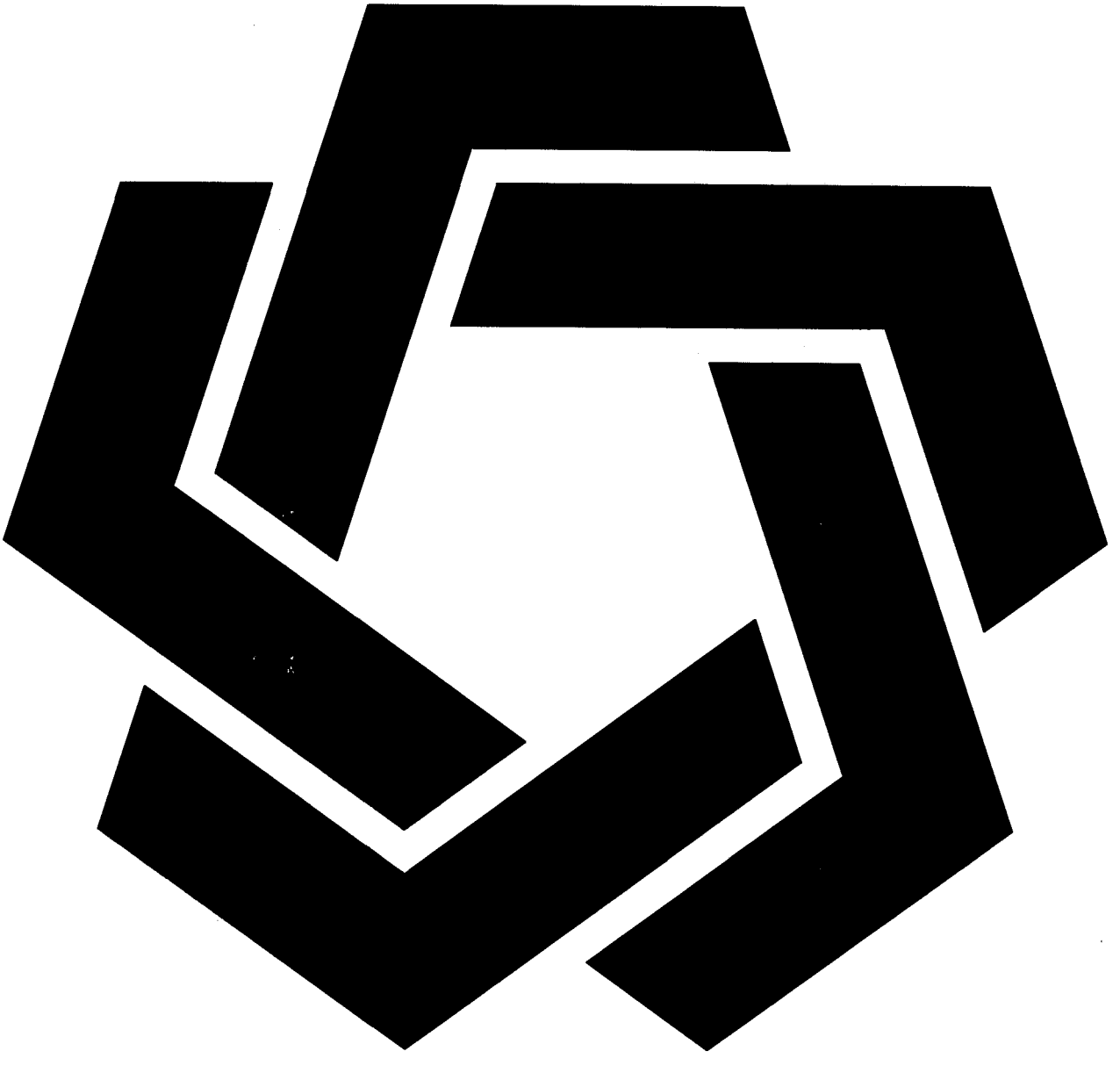
State of Utah
Division of Oil, Gas and Mining
Utah Coal Regulatory Program



Hiawatha Mine Plan
U.S. Fuel
ACT/007/011
February 19, 1997

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*ENVIRONMENTAL RESOURCES*

## HISTORIC RESOURCE INFORMATION

Regulatory Reference: R645-301-400

Analysis:

No cultural and historic resource information or maps could be found for the disturbed area, permit area or adjacent areas. According to the State Historic Preservation Officer the entire town of Hiawatha is on the National Register of Historic Places (personal communication 2/11/97). However, the permit states (page IV, 7) that no eligible or known sites of historic interest are located within or adjacent to the permit area. If historic evaluations have been conducted on the site, these may need to be reviewed to evaluate the effects of reclamation on the resources. Determinations of eligibility should be reevaluated since most studies were likely conducted 20 years ago.

A cemetery is designated on facilities map adjacent to Refuse Pile No. 1 and the heavy equipment shop. This cemetery was used for babies in the town of Hiawatha (statement from Michael Watson, U.S. Fuel). The cemetery is currently covered with coal fines to an unknown depth. The cemetery is not considered a refuse pile or coal stock pile and must have the coal fines removed. The only comment in the permit concerning the cemetery is that the fines will be removed in reclamation. Once the coal fines are removed the cemetery should be excluded from the disturbed area.

The ruins of an old school house remain in Middle Fork and several old portals remain on site. The value of these and many other historic items within and adjacent to the disturbed area are unknown. The reclamation plan fails to address the disposition of these items at the time of reclamation. Some of these items may be of sufficient value that the operator may elect to retain these structures for a postmining land use.

State History has requested that if the operator conducts an evaluation of the site that a qualified historian preforms the evaluation and that State forms are used in the evaluation. At minimum the Division should be contacted prior to the evaluation.

Findings:

The MRP is lacking the following land-use information.

R645-301-411.140 — U.S. Fuel must provide maps and supporting narrative in the MRP, describing the cultural and historic resources within the permit or adjacent area listed, or eligible for listing, in the National Register of Historic Places, which includes protection measures to be used during mining and reclamation activities.

