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State of Utah

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DIVISION OF OIL, GAS AND MINING

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November 28, 1994

ACT/007/004

TO: James Carter, Director

FROM: Paul Baker, Reclamation Biologist *PBB*

RE: Violation N94-41-2-2, part 1 of 2

AMAX Coal Company has appealed the fact of the above-referenced violation. The following summary is provided in response to the appeal.

Fact of Violation

On June 13 and 15, 1994, I conducted an inspection of the Castle Gate Mine. Reclamation was ongoing in Sowbelly Gulch with the reclamation contractor doing mostly grading and some channel construction work.

In the reclamation drainage design, the operator was to build two new sedimentation ponds, ponds 16 and 17, and regrade three operational ponds (please see copies of maps from the mining and reclamation plan attached as Exhibits 1 and 2). A system of berms located near drainages was designed to divert water from reclaimed areas into the reclamation ponds. The berms were to be one foot tall with a one foot top width. Adjacent swales were designed to be four feet wide in the smaller drainages and eight feet wide in the larger drainages. In areas where runoff could not be routed to a pond (about 44% of the disturbed area), the design was to erect long stretches of silt fences. These fences would be parallel to the contour, and the plan includes specific designs about how much they would overlap, how far apart they would be, and how they would be installed.

Regrading in Sowbelly Gulch began at the upper part of the disturbed area and was gradually proceeding down the canyon. By the end of 1993, the reclamation contractor had basically completed grading to the intersection of two drainages just below pond 16 (the upper pond). Pond 16 needed riprap at the inlets and outlet but was otherwise completed. The berm that was intended to direct runoff from reclaimed areas away from the undisturbed drainage channel and into pond 16 was roughed in, but it was not functional because of some low places in the berm and because water in the ditch next to the berm would need to run uphill in a few places to get to the pond.

When grading restarted in 1994, the contractor filled in operational pond 4. At first, all drainage from reclaimed areas would still report to operational pond 5. However, as the contractor continued to excavate the main channel, any runoff would no longer go to pond 5.



The operator was told during the May inspection that the berm and swale directing water to pond 16 needed to be repaired, but this had not been done by the time of the June inspection. The berm was only about six inches high in some places rather than one foot as in the design, and, instead of an eight-foot-wide swale, the adjacent area was basically a triangular ditch with little or no bottom width. The low places where water would need to run uphill to get to pond 16 were still there. Although it is understood that reclamation grading was ongoing and that it was impossible to have all sediment control structures in place, some fairly minor repairs to the berm and swale would have made it possible for runoff to go to pond 16.

Below pond 16, the practicality of sediment control during regrading is more problematic. The mining and reclamation plan includes the following:

Page 3.2-32-33, Reclamation Timetable
Phase II

- | | | |
|----|---|----------|
| 3. | Installation of reclamation sediment control structures | Week 1-6 |
| 4. | Grading and removal of ponds 003, 004, and 005 | Week 1-6 |

Page 3.2-31

"Whenever possible, a minimum of one method of sediment control will be in place during reclamation construction. The existing ponds will be left in place as long as possible during the grading operation. Prior to removal of the ponds, filter fabric (silt) fences will be installed to collect sediment runoff from areas which will not report to sedimentation Ponds 016 and 017. . . . Although every reasonable effort will be made to have at least one sediment control measure in place, there may be a period of time when that is not feasible."

The reclamation chronology in the plan clearly shows that sediment control structures would be installed before the operational ponds were removed. The statement on page 3.2-31 also says that filter fabric fences would be installed before grading the operational ponds. Neither of these steps was followed. It was necessary to fill operational pond 4 to begin regrading the area of the highwall, but the contractor proceeded to excavate the main channel to the undisturbed channel before sediment control was installed

Pond 17 was to be built near, but not in exactly the same location as, operational pond 5. It may have been difficult to excavate pond 17 before pond 5 was removed, but the operator had not even started construction of this pond or grading in the area of pond 5 before drainage was diverted away from pond 5.

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In the main channel below the disturbed area, there was one silt fence installed in a manner that any flow exceeding five inches in depth would bypass it (as occurred on August 9). The area contributing drainage to the channel at this point is about 1300 acres, and I did not feel the silt fence was anywhere near adequate for an area that large.

