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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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September 5, 1997

James Fulton, Chief
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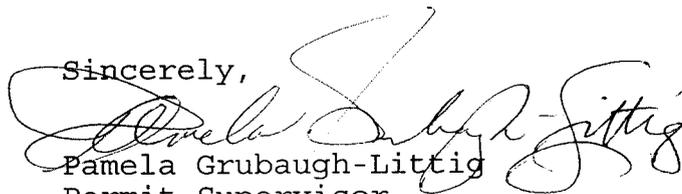
Re: Concurrence Requested, Phase III Bond Release, Huntington #4
Mine, Mountain Coal Company, ACT/015/004, Folder #3, Emery
County, Utah

Dear Mr. Fulton:

I am enclosing the Division's Decision Document for the
Phase III Bond Release for the Huntington #4 Mine. Your review
and concurrence is requested.

If you have any questions, please call.

Sincerely,


Pamela Grubaugh-Littig
Permit Supervisor

Enclosure

cc: Paige Beville, ARCO Coal Company

DECISION DOCUMENT
PHASE III BOND RELEASE
HUNTINGTON #4 MINE
ACT/015/004

SUMMARY OF THE REVIEW PROCESS

The Huntington #4 Mine is a reclaimed underground coal mine located in Mill Fork Canyon, a tributary of Huntington Canyon, approximately 35 road miles southwest of Price, Utah. The permit area is located on the Rilda Canyon, Utah, U.S. Geological Survey 15 minutes quadrangle map. The Huntington #4 Mine is located on the same surface area used by the Leamaster Mine in the early 1940's. The Helco and Skeen Mines also operated in Mill Fork Canyon in the 1940's. All three mines were abandoned without clean-up or reclamation. The Huntington #4 Mine started production in early 1977 and was active off and on until October 1984.

The permit area is located on the eastern edge of the Wasatch Plateau and is characterized by a steep, narrow canyon with sandstone cliffs. The mine site itself is in a Pinion woodland interspersed with salina wildrye and sagebrush vegetation. The permit area cover 1,320 acres with the disturbance limited to about 25 acres. The mine site is located on privately owned land within the boundaries of the Manti La Sal National Forest. Coal was mined from both fee ownership and federal leases.

Mine site reclamation included portal seals, structural removal, coal waste removal, backfilling, grading and revegetation. The Huntington #4 Mine completed Phase I reclamation during the period of August 15, 1985 through September 30, 1985. The original bond posted for this property was \$360,104. Application for a Phase I bond release was made in February 1986. The Division approved a 60% bond release (\$216,062) on November 10, 1986.

The Mountain Coal Company submitted a Phase II bond release application to the Division for the Huntington #4 Mine on December 13, 1994 including a SEDCAD analysis and vegetative information. Mountain Coal Company requested release of an additional 30% of the original bond, or \$108,301.20 for the Phase II bond release.

The Phase II bond release inspection was conducted on May 18, 1994 with personnel from the Division, OSM-Albuquerque Field Office, OSM- Western Support Center, Manti La Sal Forest Service, and Mountain Coal Company in attendance.

On July 18, 1994 TDN X94-020-179-003 was received at the Division for "failure to eliminate all highwalls at the Huntington #4 Mine", as a result of the May 18, 1994 Phase II Bond Release inspection. The Division submitted a response to OSM-AFO for this TDN on July 28, 1994. On September 21, 1994 OSM found the July 28, 1994 TDN response appropriate.

On February 15, 1995 a letter of concern from Aaron Howe (Acting Forest Supervisor, Manti La Sal) to Thomas Ehmett (Field Office Director, OSM-AFO) stated that there was concern about whether or not the reclamation of the pond was included in the calculation of the remaining bond, but agreed that the pond was no longer needed.

A letter from Thomas Ehmett (OSM-AFO) on March 9, 1995 to Lowell P. Braxton, concurred with the Division decision to reduce the bond from \$144,041 to \$46,734. On March 20, 1995, the Division conditionally approved the Phase II bond release for the Huntington #4 Mine upon satisfactory removal of the sedimentation pond.

A memo to file from Susan White to Pamela Grubaugh-Littig, dated November 6, 1995, stated that the sediment pond removal was completed in September 1995. A stream alteration permit was issued October 18, 1995 and all work associated with the permit was approved in a letter dated October 18, 1995 from the Division of Water Rights. The Forest Service found the pond removal acceptable in a letter to the Division dated September 18, 1995. Susan White, Division inspector at this mine, inspected the work and found that all work associated with the pond removal had been completed in an acceptable manner.

The Phase II bond release was approved on November 5, 1995.

The Phase III Bond release application was received on February 20, 1996. The Phase III bond release inspection was conducted on June 27, 1996 with personnel from the Division, OSM-WRCC, Mountain Coal Company in attendance. The review of the application was sent to Mountain Coal Company on October 24, 1996. The response was received on March 20, 1997.