## SOILS RESOURCE INFORMATION

Regulatory Reference: R645-301-220, -301-411

Analysis:

In 1980, the Soil Conservation Service (SCS) conducted a detailed soil survey for South Fork and Middle Fork Areas. Detailed soil profile descriptions are included in Appendix II-1. However, no field notes are found in the MRP. Soil pit locations are located on Exhibits II-1, II-2, II-3 and II-5. The survey encompasses the entire surface facilities in the South Fork area and the upper portion of the surface facilities in the Middle Fork area.

Additional, less intensive soil survey information is provided in Appendix II-2 by the U.S. Forest Service (USFS), and in the SCS referenced publication "Soil Survey of Carbon Area, Utah." These 3rd Order soil surveys are used to describe the environmental soil resources for the entire permit area and for the surface disturbance areas within the lower Middle Fork, North Fork Facilities, Upper Railroad Yard and Preparation Plant. The 3rd Order soil surveys lack the specificity of a 1st Order soil survey which show individual soils as described by actual on-site profile descriptions. In fact, the 3rd Order conservation maps only include information for soil associations and complexes, not individual soil consociations. First Order soil surveys always include actual on-site soil pit excavations along with specific field data, detailed profiles descriptions, and appropriate map delineations.

The specificity of the 1st Order soil surveys allow adequate soil profile descriptions to ascertain actual soil quality and volumes available for reclamation. Efforts have been made to correlate the SCS's 1st Order soil survey with the 3rd Order soil surveys published by USFS and the SCS. Correlated information aids in the delineation, clarification and interpretation of soils data for the purpose of identifying on-site soils. However, for all soil profile descriptions listed in Appendix II-2 and those published in the SCS soil conservation survey for Carbon County, Utah, not a single referenced soil survey pit is located within the surface disturbance areas of the Hiawatha complex. Neither of these soil survey documents contain actual on-site soil profile descriptions. Therefore, soil maps for the above listed areas lack the specificity needed to adequately assess the soils for reclamation purposes. The information and specificity of the 1st Order surveys would allow the assessment of soil quality, quantity, and volumes and determination for recoverable soils, substitute soils and fill materials.

Any pre-SMCRA area comprising disturbed soils should also be included in the soil survey. NRCS defines soils as "the collection of natural bodies in the earth's surface, in place modified or even made by man of earthy materials, containing living matter and supporting or capable of supporting plants out-of-doors." In fact, soil taxonomy provides nomenclature and taxonomic identification for soils with little or no profile development as Entisols. Otherwise, any refuse laden material may be labeled as coal waste. Therefore, pre-SMCRA areas containing disturbed soils should be included in the soil surveys, classified by depth and taxonomically identified. This specificity will allow the delineation of salvageable substitute soils, fill materials for reclamation purposes, and any surface disturbance containing coal refuse.

In conclusion, the current environmental resource section for the surface disturbance areas has insufficient information to determine accurately if additional quantities of appropriate, excess substitute soils exist to help supplement the present stockpiled soils. U.S. Fuel Company must provide soil surveys that adequately assesses the soil resources, complete with actual on-site soil profile descriptions, field notes, sampling documentation, and appropriate soil map delineations differentiating individual soil types. Soil survey information needs to be current, reported clearly and concisely, and be presented in a manner that provides the necessary information to construct soil mass balances. Accordingly, an adequate soil survey will supply the necessary information to project any possible soil deficits, excess soils and salvageable substitute soils. From these mass balance calculations, excess fills and substitute soils may be located to help offset the need to borrow soil. The ultimate goal is to lessen additional surface disturbance from the soil borrow areas. The Division requests notification for the location, sample density, and analytical procedures before U.S. Fuel conducts any additional surveys.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-220 — U.S. Fuel must clearly document the soil resources for locating any recoverable substitute soils and fills to be used during reclamation to help offset soil borrow needs. Provide on-site soil surveys of the lower Middle Fork, North Fork Facilities, Upper Railroad Yard and Preparation Plant surface disturbance areas with the detail and specificity necessary to adequately describe the soils, disturbed soils, and fills as for depth, volume, and quality. The detailed, on-site soil profile descriptions should include field notes correlated with soil pit locations and soil map delineations differentiating individual soil types. All soil maps must be updated accordingly and accurately scaled at less than 1 to 12,000. The Division requests notification for the location, sample density, and analytical procedures before U.S. Fuel Company conducts any additional soil surveys.

*OPERATION PLAN*

## MINING OPERATIONS AND FACILITIES

Regulatory Reference: R645-301-231, -301-526, -301-528.

### General

Analysis:

United States Fuel Company facilities are located at five sites near Hiawatha, Utah. Due to the complexity of operations, each area will be discussed separately in this section. These areas are identified on Exhibit IV-5 in Chapter IV as follows 1) North (Right) Fork of Miller Creek Surface Facilities, 2) Middle Fork of Miller Creek Surface Facilities, 3) South (Left) Fork of Miller Creek Surface Facilities, 4) Hiawatha Processing Plant and Waste Disposal Sites and 5) Substitute Topsoil Borrow Sites.

### Type and Method of Mining Operations

#### Middle Fork Canyon

King 4 Mine

Portals for the King 4 Mine are located on the north side of Middle Fork of Miller Creek. The mine was opened in 1974 when haulage and ventilation entries were driven outward from the northern extension of the King 1 Mine to the B seam outcrop in Middle Fork. Mining in the King 4 Mine was done by the room and pillar method. Production at from the B seam was estimated to be 120,000 and the amount from the A seam was uncertain.

Production from the King 4 Mine has ceased and the portals have been sealed. The information in the MRP states that the mine is still active. U.S. Fuel needs to update the MRP by stating that production from the King 4 Mine has ceased and describe the anticipated future plans for the mine.

Plans for future production from the King 4 Mine are uncertain. Some of the equipment and support facilities have been sold or removed from the site. From conversations with U.S. Fuel and inspection reports it appears that some of the mining equipment has been sold or removed from the site. U.S. Fuel needs to supply the Division with an update equipment list.

King 5 Mine

Portals for the King 5 Mine are located on the south side of Middle Fork of Miller Creek. The King 5 mine was deactivated in 1983 due to poor market conditions and has remained inactive since that time. Conditions within the mine remain good and it would be reactivated if market conditions improve. The King 4 and King 5 mine share the same surface facilities. There is no equipment list in the MRP for the King 5 mine.