The operator was aware of the need to have sediment control, so the contractor was instructed to keep a "plug" in the end of the channel until all designed sediment control structures were in place. This "plug" essentially formed an undesigned impounding structure. At the times of the inspection, the material forming the "plug" was loose and uncompacted. In a small precipitation event, the "plug" would probably have kept runoff from leaving the disturbed area. However, in a larger storm, such as occurred in August, the "plug" would probably have eroded and failed leading to a lot of sediment leaving the site. Failure of the undesigned pond could possibly have led to a more catastrophic event, such as damage to the Spring Canyon road.

Reasons for the Violation

With the exceptions of one silt fence, one area near pond 16 where runoff would report to pond 16, and the undesigned impounding structure in the main channel, the entire reclaimed area had no sediment control whatsoever at the time of the inspection. The practicality of some sediment control measures, such as excavating pond 17 while pond 5 was still in place, might be disputed. However, there was no reason the berm and swale directing potential runoff to pond 16 could not have been in good repair. Even if it was impractical to excavate pond 17 at this time, portions of the berm/swale intended to eventually direct runoff to this pond were in place. With this berm/swale, the operator could have installed silt fences or straw bales to treat potential runoff before it discharged into the undisturbed drainage channel.

The chronology in the mining and reclamation plan shows that sediment control structures would be installed prior to grading the operational ponds. It also says that filter fabric fences would be installed before the operational ponds are removed. The operator did not follow this timetable.

The "plug" in the main channel was built with the intention of maintaining sediment control for the entire disturbed area. It formed an undesigned impounding structure that had the potential of eroding, causing a lot of offsite sedimentation, and possibly leading to property damage. The regulations require that impounding structures have certified designs, construction inspections, etc. The operator did not meet these requirements for this structure.

Provisions of the Act

(Portions of the following regulations that do not apply to this situation are not included.)

R645-300-142.

The permittee will conduct all coal mining and reclamation operations only as described in the approved application, except to the extent that the Division otherwise directs in the permit.

R645-300-143.

The permittee will comply with the terms and conditions of the permit, all applicable performance standards and requirements of the State Program.

R645-301-732. Sediment Control Measures.

732.100. Siltation Structures. Siltation structures will be constructed and maintained to comply with R645-301-742.214. Any siltation structure that impounds water will be constructed and maintained to comply with R645-301-512.240, R645-301-514.300, R645-301-515.200, R645-301-533.100 through R645-301-533.600, R645-301-733.220 through R645-301-733.224, and R645-301-743.

732.200. Sedimentation Ponds.

732.210. Sedimentation ponds whether temporary or permanent, will be designed in compliance with the requirements of R645-301-356.300, R645-301-356.400, R645-301-513.200, R645-301-742.200 through R645-301-742.240, and R645-301-763. Any sedimentation pond or earthen structure which will remain on the proposed permit area as a permanent water impoundment will also be constructed and maintained to comply with the requirements of R645-301-743, R645-301-533.100 through R645-301-533.600, R645-301-512.240, R645-301-514.310 through R645-301-514.321 and R645-301-515.200.

732.300. Diversions. All diversions will be constructed and maintained to comply with the requirements of R645-301-742.100 and R645-301-742.300.

R645-301-733. Impoundments.

733.100. General Plans. Each permit application will contain a general plan for each proposed water impoundment within the proposed permit area. Each general plan will:

733.110. Be prepared and certified as described under R645-301-512;

733.120. Contain maps and cross sections;

733.130. Contain a narrative that describes the structure;

733.140. Contain the results of a survey as described under R645-301-531;

733.150. Contain preliminary hydrologic and geologic information required to assess the hydrologic impact of the structure; and

733.160. Contain a certification statement which includes a schedule setting forth the dates when any detailed design plans for structures that are not submitted with the general plan will be submitted to the Division. The Division will have approved, in writing, the detailed design plan for a structure before construction of the structure begins.

733.200. Permanent and Temporary Impoundments.

733.210 Permanent and temporary impoundments will be designed to comply with the requirements of R645-301-512.240, R645-301-514.300, R645-301-515.200, R645-301-533.100 through R645-301-533.600, R645-301-733.220 through R645-301-733.226, R645-301-743.240, and R645-301-743. . . . For an impoundment not meeting the size criteria of 30 CFR 77.216(a) and located where failure would not be expected to cause loss of life or serious property damage, the Division may establish through the Utah State program approval process engineering design standards that ensure stability comparable to a 1.3 minimum static safety factor in lieu of engineering tests to establish compliance with the minimum static safety factor of 1.3 specified in R645-301-533.100.

