of test plots, must be approved in advance by the director.

Auth: section 444.810, RSMo (1986). Original rule filed Oct. 12, 1979, effective Feb. 11, 1980. Amended: Filed Aug. 1, 1980, effective Dec. 11, 1980. Amended: Filed Dec. 10, 1980, effective April 11, 1981. Amended: Filed Dec. 9, 1982, effective April 11, 1983. Amended: Filed Aug. 4, 1987, effective Nov. 23, 1987. Amended: Filed June 2, 1988, effective Aug. 25, 1988. Amended: Filed July 3, 1990, effective Nov. 30, 1990.*

**Original authority 1979, amended 1983.*

10 CSR 40-4.040 Operations on Steep Slopes

PURPOSE: This rule sets forth the requirements for operation on steep slopes pursuant to sections 444.810 and 444.855.4., RSMo.

(1) Applicability.

(A) Any surface coal mining and reclamation operations on steep slopes shall meet the requirements of this rule.

(B) The standards of this rule do not apply to mining conducted on a flat or gently rolling terrain with an occasional steep slope through which the mining proceeds and leaves a plain or predominately flat area.

(2) Performance Standards. Surface coal mining and reclamation operations subject to this rule shall comply with the requirements of 10 CSR 40-6 and, except to the extent a variance is approved under section (3) of this rule, the following:

(A) Materials Prevented on the Downslope.

1. The person engaged in surface coal mining and reclamation operations shall prevent the following materials from being placed or allowed to remain on the downslope:

A. Spoil;

B. Waste materials, including waste mineral matter;

C. Debris, including that from clearing and grubbing of haul road construction; and

D. Abandoned or disabled equipment.

2. Nothing in this subsection shall prohibit the placement of material in road embankments located on the downslope, so long as the material used and embankment design comply with the requirements of 10 CSR 40-3.140(1)—(22) or 10 CSR 40-3.290(1)—(22) and the material is moved and placed in a controlled manner;

(B) The highwall shall be completely covered with compacted spoil and the disturbed area graded to comply with the provisions of 10 CSR 40-3.110(1)—(6) and 10 CSR 40-3.260, including, but not limited to, the return of the site to the approximate original contour. The person who conducts the surface coal mining and reclamation operation must demonstrate, using standard geotechnical analysis, that the minimum static factor of safety for the stability of all portions of the reclaimed land is at least 1.3;

(C) Land above the highwall shall not be disturbed, unless the commission or director finds that the disturbance facilitates compliance with the requirements of this rule;

(D) Material in excess of that required by the grading and backfilling provisions of subsection (2)(B) of this rule shall be disposed of in accordance with the requirements of 10 CSR 40-3.060(1)—(4) or 10 CSR 40-3.220;

(E) Woody materials shall not be buried in the backfilled area unless it is determined in the permit and plan that the proposed method for placing woody material beneath the highwall will not deteriorate the stable condition of the backfilled area as required in subsection (2)(B) of this rule. Woody materials may be chipped and distributed over the surface of the backfill as mulch, if special provisions are made for their use and approved in the permit and plan; and

(F) Unlined or unprotected drainage channels shall not be constructed on backfills unless approved in the permit and plan as stable and not subject to erosion.

(3) Limited Variances. Permittees may be granted variances from the approximate original contour requirements of subsection (2)(B) of this rule for steep slope surface coal mining and reclamation operations, if the following standards are met and a permit incorporating the variance is approved under 10 CSR 40-6.060(3):

(A) The highwall shall be completely backfilled with spoil material in a manner which results in a static factor of safety of at least 1.3 using standard geotechnical analyses;

(B) The watershed control of the area within which the mining occurs shall be improved by reducing the peak flow from precipitation or thaw and reducing the total suspended solids or other pollutants in the surface water discharge during precipitation or thaw. The total volume of flow during every season of the year shall not vary in a way that adversely affects the ecology of any surface water or any

existing or planned public or private use of surface or ground water;

(C) Land above the highwall may be disturbed only to the extent that it is deemed appropriate and approved as necessary in the permit and plan to facilitate compliance with the provisions of this rule and if it is found in the permit and plan that the disturbance is necessary to—

1. Blend the solid highwall and the backfilled material;

2. Control surface runoff; or

3. Provide access to the area above the highwall;

(D) The landowner of the permit area has requested, in writing, as part of the permit application under 10 CSR 40-6.060(3) that the variance be granted;

(E) The operations are conducted in full compliance with a permit issued in accordance with 10 CSR 40-6.060(3); and

(F) Only the amount of spoil as is necessary to achieve the postmining land use, ensure the stability of spoil retained on the bench and meet all other requirements of the regulatory program shall be placed off the mine bench. All spoil not retained on the bench shall be placed in accordance with 10 CSR 40-3.060(1)—(4) or 10 CSR 40-3.220 and 10 CSR 40-3.110(1) and (2) or 10 CSR 40-3.260.