### South Fork

The King 6 mine is located in South Fork canyon. It was opened in 1981 and deactivated in 1988. A list of the major mining equipment for the King 6 mine is given in the MRP. From conversations with U.S. Fuel and inspection reports it appears that some of the mining equipment has been sold or removed from the site. U.S. Fuel needs to supply the Division with an update equipment list.

### Slurry Ponds

U.S. Fuel is currently recovering coal fines from the slurry ponds and selling them. That activity requires U.S. Fuel to pay AML surface coal mining fees. The current permit is for underground mining only. The status of the surface mining is not clearly defined in the permit. At this time the Division will not require U.S. Fuel to describe the surface mining activities.

### Other Mines

There have been other mines associated with the Hiawatha complex. A complete list of those mines is given in Table V-1, Mine Identification. The list contains both pre and post SMCRA mines. The Hiawatha No. 2 mine was closed in 1928 and is currently being used as an underground water reservoir.

## Facilities and Structures

### North Fork

The North Fork surface facilities were constructed in 1981. The facility consisted of a ventilation portal for the King 4 mine. The area has been reclaimed. See the reclamation section of the TA for more information.

### Middle Fork

The King 4 and King 5 mines share the same surface facilities. The Middle Fork mine complex contains approximately 12 acres and includes parts of the old Hiawatha No. 1 and No. 2 mines which were closed in 1928. The No. 2 mine is used as a water storage reservoir. The reservoir was constructed by sealing off the mine entries with reinforced concrete bulkheads.

A list of the surface facilities in Middle Fork is given in table V-5. Information from the inspection reports suggests that some of the equipment and structure have been sold or removed. U.S. Fuel needs to update Table V-5.

The King 4 and King 5 mines have been closed indefinitely. The surface facilities remain idle. U.S. Fuel has not addressed how the facilities will be maintained during the indefinite closure.

### South Fork

The South Fork mine yard was constructed in 1947 to facilitate the old King 3 mine. Beginning in 1981 work was stated on upgrading the existing structures and construction of a new haulage portal to serve the King 6 mine. A 42 inch overland wire rope conveyor extends from the mine mouth 2,100 feet down South Canyon to a 5,000 ton coal stockpile. Coal was then trucked 2.5 mine to the processing plant in Hiawatha. Currently the disturbed area contains 10.4 acres. And the haul road contains 12.3 disturbed acres.

### Hiawatha Processing Plant and Waste Disposal Sites

The processing plant at Hiawatha is located immediately north of the town and is on U.S. Fuel Company fee land. Table V-7 gives a list of major capital equipment associated with the processing plant facilities. U.S. Fuel has demolished several of the structures associated with the processing of the coal. U.S. Fuel needs to update the operational plan with respect to the processing plant and waste disposal site.

Discussion on coal waste material is included in the Operational Topsoil and Subsoil section of this TA. There are many areas that are contaminated by windblown coal fines and coal waste. These areas include but are not limited to the cemetery and areas near the refuse piles, in and adjacent to the disturbed area.

### General

U.S. Fuel has removed or sold some of the equipment and facilities at the five sites. For operational purposes U.S. Fuel should supply the Division with updated lists and maps showing on the ground conditions. Because bond release for structure demolition cannot be done until U.S. Fuel has met the requirements of phase 1 reclamation they need to maintain a list of all structures that have demolished in the MRP.

Findings:

The following deficiencies exist in the Hiawatha Mine Plan.

R645-100-430, R645-301-512.230, -553.250, and -542.730 — U.S. Fuel must identify all miscellaneous coal and coal waste materials. An appropriate standard needs to be identified for placing these materials in a controlled manner to ensure that final disposal will be suitable for operations, reclamation and post-mining land use. These areas include, but are not limited to, all stray coal piles, wind blown coal fines, coal waste piles and downcast coal materials.

R645-301-523 — Since U. S. Fuel has sealed the portals and begun to dismantle many of the structures, they must update the operations plan to reflect their intent. In the update, they must describe the future plans for all facilities. If U.S. Fuel plans to retain a structure for future use, they must describe how that facility will be maintained. For any structure scheduled for demolition, U.S. Fuel must describe its reclamation and the

reclamation of the surrounding area.

R645-301-526 — U.S. Fuel must update the mine facilities section of the operations plan. At a minimum, U.S. Fuel must update the MRP with regards to the use, maintenance and removal of the structures. Since bond release for the demolition of structures cannot be granted until all the requirements of phase I bond release have been met, U.S. Fuel must maintain two separate lists. One list and map must show the current conditions and the other must show the structures with regards to bond calculations.

## INTERIM STABILIZATION

Regulatory Reference: R645-301-330.

Analysis:

Chapter 3 of the plan discusses interim revegetation plans for specific areas but does not have a revegetation seed mixture(s) that applies to the entire area. The areas discussed in the plan are primarily test plots. The plan also discusses what species would be used on topsoil piles.

While it is not anticipated that there will be much more interim revegetation, there could be a need for some in topsoil borrow areas or on the refuse piles until the permanent seed mixture is planted. The plan should show how topsoil would be protected in these areas if seeding with the final reclamation seed mixture is not imminent. A cover crop with an annual grain, perhaps mixed with sweet clover, should help to keep weeds under control. If planted in the spring or summer, an annual grain should be a winter variety that will not set seed without vernalization.

Findings:

The mining and reclamation plan does not meet the requirements of this section of the regulations. U.S. Fuel needs to make the following changes:

R645-301-331 — U.S. Fuel must submit an interim revegetation plan for disturbed areas that will not be immediately seeded with a final reclamation seed mixture and where erosion or weed establishment could create problems.

## TOPSOIL AND SUBSOIL

Regulatory Reference: R645-301-230.

Analysis:

Accurate assessment of topsoil resources requires mass balances determinations based on salvaged soils, projected substitute topsoil and additional fills, their location and volumes. As explained earlier, the current environmental resource section has insufficient information to determine accurately if additional quantities of appropriate, excess substitute soils and fill materials exist to help

supplement the known soil resources. Based on adequate soil survey information, the MRP needs to project topsoil and substitute topsoil mass balances for reclamation. As explained in the Mine Reclamation Plan (MRP) soils section, surface materials in the upper Railroad Yard and the lower Preparation Plant consist of substitute topsoil materials. From these mass balance calculations, additional excess fills and substitute soils may be located to help offset the need to borrow soil and will lessen the surface-area impact from soil borrow operations.