733.230. The Division may authorize the construction of temporary impoundments as part of coal mining and reclamation operations.

733.240. If any examination or inspection discloses that a potential hazard exists, the person who examined the impoundment will promptly inform the Division according to R645-301-515.200.

R645-301-742. Sediment Control Measures.

742.100. General Requirements.

742.110. Appropriate sediment control measures will be designed, constructed and maintained using the best technology currently available to:

742.111. Prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area;

742.112. Meet the effluent limitations under R645-301-751; and

742.113. Minimize erosion to the extent possible.

742.120. Sediment control measures include practices carried out within and adjacent to the disturbed area. The sedimentation storage capacity of practices in and downstream from the disturbed areas will reflect the degree to which successful mining and reclamation techniques are applied to reduce erosion and control sediment. Sediment control measures consist of the utilization of proper mining and reclamation methods and sediment control practices, singly or in combination. Sediment control methods include, but are not limited to:

742.121. Retaining sediment within disturbed areas;

742.122. Diverting runoff away from disturbed areas;

742.123. Diverting runoff using protected channels or pipes through disturbed areas so as not to cause additional erosion;

742.124. Using straw dikes, riprap, check dams, mulches, vegetative sediment filters, dugout ponds and other measures that reduce overland flow velocities, reduce runoff volumes or trap sediment;

742.125. Treating with chemicals; and

742.126. For the purposes of UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES, treating mine drainage in underground sumps.

742.200. Siltation Structures.

742.210. General Requirements.

742.211. Additional contributions of suspended solids and sediment to streamflow or runoff outside the permit area will be prevented to the extent possible using the best technology currently available.

742.212. Siltation structures for an area will be constructed before beginning any coal mining and reclamation operations in that area and, upon construction, will be certified by a qualified registered professional engineer to be constructed as designed and as approved in the reclamation plan. (emphasis added)

742.213. Any siltation structures which impounds water will be designed, constructed and maintained in accordance with R645-301-512.240, R645-301-514.300, R645-301-515.200, R645-301-533.100 through R645-301-533.600, R645-301-733.220 through R645-301-733.224, and R645-301-743.

742.220. Sedimentation Ponds.

742.221. Sedimentation ponds, when used, will:

742.221.1. Be used individually or in series;

742.221.2. Be located as near as possible to the disturbed area and out of perennial streams unless approved by the Division; and

742.221.3. Be designed, constructed, and maintained to:

742.221.31. Provide adequate sediment storage volume;

742.221.32. Provide adequate detention time to allow the effluent from the ponds to meet Utah and federal effluent limitations;

742.221.33. Contain or treat the 10-year, 24-hour precipitation event ("design event") unless a lesser design event is approved by the Division based on terrain, climate, or other site-specific conditions and on a demonstration by the operator that the effluent limitations of R645-301-751 will be met;

742.221.34. Provide a nonclogging dewatering device adequate to maintain the detention time required under R645-301-742.221.32.

742.221.35. Minimize, to the extent possible, short circuiting;

742.221.36. Provide periodic sediment removal sufficient to maintain adequate volume for the design event;

742.221.37. Ensure against excessive settlement;

742.221.38. Be free of sod, large roots, frozen soil, and acid- or toxic forming coal-processing waste; and

742.221.39. Be compacted properly.

742.223. Sedimentation ponds not meeting the size or other qualifying criteria of the MSHA, 30 CFR 77.216(a) will provide a combination of principal and emergency spillways that will safely discharge a 25-year, 6-hour precipitation event or greater event as demonstrated to be needed by the Division. Such ponds may use a single open channel spillway if the spillway is:

742.223.1. Of nonerodible construction and designed to carry sustained flows; or

742.223.2. Earth- or grass-lined and designed to carry short-term infrequent flows at non-erosive velocities where sustained flows are not expected.

742.224. In lieu of meeting the requirements of R645-301-742.223.1 and 742.223.2

the Division may approve a sedimentation pond that relies primarily on storage to control the runoff from the design precipitation event when it is demonstrated by the operator and certified by a qualified registered professional engineer in accordance with R645-301-512.200 that the sedimentation pond will safely control the design precipitation event. The water will be removed from the pond in accordance with current, prudent, engineering practices and any sediment pond so used will not be located where failure would be expected to cause loss of life or serious property damage.