(4) Multiple Seam. In multiple seam steep slope affected areas, spoil not required to reclaim and restore the permit area may be placed on a preexisting bench, if approved in the permit and plan and if the following requirements are met:

(A) All excess spoil must be hauled, placed and retained on the solid bench;

(B) The spoil must be graded to the most moderate slope so as to eliminate the existing highwall to the extent possible with the available spoil;

(C) The fill must comply with 10 CSR 40-3.060(1) or 10 CSR 40-3.220(3) and the requirements of 10 CSR 40-3 and 10 CSR 40-4; and

(D) The bench on which the spoil is to be placed must have been created and abandoned due to coal mining prior to August 3, 1977.

Auth: section 444.530, RSMo (1986). Original rule filed Oct. 12, 1979, effective Feb. 11, 1980. Amended: Filed Aug. 1, 1980, effective Dec. 11, 1980.*

**Original authority 1971, amended 1983, 1990.*

10 CSR 40-4.050 Requirements for Coal Processing Plants and Support Facilities Not Located at or Near the Mine Site or Not Within the Permit Area for a Mine

PURPOSE: This rule sets forth requirements for coal processing plants and support facilities not located at or near the mine site or not within the permit area for a mine, pursuant to section 444.810, RSMo.

(1) Applicability. Each person who conducts surface coal mining and reclamation operations, which includes the operation of a coal processing plant or support facility which is not located within the permit area for a specific mine, shall obtain a permit to conduct those operations and comply with this rule.

(2) Signs and markers for the coal processing plant, coal processing waste disposal area and water treatment facilities shall comply with 10 CSR 40-3.010.

(3) Roads, transport and associated structures shall be constructed, maintained and reclaimed in accordance with 10 CSR 40-3.140(1)—(22).

(4) Any stream or channel realignment shall comply with 10 CSR 40-3.040(4).

(5) If required in the permit and plan, any disturbed area related to the coal processing plant or associated facilities shall have sediment control structures, in compliance with 10 CSR 40-3.040(5) and (6), and all discharges from these areas shall meet the requirements of 10 CSR 40-3.040(1) and (2) and any other applicable state or federal law.

(6) Permanent impoundments associated with coal processing plants shall meet the requirements of 10 CSR 40-3.040(9) and (16). Dams constructed of or impounding coal processing waste shall comply with 10 CSR 40-3.080(9)—(11).

(7) Use of water wells shall comply with 10 CSR 40-3.040(13) and water rights shall be protected in accordance with 10 CSR 40-3.040(14).

(8) Disposal of coal processing waste, solid waste and any excavated materials shall comply with 10 CSR 40-3.080(1), (7) and (8) and 10 CSR 40-3.060(1)—(4), respectively.

(9) Discharge structures for diversions and sediment control structures shall comply with 10 CSR 40-3.040(7).

(10) Air pollution control measures associated with fugitive dust emissions shall comply with 10 CSR 40-3.090.

(11) Fish, wildlife and related environmental values shall be protected in accordance with 10 CSR 40-3.100(1)—(4).

(12) Slide areas and other surface areas shall comply with 10 CSR 40-3.100(5).

(13) Adverse effects upon or resulting from nearby underground coal mining activities shall be minimized by appropriate measures including, but not limited to, compliance with 10 CSR 40-3.040(15) and 10 CSR 40-3.070.

(14) Reclamation shall include proper topsoil handling procedures, revegetation and abandonment in accordance with 10 CSR 40-3.060(16), 10 CSR 40-3.110(1)—(6), 10 CSR 40-3.120(1)—(7), 10 CSR 40-3.130 and 10 CSR 40-3.150(2)—(4).

(15) Conveyors, buildings, storage bins or stockpiles, water treatment facilities, water storage facilities and any structures or system related to the coal processing plant shall comply with 10 CSR 40-3.

(16) Any coal processing plant or associated structures located on prime farmland shall meet the requirements of 10 CSR 40-4.030.

Auth: section 444.530, RSMo (1986). Original rule filed Oct. 12, 1979, effective Feb. 11, 1980.*

**Original authority 1971, amended 1983,1990.*

10 CSR 40-4.060 Concurrent Surface and Underground Mining

PURPOSE: This rule sets forth the requirements for concurrent surface and underground mining pursuant to sections 444.810 and 444.855.2(12) and .2(16), RSMo.

(1) Responsibilities.

(A) The commission or director shall review and grant or deny requests for variances from the requirement that reclamation efforts proceed as contemporaneously as practicable in accordance with 10 CSR 40-6.060(7) and this rule.

(B) The person who conducts combined surface and underground mining activities shall comply with the provisions of this rule.

(2) Applicability. A variance under this rule applies only to those specific areas within the permit areas that the person conducting

combined surface and underground mining activities has shown to be necessary for implementing the proposed concurrent operations and that the commission or director has approved in the permit under 10 CSR 40-6.060(7). The variance is effective for any particular portion of the permit area only for the time necessary to facilitate the authorized underground mining activities.

(3) Compliance With Variance Terms.