Information concerning soil borrow areas for past, current and projected reclamation activities needs to be updated both in the MRP and on the soil maps. In addition, soil borrow areas are considered surface disturbance, therefore, soil maps need to show soil borrow areas as part of the surface disturbance.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-232.720 and R645-301-140 — (1) U.S. Fuel must identify and utilize all excess and available disturbed and substitute soils prior to using borrow site soils. Based on reclamation soil redistribution needs, provide soil mass balance determinations based on salvaged soils, projected substitute soils, and fills. Correlate soil mass balance information with the on-site soil survey. Provide soil mass balance tables and maps that delineate locations, acreage, depths, and volumes. (2) Based on mass balance results, determine soil borrow amounts. Update soil borrow information accordingly and for all borrow related reclamation activities. Soil borrow affected areas and associated haul roads need to be portrayed on all maps as surface disturbance.

## ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: R645-301-521, -301-527, -301-534, -301-732.

Analysis:

The MRP is classifies the North Fork jeep road as an ancillary road. Retention of the road has been approved as part of the postmining land use. R645-301-527.123 states that a road must be classified as a primary road if it is to be retained as part of a postmining land use. U.S. Fuel must change the road classification for the North Fork road or commit to reclaim it once mining has ceased.

Findings:

The following deficiencies exist in the Hiawatha MRP.

R645-301-527.123 — U.S. Fuel must either change the classification of the North Fork road

from ancillary to primary or modify the reclamation plan so that the road will be fully reclaimed.

## SPOIL AND WASTE MATERIALS

Regulatory Reference: R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

Analysis:

Fine refuse from the preparation plant is stored in the slurry ponds. Some of the fines, once dried, are sold to available markets. The course refuse is stored in the refuse piles and slurry pond embankments. The majority of underground development waste generated by mining operations is disposed of underground in mined out areas. Occasionally small amounts of underground development waste will be brought to the surface and disposed of in the refuse piles.

Since the wash plant has been dismantled, U.S. Fuel will no longer be generating coal fines. U.S. Fuel is in the process of selling the fines and reclaiming the slurry ponds. The MRP should be updated to show that the ponds are being reclaimed and that no more coal mine waste can be place in them. See R645-301-528.

Two refuse piles exist near the Hiawatha processing plant. They are Refuse Pile No.1 and Refuse Pile No. 2. Refuse Pile No.1 was established in the early 1940's and has been utilized intermittently to the present date. Refuse Pile No. 2 was approved for use by MSHA and DOGM in 1987. Refuse deposited in the piles consists of the same type of material used to construct slurry pond embankments. It is not acid or toxic forming. Both piles are inspected and certified quarterly as required by the Division.

From inspection reports and conversations with U.S. Fuel the Division has learned that the refuse piles are being graded and that topsoil is being placed on top of them. These activities are part of the reclamation plan. U.S. Fuel needs to update the operation plan to reflect the new activities.

In the MRP U.S. Fuel states that there are three active slurry impoundments in the permit area. They are Slurry Pond No. 1, Slurry Pond No. 4 and Slurry Pond No. 5. U.S. Fuel has changes the names and configurations of the slurry ponds. Pond No. 5 has been divided into Pond 5A and Pond 5B.

The slurry ponds were constructed to hold fines from the wash plant. After the demolition of the wash plant U.S. Fuel no longer needs the slurry ponds to process the fines and has begun selling them. The Operation plan needs to be updated to reflect the current use and need for the ponds.

Findings:

The following deficiencies exist in the Hiawatha MRP.

R645-301-528 — U.S. Fuel must provide a narrative explaining the modification, use, and maintenance of the coal waste, refuse and impoundment structures. The narrative must also explain the coal storage, loading, hauling, handling and associated haul roads located within the railroad right of way.

R645-301-116.100 — U.S. Fuel must update the MRP to describe the anticipated or actual starting and termination date of each phase of coal mining and reclamation operation and the anticipated number of acres of land to be affected during each phase of mining and reclamation over the life of the mine.

## HYDROLOGIC OPERATIONAL INFORMATION

Regulatory Reference: R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

### Diversion Designs

Analysis:

Several ditch designs are absent from the hydrologic plan. Designs for ditches DD-2, DD-3, DD-10, and DD-11 are in Appendix VII-3. The MRP also includes most culverts in this section; however, U.S. Fuel has poorly copied much of the important information into this section and is unreadable. The following disturbed area ditches are shown on maps but do not have corresponding designs: DD-1, DD-4, DD-5, DD-6, DD-7, DD-8, DD-9, DD-12, DD-13, DD-15, DD-16, DD-22, DD-24, DD-46, DD-59, and three unnamed ditches (west of Slurry Pond 5, southwest of Slurry Pond 5, and in South Fork Canyon east of the equipment and supply storage area). With the exception of the Miller Creek diversion all undisturbed ditches shown on the maps do not have corresponding designs. Further, there are three culverts that are improperly labeled on the maps making it impossible to locate their designs. These are a 24-inch CMP located west of Slurry Pond 5, a 42-inch CMP labeled the "Reclaim Conv." in the coal stockpile area, and a 24-inch CMP located near UD-9. Finally, a drop inlet to 36-inch CMP(2) does not have proper designs and the flow pattern between UD-12 and DD-12 is unclear. Appendix V-14 and Appendix V-15 contain diversion designs for the Middle Fork and North Fork facilities, respectively.

Findings:

The following deficiency must be corrected to bring the MRP into compliance with the hydrologic regulations.

R645-301-742.312 — The MRP must include all diversion designs and summaries. This includes all undisturbed and disturbed ditches and culverts.

**Sediment Control Measures**

Analysis:

Appendix VII-15 has designs for sediment traps 1, 3, 4 and 6. These traps are described and designed in this appendix but they are not clearly labeled on Exhibit V-9 or any other map.

Page 88 of the MRP says that designs for ponds D003, D004, D005, D006, and D007 are in Appendix VII-3, however, there is only minimal information on pond inlet designs in this section and no pond designs. Exhibits VII-8 through VII-12 are as-builts for these ponds. These as-builts show most information required for determining pond adequacy through the operations portion of mining.