742.225. An exception to the sediment pond location guidance in R645-301-742.224 may be allowed:

742.225.1 In the case of a sedimentation pond meeting the size or other criteria of 30 CFR 77.216(a), if the pond is designed to control the precipitation of the probable maximum precipitation of a 6 hour event or greater event if specified by the Division; or (30 CFR 816.46(c)(2)(ii)(A))

742.230. Other Treatment Facilities.

742.231. Other treatment facilities will be designed to treat the 10-year, 24-hour precipitation event unless a lesser design event is approved by the Division based on terrain, climate, other site-specific conditions and a demonstration by the operator that the effluent limitations of R645-301-751 will be met.

742.232. Other treatment facilities will be designed in accordance with the applicable requirements of R645-301-742.220.

742.240. Exemptions. Exemptions to the requirements of R645-301-742.200 and R645-301-763 may be granted if the disturbed drainage area within the total disturbed area is small and the operator demonstrates that siltation structures and alternate sediment control measures are not necessary for drainage from the disturbed areas to meet the effluent limitations under R645-301-751 or the applicable Utah and federal water quality standards for the receiving waters.

742.300. Diversions.

742.310. General Requirements.

742.311. With the approval of the Division, any flow from mined areas abandoned before May 3, 1978, and any flow from undisturbed areas or reclaimed areas, after meeting the criteria of R645-301-356.300, R645-301-356.400, R645-301-513.200, R645-301-742.200 through R645-301-742.240, and R645-301-763 for siltation structure removal, may be diverted from disturbed areas by means of temporary or permanent diversions. All diversions will be designed to minimize adverse impacts to the hydrologic balance within the permit and adjacent areas, to prevent material damage outside the permit area and to assure the safety of the public. Diversions will not be used to divert water into underground mines without approval of the Division in accordance with R645-301-731.510.

742.312. The diversion and its appurtenant structures will be designed, located, constructed, maintained and used to:

742.312.1. Be stable;

742.312.2. Provide protection against flooding and resultant damage to life and property;

742.312.3. Prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow outside the permit area; and

742.312.4. Comply with all applicable local, Utah, and federal laws and regulations.

742.313. Temporary diversions will be removed when no longer needed to achieve the purpose for which they were authorized. The land disturbed by the removal process will be restored in accordance with R645-301 and R645-302. Before diversions are removed, downstream water-treatment facilities previously protected by the diversion will be modified or removed, as necessary, to prevent overtopping or failure of the facilities. This requirement will not relieve the operator from maintaining water-treatment facilities as otherwise required. A permanent diversion or a stream channel reclaimed after the removal of a temporary diversion will be designed and constructed so as to restore or approximate the premining characteristics of the original stream channel including the natural riparian vegetation to promote the recovery and the enhancement of the aquatic habitat.

742.314. The Division may specify additional design criteria for diversions to meet the requirements of R645-301-742.300.

742.330. Diversion of Miscellaneous Flows.

742.331. Miscellaneous flows, which consist of all flows except for perennial and intermittent streams, may be diverted away from disturbed areas if required or approved by the Division. Miscellaneous flows will include ground-water discharges and ephemeral streams.

742.332. The design, location, construction, maintenance, and removal of diversions of miscellaneous flows will meet all of the performance standards set forth in R645-301-742.310.

742.333. The requirements of R645-301-742.312.2 will be met when the temporary and permanent diversions for miscellaneous flows are designed so that the combination of channel, bank and floodplain configuration is adequate to pass safely the peak runoff of a 2-year, 6-hour precipitation event for a temporary diversion and a 10-year, 6-hour precipitation event for a permanent diversion.

R645-301-752.

Sediment Control Measures. Sediment control measures must be located, maintained, constructed and reclaimed according to plans and designs given under R645-301-732, R645-301-742 and R645-301-760.

752.100. Siltation structures and diversions will be located, maintained, constructed and reclaimed according to plans and designs given under R645-301-732, R645-301-742 and R645-301-763.

R645-301-753.