(A) Each person who conducts operations under a variance issued under 10 CSR 40-6.060(7) shall comply with all applicable requirements of this section and the regulatory program, except to the extent that—

1. A delay in compliance with these requirements is specifically authorized by the variance issued under the permit; and

2. The delay in compliance is necessary to achieve the purposes for which the variance was granted.

(B) Each person who conducts activities under a variance issued under 10 CSR 40-6.060(7) shall comply with each requirement of the variance as set forth in the permit.

(4) Additional Performance Standards. In addition to the requirements of 10 CSR 40-3, each person who conducts combined surface and underground mining activities shall comply with the following:

(A) A five-hundred foot (500′) barrier pillar of coal shall be maintained between the surface and underground mining activities in any one (1) seam. The commission or director and the Mine Safety and Health Administration and Missouri Division of Labor Standards, however, may approve a lesser distance after finding in the permit and plan that mining at a lesser distance will result in—

1. Improved coal resources recovery;

2. Abatement of water pollution; or

3. Elimination of hazards to the health and safety of the public;

(B) The vertical distance between combined surface and underground mining activities working separate seams shall be sufficient to provide for the health and safety of the workers and to prevent surface water from entering the underground workings; and

(C) No combined activities shall reduce the protection provided public health and safety below the level of protection required for those activities if conducted without a variance.

Auth: section 444.810, RSMo (1986). Original rule filed May 12, 1980, effective Sept. 11, 1980.*

**Original authority 1979, amended 1983.*

10 CSR 40-4.070 *In Situ* Processing

*PURPOSE: This rule sets forth the requirements for **in situ** processing pursuant to section 444.810, RSMo.*

(1) Performance Standards.

(A) The person who conducts *in situ* processing activities shall comply with 10 CSR 40-3.170—10 CSR 40-3.310 and this section.

(B) *In situ* processing activities shall be planned and conducted to minimize disturbance to the prevailing hydrologic balance by—

1. Avoiding discharge of fluids into holes or wells, other than as approved in the permit and plan;

2. Injecting process recovery fluids only into geologic zones or intervals approved as production zones in the permit and plan;

3. Avoiding annular injection between the wall of the drill hole and the casing; and

4. Preventing discharge of process fluid into surface waters.

(C) Each person who conducts *in situ* processing activities shall submit for approval as part of the application for permit under 10 CSR 40-6.060(8) and follow after approval, a plan that ensures that all radioactive, acid- or toxic-forming gases, solids or liquids constituting a fire, health, safety or environmental hazard and caused by the mining and recovery process are promptly treated, confined or disposed of in a manner that prevents contamination of ground and surface waters, damage to fish, wildlife and related environmental values, and threats to the public health and safety.

(D) Each person who conducts *in situ* processing activities shall prevent flow of the process recovery fluid—

1. Horizontally beyond the affected area identified in the permit; and

2. Vertically into overlying and underlying aquifers.

(E) Each person who conducts *in situ* processing activities shall restore the quality of affected groundwater in the mine plan and adjacent area, including groundwater above and below the production zone, to the approximate premining levels or better in order to ensure that the potential for use of the groundwater is not diminished.

(2) Monitoring.

(A) Each person who conducts *in situ* processing activities shall monitor the quality and quantity of surface and ground water and the subsurface flow and storage characteristics in a manner approved in the permit and plan (under 10 CSR 40-3.200(11)) to measure changes in the quantity and quality of water in surface and ground water systems in the mine plan and in adjacent areas.

(B) Air and water quality monitoring shall be conducted in accordance with monitoring programs approved in the permit and plan as necessary according to appropriate federal and state air and water quality standards.

Auth: section 444.810, RSMo (1986). Original rule filed May 12, 1980, effective Sept. 11, 1980.*

**Original authority 1979, amended 1983.*

10 CSR 40-4.080 Previously Mined Areas

PURPOSE: This rule brings Missouri's regulations into line with the federal language.

(1) Remining operations on previously mined areas that contain a preexisting highwall shall comply with the requirements of 10 CSR 40-3.110 or 10 CSR 40-4.040, except as provided in this rule.

(2) The requirements of 10 CSR 40-3.110(1)(B) and (2)(A) requiring the elimination of highwalls shall not apply to remining operations where the volume of all reasonably available spoil is demonstrated in writing to the regulatory authority to be insufficient to completely back fill the reaffected or enlarged highwall. The highwall shall be eliminated to the maximum extent technically practical in accordance with the following criteria:

(A) All spoil generated by the remining operation and any other reasonably available spoil shall be used to backfill the area. Reasonably available spoil in the immediate vicinity of the remining operation shall be included within the permit area;

(B) The backfill shall be graded to a slope which is compatible with the approved postmining land use and which provides adequate drainage and longterm stability;

(C) Any highwall remnant shall be stable and not pose a hazard to the public health and safety or to the environment. The operator shall demonstrate, to the satisfaction of the regulatory authority, that the highwall remnant is stable; and

(D) Spoil placed on the outslope during previous mining operations shall not be disturbed if the disturbances will cause instability of the remaining spoil or otherwise increase the hazard to the public health and safety or to the environment.

Auth: section 444.530, RSMo (1986). Original rule filed May 2, 1989, effective Aug. 1, 1989.*

**Original authority 1971, amended 1983, 1990.*