Most areas are controlled by sediment ponds; however, some maps show a few sites for which alternate sediment control measures (called ASCAs) are used. They have included discussion on these ASCAs in the Appendix V-8. The following catch basins are labeled on maps and have corresponding designs in Appendix V-8: two located southwest of Slurry Pond 5, one on either side of the county road, and two that work in conjunction with ditches DD-8 and DD-9. Facility area maps also show several small area exemptions (SAEs) that are not discussed in the MRP. The maps and appendix identify these areas as small area exemptions, BTCAs and ASCAs. According to the regulations and Directive Tech-003a these should only be identified as ASCAs. They have alternate sediment control designs but no demonstrations showing that sediment control is not necessary.

Slurry Pond 5A is acting as a sediment pond for many areas. This pond is not designed as such, yet it makes good sense that it would be used for this purpose. U.S. Fuel must officially identify and design Slurry Pond 5A as a siltation structure.

Findings:

The following deficiency must be corrected to bring the MRP into compliance with the hydrologic regulations.

R645-301-742.110 — U.S. Fuel must design and maintain all sediment control measures using the best technology currently available to prevent to the extent possible addition contributions of sediment runoff outside the permit area. This includes a description and location (shown on a map) of the sediment control measure respecting the area treated by the measure.

R645-301-742.240 — U.S. Fuel must demonstrate that siltation structures and alternate sediment control measures are not need to control sediment for each small area exemptions (SAE). Areas currently identified as SAEs may be redefined as ASCAs if the appropriate sediment control is designed and maintained.

R645-301-742-200 — U.S. Fuel must officially identify and design Slurry Pond 5A as a siltation structure or redesign their sediment control for areas currently treated by that pond.

## MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

### Mining Facilities Maps

Analysis:

U.S. Fuel has made several operational changes to the disturbed area. Those changes need to be shown on the mine facilities map. See R645-301-521.160.

Findings:

The following deficiencies exist in the Hiawatha MRP.

R645-301-521 — U.S. Fuel must provide maps and cross sections that show the operations surface facilities including permitted long-term equipment storage areas, noncoal waste storage area, etc. They must update these maps to show the actual on the ground condition of the operational program.

*RECLAMATION PLAN*

## GENERAL REQUIREMENTS

Regulatory Reference: R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

Analysis:

United States Fuel Company facilities are located at five sites near Hiawatha, Utah. Due to the complexity of operations, each area will be discussed separately in this section. These areas are identified on Exhibit IV-5 in Chapter IV as follows 1) North (Right) Fork of Miller Creek Surface Facilities, 2) Middle Fork of Miller Creek Surface Facilities, 3) South (Left) Fork of Miller Creek Surface Facilities, 4) Hiawatha Processing Plant and Waste Disposal Sites and 5) Substitute Topsoil Borrow Sites.

Access to the underground mines were from the North Fork, Middle Fork and South Fork facilities. A breakout portal for a ventilation fan was the only surface facility at North Fork. The portal has been backfilled and the surface disturbance reclaimed. The portals at Middle Fork and South Fork have been backfilled.

Most of the surface facilities at Middle Fork and South Fork remain intact. Much of the equipment has been removed. There has not been any significant backfilling or regrading done at those two sites.

Some backfilling and grading activities have occurred at the processing plant and waste disposal facility. Currently coal fines are being mined and shipped off site from the area.

### North Fork

In the inspection report dated June 22, 1994 Paul Baker stated:

> The breakout portal in North Fork has been backfilled. Unless there is any chance that this portal could be used again, the backfilled areas should be revegetated this fall. There is a cut near the breakout that should be planted with the conifer planting mix from Chapter 3 of the plan. This cut is not proposed for additional grading. It is vegetated with grasses and forbs but few if any trees or shrubs.

The backfilling and grading plans are shown on Exhibit V-10. The plan has been certified as required by R645-301-512. The Division has not field checked the reclamation work done at the North Fork Portal with the reclamation plan. It is not known at this time what other reclamation work has been completed in North Fork Canyon.

In Chapter II it states that the road North Fork Canyon would be reclaimed as a dirt road. The Division has not field checked the canyon so the status of the road is unknown.

In Appendix V-7 the Operator states that a powerlines extend from the mouth of the canyon to the ventilation portal. There is no mention of the powerline in the reclamation plan and the Division does not know the status of the powerline.

Exhibit V-10, North Fork Final Surface Configuration, shows a 36" culvert left in place near the ventilation portal. There is no mention of the culvert in the reclamation plan. The reclamation plan does not state if the culvert was approved for a postmining land use. The Division does not know the status of the culvert.

R645-301-542.100 requires that U.S. Fuel provide the Division with a detailed timetable for the completion of each major step in the reclamation plan. At present the Division does not have a detailed timetable of when the reclamation work at North Fork will be completed.

The Division needs to know the current status of the reclamation activities. That would include the work that has already been completed and when the remaining work will be done.

**Middle Fork**

Surface areas in Middle Fork canyon are associated with the Hiawatha No. 1 and 2 mines and the King No. 4 and No. 5 mines. Those facilities were constructed prior to the passage of SMCRA. Therefore, no topsoil was stockpiled for future reclamation. The backfilling and grading plan is shown on Exhibit V-11 and has been certified.

After the surface facilities have been removed and the portals sealed the earthwork is scheduled to begin. The earthwork will include removal of the culverted stream diversions beneath the mine yard. The sediment ponds will also be removed and the channel will be restored so that it can handle the appropriate storm event.

U.S. Fuel has done some earthwork at the site. The Division has not have those activities documented. The Division does not have the reclamation schedule for the site. One item that needs to be addressed is what if any water is being impounded underground.

**South Fork**

Disturbed areas in the South Fork Canyon will be reclaimed in the same manner as the Middle Fork areas. Surface structures will be dismantled and removed. Foundations will be covered with backfilled material. Some portals may temporarily be left open for disposal of abandoned materials. The fill material used to construct the existing pads remains in place and will be used to reshape final surfaces. Proposed post-mining backfill and grading plans are shown on Exhibit V-12. The proposed final surface configuration was developed to provide a balanced cut and fill situation and a configuration consistent with other canyons in the area.