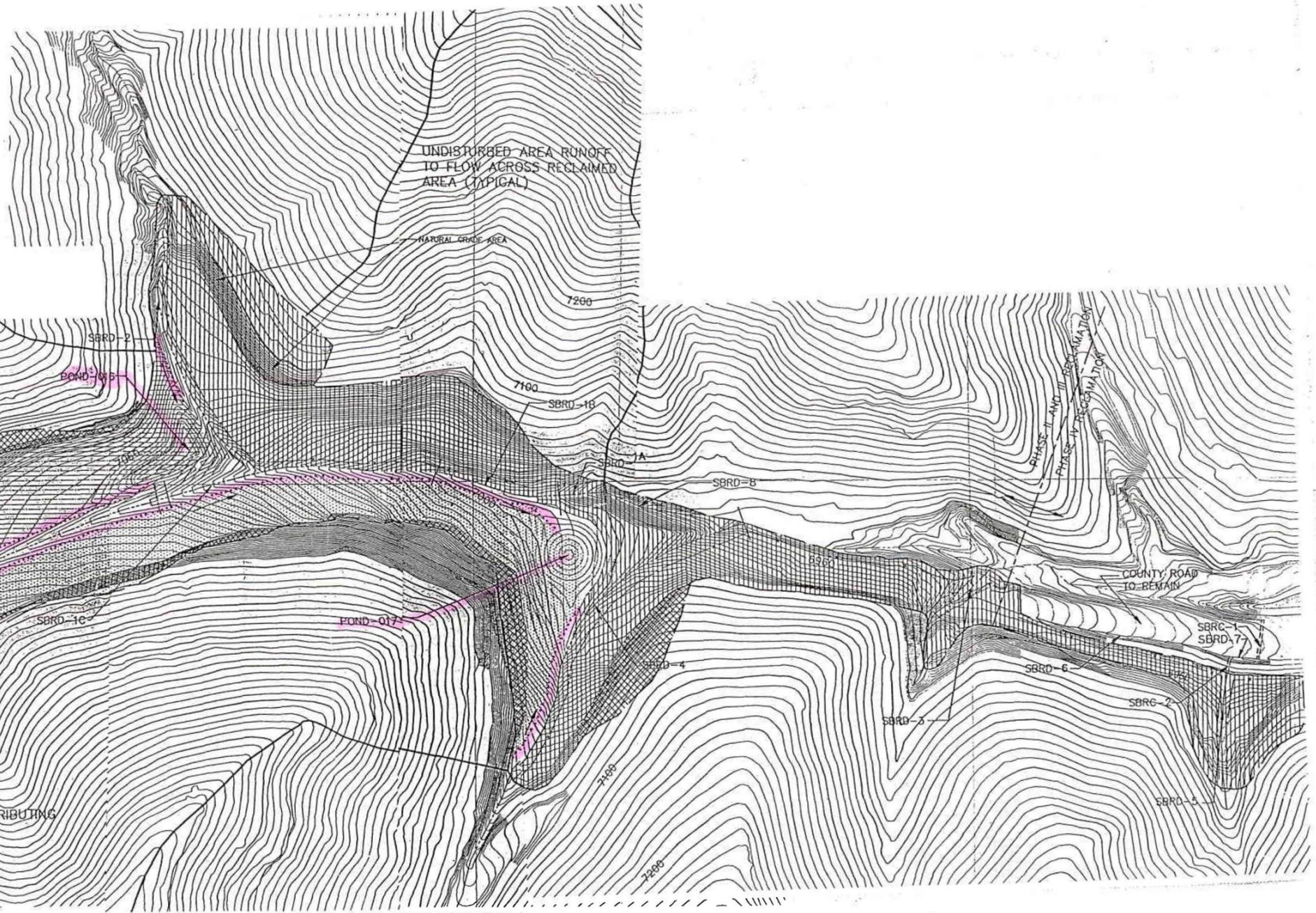
Impoundments and Discharge Structures. Impoundments and discharge structures will be located, maintained, constructed and reclaimed to comply with R645-301-733, R645-301-734, R645-301-743, R645-301-745 and R645-301-760.



EXHIBIT 2 ← N

Exhibit 3.2-3 from MRP

EXHIBIT 1



Dotted lines adjacent to channels show locations of berms/swales designed to divert water away from undisturbed drainage channels ~~and~~ to ponds 16 and 17

Exhibit 3.2-5 from MRP