Since the mine yard area was constructed prior to the SMCRA no topsoil was stockpiled for

reclamation. Substitute topsoil material segregated from the yard areas will be used once the site is regraded.

The South Fork truck loading facility and overland conveyor were constructed after the regulations were in force. Topsoil was stripped and stockpiled for these areas.

Currently, the South Fork of Miller Creek flows beneath a portion of the mine yard area and the mine yard sediment pond in corrugated metal pipes. During reclamation these diversions will be removed and the channel reclaimed in open form. The design of the channel, including peak flow and stability calculations are given in Chapter VII.

An 8' by 20' breakout associated with the King 5 mine is found in the left fork of South Fork. The breakout was excavated from within the mine, so very little disturbance away from the breakout occurred. Surface disturbance associated with this breakout amounts to approximately 300 square feet. Upon completion of mining, the opening will be sealed and the disturbed area will be bermed by hand and reseeded by hand broadcasting. Because access to this area is impossible without causing significant damage to the surface, U.S. Fuel proposes no further reclamation of this small area.

The South Fork road will be reclaimed as outlined in R645-301-240 in Chapter II. The 800-foot long dirt road from the bath house to the South Fork water tank, classified as a small area exemption, will be reclaimed in the same manner except that asphalt removal will not be required.

Findings:

The following deficiency exists in the Hiawatha reclamation plan.

R645-301-542.100 — U.S. Fuel must provide detailed timetable for the completion of each major step of reclamation, including but not limited to, a description of the removal of equipment, demolition of structures, backfilling and grading of all disturbed areas. This may require adding to or modifying Table III-9 or another such table to include Slurry Pond 5A and the South Fork facilities.

R645-301-850.100 — The current reclamation bond does not cover the railroad loadout area and the associated haul road. U.S. Fuel must include the loadout and haul road as part of the disturbed area.

## BACKFILLING AND GRADING

Regulatory Reference: R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

### North Fork Reclamation

The intake ventilation portal in North Fork was constructed between 1979 and 1980 for the King 4 mine. Postmining grading plans and cross sections for the North Fork portal area are shown

on Exhibit V-10. The earthwork calculations are based on the cross sections in Exhibit V-10 and the calculations are presented in Exhibit V-15. All fills will be placed so that the surface slopes are no steeper than 2:1. The portal area is scheduled to be reclaimed when mining ceases.

The Operator has informed the Division that the pad area has been reclaimed. The reclamation activities include sealing and backfilling the portals, surface backfilling and regrading and seeding. **The Division has not inspected the ventilation portal area to determine if the backfilling and regrading efforts meet phase one standards.**

A stream diversion, constructed in 1951, is located approximately 1/4 mile downstream from the King 4 ventilation portal. Water from this diversion is piped approximately 2,100 feet further downstream to an old ventilation opening in the Hiawatha No. 2 mine. The ventilation opening is inaccessible due to natural caving of the portal over time. During final reclamation, those portions of the pipeline exposed on the surface will ve removed and disposed of. Buried pipe will be left in place and will be capped by welding steel plates over both ends. During reclamation the mine opening will be sealed and the surrounding area backfilled and regraded. **The status of the mine opening and diversion pipe is not known by the Division as of 12/19/96.**

The diversion structure (catch basin and spillway) will remain in place after reclamation according to the reclamation plan approved June 15, 1993. The structure will remain in place because of its stabilizing effects on the stream channel. The structures have been design to pass a 100 year, 24 hour event. **The status of the catch basin and spillway have not been documented by the Division as of 12/19/96.**

**Middle Fork**

Proposed postmining backfilling and grading plans are shown on Exhibit V-11. The proposed final surface configuration was developed to provide a balanced cut and fill situation and configuration similar to other canyons in the area. A shrink factor of 5 percent was used in balancing the cuts and fills. Calculations for the earthwork volumes are based on the cross sections shown on Exhibit V-11. Quantity computations based on cross section areas and the average end-area method are given in Appendix V-15.

The existing culverted stream diversions beneath the mine yard and the sediment pond will be removed and the channel restored as a permanent open channel. The restored stream channel will be revegetated for a riparian habitat and the area will be mulched using tacked hay to prevent excessive erosion.

Abandoned mine portals of the Hiawatha No. 2 mine area sealed with concrete bulkheads, which impound water. The impounded water originates at the King 4, 5 and 6 mines. During final reclamation the impoundment will be drained. The seals will be left in place to help prevent access and the portals will be backfilled.

The haul road in Middle Fork Canyon below the pad will be left. The road above the pad leading to the water tank will be removed.

**The Division has not field checked the backfilling and grading. The Division does not know if water is being discharged from the Hiawatha No. 2 mine portal.** The Division has approved the backfilling and grading plan. The next step is to inspect the site and compare the as-builts with the original plan.

Findings:

No plan deficiencies remain in the area of backfilling and grading. Further site inspections will be necessary to determine field conditions.

## MINE OPENINGS

Regulatory Reference: R645-301-513, -301-529, -301-551, -301-631, -301-748, -301-765, -301-748.

Analysis:

### North Fork

The Operator states in the reclamation plan that all mine openings will be closed during the backfilling and grading phase. **The Division has not inspected the area to determine if the portals have been properly backfilled and sealed.**

### Middle Fork

Abandoned mine portals of the Hiawatha No. 2 mine, sealed by concrete bulkheads, impounds water for mining purposes at the King 4, 5, and 6 mines. During final reclamation the impoundment will be drained. The seals will be left in lace to help prevent access and the portals backfilled. **The Division has not inspected the area to determine if the portals have been properly backfilled and sealed. The Division does not know if the bulkheads will impound water. If so what is the likelihood of a structural failure?**

Findings:

No plan deficiencies remain in the area of backfilling and grading. Further site inspections will be necessary to determine field conditions.

## TOPSOIL AND SUBSOIL

Regulatory Reference: R645-301-240.

Analysis:

Coal fines are currently being harvested from Slurry Pond #1. After excavation, the pond area will be regraded according to the reclamation plan. Both these activities will appreciably alter the surface of Slurry Pond #1. Therefore, additional sampling of the newly disturbed and

exposed surface materials is required to ascertain the toxic and acid forming properties. The sampled material will be analyzed according to the Division's guidelines for management of topsoil and overburden[1].

Soil surfaces outside the disturbance areas adjacent to the slurry ponds are contaminated by wind blown coal fines. The MRP needs to address reclamation of these affected areas and include them within the surface disturbance.

Within the disturbance areas, all coal mine wastes encountered during reclamation need to be identified and placed in a controlled manner to ensure that final disposal will be suitable for reclamation and is compatible with the natural surroundings and post-mining land use. Primary and secondary coal mine waste disposal areas need to described and located on pre- and post-reclamation maps. Delineate between pre and post law coal waste areas. These areas include, but are not limited to, all stray coal piles, wind blown coal fines, coal waste piles and downcast coal material within the disturbed area boundaries. The Existing Structure Exemption does not apply to existing and new coal mine waste disposal facilities. Disposal needs to be described for all apropos and unanticipated coal mine wastes encountered before and during reclamation, respectively.

Findings:

U.S. Fuel must provide the following, prior to approval, in accordance with the requirements of:

R645-301-233 and R645-301-553.252 — U.S. Fuel must conduct additional sampling of the newly disturbed surface materials on Slurry Ponds #1 to ascertain the toxic and acid forming properties. The sampled material will be analyzed according to the Divisions guidelines for management of topsoil and overburden.

## ROAD SYSTEMS AND OTHER TRANSPORTATION FACILITIES

Regulatory Reference: R645-100-200, -301-513, -301-521, -301-527, -301-534, -301-537, -301-732.

Analysis:

### North Fork

Exhibit V-10 shows the road in North Fork Canyon will be retained. In Section R645-301-527 Transportation Facilities Ancillary Roads U.S. Fuel states that the road in North Canyon is ancillary. By definition (R645-301-527.123) only roads that have been classified as primary can be retained for an approved postmining land use.

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[1] Leatherwood, J. and D. Duce. 1988. Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining. State of Utah Department of Natural Resources, Division of Oil, Gas and Mining.

There is a conflict between Exhibit V-10 and the how the North Canyon road classification in Section R645-301-527. This issue needs to be resolved prior so that contemporaneous reclamation can proceed. The Division acknowledges that there may be some legitimate needs for the road as part of the postmining land use. Therefore, U.S. Fuel must either reclaim the road or has it classified as a primary road and has it approved for retention as part of the postmining land use.

**Middle Fork**

In Chapter 2 of the MRP U.S. Fuel states that the haul road in Middle Fork Canyon will remain as part of the postmining land use. In Chapter 5 U.S. Fuel states that the access road to the water tank above the mine yard is an ancillary road. Exhibit V-11 shows that road above the pad area will be reclaimed.

Findings:

The Hiawatha reclamation plan has the following deficiencies for road systems and transportation facilities reclamation.

R645-301-527.123 and R645-301-527.123 — U.S. Fuel must either reclaim the North Fork Canyon ancillary road or reclassify it as primary.

## HYDROLOGIC RECLAMATIONAL INFORMATION

Regulatory Reference: R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

**Coal Mine Waste**

Analysis:

Several areas in the Hiawatha permit will contain coal mine waste after reclamation. These areas are the refuse piles and slurry ponds. U.S. Fuel is removing and selling coal fines from the slurry ponds which will aid in minimizing the amount of waste that must be accounted for in reclamation, but total elimination will not be possible.

U.S. Fuel has already regraded one refuse pile, Slurry Pond 4 to its final configuration. The pile does not match the exact planned configuration be poses no hydrologic problems. U.S. Fuel has not yet provided as-builts on this pond.

Findings:

To adequately meet the coal mine waste regulations, U.S. Fuel must address a few issues regarding the reclamation of the slurry ponds and refuse pile.

R645-301-746.330 — U.S. Fuel must provide adequate designs for reclamation drainage

control of coal mine waste areas. Designs must be provided for Slurry Pond 1, Slurry Pond 5, and Refuse Pile 1, while as-builts must be submitted for the reclamation work on the Slurry Pond 4/Refuse Pile 2 complex.

**Diversions**

Analysis:

The current MRP has no diversion designs specific to reclamation. U.S. Fuel must supply information which shows diversions at each stage of the reclamation activities. This includes all interim and contemporary steps of runoff and sediment control.

Findings:

The following deficiency must be corrected to bring the MRP into compliance with the hydrologic regulations.

R645-301-742.312 — The MRP must include all diversion designs and summaries of these designs. This includes all reclamation undisturbed and disturbed ditches and culverts with ditch depths, widths and shapes.

**Sediment Control Measures**

Analysis:

The current MRP has no sediment control designs specific to reclamation. Sediment control is mandatory throughout the process. U.S. Fuel must supply information which shows sediment control at each stage of the reclamation activities. This includes all interim and contemporary steps.

Findings:

The reclamation sediment control measures for the Hiawatha mine are deficient. U.S. Fuel must submit the following information.

R645-301-742.110 and -542.500 — U.S. Fuel must design sediment control measures for each stage of reclamation activities, including all interim and contemporaneous steps. They must submit a schedule of reclamation and list of sediment control measures used for each level of reclamation.

## REVEGETATION

Regulatory Reference: R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

The revegetation methods in the plan have been previously reviewed. U.S. Fuel may want to make some adjustments to the seed mixes depending on the results of 1996 revegetation efforts.

A few areas near the refuse piles are within the disturbed area and have been disturbed due to their proximity to the mining and reclamation operations. Topsoil and vegetation were not removed, and the vegetation is basically natural. However, these areas have been heavily affected by coal fines, and the vegetation composition has been altered. U.S. Fuel needs to mitigate this disturbance.

U.S. Fuel commits to rip certain areas to a depth of 18-24 inches; however, the distance between the rips is not specified. To be effective, this distance needs to be no more than four feet.

The seeding and mulching methods in the plan are generally acceptable but need to be modified. The plan says seed would be drilled in areas where it is practical, but drilling tends to increase competition from grasses and decrease shrub establishment. Some important shrub species, such as winterfat and sagebrush, must be planted on the surface, but others, such as bitterbrush and mountain mahogany, establish best when drilled. Various modifications to a drill are possible to allow a combination of drilling and broadcasting. To increase shrub establishment in drill-seeded areas, shrubs should be planted in rows separate from the grasses.

Drill seeding tends to decrease surface roughness, but some roughness should remain after using a rangeland drill. The plan also says some areas would be disced on the contour, but the Division discourages this practice. Discing produces contour furrows that are more prone to failure than an irregular surface. Creating numerous large (about two feet deep, four feet long, two feet wide) gouges has proven very effective in other areas. U.S. Fuel did not gouge the surface of slurry pond 4 but left it fairly rough. This may be the best treatment for areas with a limited amount of soil over refuse as long as the soil has not been compacted by rubber-tired equipment.

Drilling will probably not be practical in the canyons. Serviceberry, mountain mahogany, and Indian ricegrass are important components of the vegetation in these areas, and the seed of these species needs to be buried in order to germinate and establish. Other species in seed mix 3 that should be buried are needle and thread grass, snowberry, and squawbush. U.S. Fuel needs to show how seeding or planting will be done to meet the required diversity success standards.

There are some problems with the revegetation success standards that were never resolved in the 1992 review. Reference areas SBR3 and PJR5 do not appear to be acceptable as revegetation standards. SBR3 is in a sagebrush area north of the old railroad yard and consists of nearly a monoculture of basin big sage. According to data in the plan, 86.2% of the vegetation cover in this reference area is from sagebrush. Some of the other species in this reference area, such as broom snakeweed and prickly pear cactus, are considered undesirable for a grazing or wildlife postmining land use.

Reference area PJR5 is in a pinyon-juniper community east of slurry pond 5. Pinyon and juniper comprise 91.19% of the vegetation cover in this reference area, and neither of these species provides much forage for wildlife or livestock. It is essentially a closed, mature stand with very little understory.

All of the reference areas need to be evaluated for their range conditions by the Natural Resource Conservation Service (NRCS, formerly the SCS). It is anticipated that SBR3 and PJR5 are not in fair or better range condition as required for reference areas, and the following two paragraphs assume they are not suitable as revegetation success standards.

There are some areas near SBR3 that have much more grass cover than SBR3. If a potential reference area was delineated beforehand, the NRCS could check this area and make its evaluation. The NRCS normally gives a complete species list and shows cover by species. They also show the soils, aspect, slope, and range condition. Based on the information from the NRCS, it should be possible to show whether the soils and vegetation in the potential reference area are similar to what probably existed in the disturbed areas before any mining. A statistical comparison between the reference area and disturbed areas is, of course, impossible.

Finding an alternative for PJR5 may be more problematic. It may be difficult to find a pinyon-juniper area that is not a mature community. However, if a good sagebrush/grass reference area can be found, it may not be necessary to establish a new pinyon-juniper reference area.

The riparian reference area is in the Mohrland area and does not appear to be shown on any maps. According to Table 4 in Appendix III-2, the riparian reference area would only be used for a few areas that were proposed to be disturbed but which were never actually disturbed. However, any area where the riparian seed/planting mix is going to be used should be compared to a riparian reference area. These areas include the stream relocation area near slurry pond 1 and areas within 10-40 feet of the sides of the reclaimed channels in South and Middle Forks.

Reference area PJR4 is in South Fork, and Table 4 says it would be used for all disturbed areas at the King 6 Mine. Much of the disturbed area in South Fork is surrounded by mixed conifer and mountain brush communities, and it may be more appropriate to use the reference areas in Middle Fork as success standards. This should be evaluated during the upcoming field season.

It appears the mountain brush and mixed conifer reference areas in Middle Fork are probably acceptable, but a final judgment will have to wait until the NRCS evaluation is complete. The mixed conifer reference area has a large amount of cover from young trees, and the density of trees is very high (1709 per acre). This means there is probably not as much forage as there might be in a community in a lower seral state, but the range condition will still probably be adequate.

The reference areas would be used primarily to set standards for vegetation diversity since the traditional cover standards will only apply to areas disturbed by mining after May 3, 1978. The plan includes methods for comparing diversity between the reclaimed and reference areas. If these areas meet the diversity and erosion control standards, they will probably meet the requirements for the postmining land use as well.

Findings:

The mining and reclamation plan does not meet the requirements of this section of the regulations. U.S. Fuel needs to make the following changes:

R645-301-341 — U.S. Fuel must provide a plan to reduce compaction on areas prior to seeding.

R645-301-341.220 — U.S. Fuel must provide a revegetation plan that will allow for important species to be established such as broadcasting for species that require a shallow seeding depth.

R645-301-341.250 — U.S. Fuel must evaluate their reference areas to determine their range condition in accordance with NRCS guidelines. If they are not all in fair or better range condition, they must propose different success standards that meet the requirements.

R645-301-341.250 — U.S. Fuel must propose a revegetation success standard for all disturbed riparian areas.

## MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION OPERATIONS

Regulatory Reference: R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

### Reclamation Treatments Maps

Analysis:

The current MRP includes two types of maps. First, there are several maps (i.e. V-9, Hiawatha Processing Plant and Waste Disposal Sites) that show the location of operational facilities. Second, there are other maps that show the location and configuration of reclaimed facilities.

There is a classification of maps that is missing considering the activities currently taking place. This class of maps must show contemporaneous reclamation and final reclamation sites. The map must be updated regularly to show inspectable conditions of the site.

The MRP does not include information on pre-SMCRA facilities. The MRP must identify pre- and post-SMCRA facilities that they have used and pre-SMCRA facilities that have not been used since August 3, 1977.

Findings:

U.S. Fuel's MRP is missing important mapping information addressed below.

R645-301-142 — U.S. Fuel must show on one or more maps the location and configuration of

all reclaimed areas. They must update these maps any time a major phase of construction or reclamation is completed or any time their sediment control plan is changed. The maps must distinguish between areas disturbed before SMCRA that have not been used since August 3, 1977, areas initially disturbed before SMCRA that have been continuously used, and areas disturbed after the enactment of SMCRA.

## BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: R645-301-800, et seq.

Analysis:

The reclamation bond consists of a surety bond and a self bond. The bond has been reexamined within the last two years.

Findings:

The bond information is adequate and shall not be reexamined at this time.