FINDINGS FOR PHASE III BOND RELEASE
HUNTINGTON #4 MINE
ACT/015/004

Public Notice for Phase III Bond Release

In accordance with R645-301-880.120 and 200, the Mountain Coal Company published the newspaper advertisement for the Phase III bond release in the Sun Advocate on April 2, 9, 16 and 23, 1996. The Division scheduled the Phase III bond release inspection for June 27, 1996 by sending letters on May 31, 1996. This inspection was scheduled when weather permitted for inspection and evaluation of the reclamation work involved.

The Phase III bond release inspection was conducted on June 27, 1996 with the following attendees:

DOGM: Susan White, Jess Kelley, Mike Sufлита, Bob Davidson, Sharon Falvey, and Pamela Grubaugh-Littig
OSM-WRCC: Mike Rosenthal
Mountain Coal Company: Chirstine Johnston (MCC), Dan Guy and Dana Ballard (Blackhawk Engineering)

Finding of Established Vegetation and Vegetation Data for Phase III Bond Release

Standards for Success.

The Application for Phase III Bond Release and Supplement A presented information from vegetation sampling in 1994 and 1995. Vegetative cover, production, diversity, and shrub densities were sampled as required by the permit and Division's Vegetation Information Guidelines. Minimum samples sizes were obtained during vegetation sampling. The regulations, for areas previously disturbed by mining that were not reclaimed, are that the vegetative ground cover will be not less than the ground cover existing before redisturbance and will be adequate to control erosion and achieve the approved postmining land use. The Division's current interpretation is that continuously mined sites also apply to this standard. R645-301-357 states that the vegetation parameters will equal or exceed the approved success standard during the growing seasons for the last two years of the responsibility period and that, in areas of less than 26 inches or less average annual precipitation, the period will be for not less than ten full years.

The Huntington No. 4 Mine was continuously mined. The site has been reseeded and has met the 10 year period of responsibility requirement. The operator has also sampled the agreed vegetation parameters for the last two years of the growing season, 1994 and 1995. The permit states (page 3-67a) that the reclamation will be considered successful if the upper and lower reclaimed areas are at least equal to or greater than the pinyon-juniper reference areas when cover, production, and shrub density are compared.

The reclaimed pumphouse and pond area disturbance is less than 1 acre in size. No reference area was established for this riparian area, instead a transect 100 feet above and 100 feet below the disturbance was used as a cover comparison area. Density of woody species will meet a technical requirement of 2000 woody species per acre along the riparian corridor.

A separate diversity success standard is proposed (page 3-67b) for the riparian and pinyon -juniper reclaimed areas. The standard for the riparian area is based on the average number of species found in the meter square quadrats and compared to the comparison area. The MacArthur index ($1/\sum p_i^2$) will be used to compare diversity to the reference area for the pinyon-juniper community. This index integrates the number of species and the degree to which frequency of occurrence was equitably distributed among those species.

Table 1: Success standard comparisons for the pinyon-juniper area at the Huntington No. 4 Mine.

	Cover (%)	Production (lbs./acre)	Density (# shrubs/acre)	Diversity ($1/\sum p_i^2$)
Reclaimed 1994	41	467	2283	9.57
Reference 1994	38	253	279	2.49
Reclaimed 1995	48	747	2325	10.46
Reference 1995	31	208	430	2.57

Table 2: Success standard comparisons for the riparian area at the Huntington No. 4 Mine.

	Cover (%)	Density (# shrubs/acre)	Diversity (# species/m ²)
Reclaimed 1994	64	3340	4.20
Reference 1994	57	2000	2.45
Reclaimed 1995	70	2352	4.80
Reference 1995	71	2000	4.30

The 1994 and 1995 cover data meets the requirements of the permit and the regulations for both the reclaimed pinyon-juniper and riparian comparison areas. Total vegetation cover in 1994 of the reclaimed pinyon-juniper areas was 41 percent and in 1995, 48 percent. The pinyon-juniper reference area had a total vegetative cover of 38 percent and 31 percent in 1994 and 1995, respectively. Vegetation cover of the reclaimed riparian area was 64 and 70 percent respectively for 1994 and 1995. The comparison area cover was 57 and 71 percent for 1994 and

1995, respectively.

The production of the reclaimed pinyon-juniper area in 1994 (467 lbs./acre) and 1995 (747 lbs./acre) was significantly greater than the total annual biomass from the associated reference area in 1994 (253 lbs./acre) and 1995 (208 lbs./acre). The permit commits to meeting the reference area standard for production only on the reclaimed pinyon-juniper and not the riparian area. The regulations do not require previously mined sites to meet a production standard. A demonstration of meeting and exceeding the undisturbed vegetative productivity is an indication of the site conditions meeting the postmining land use.

The reclaimed site woody plant density meets the requirements of the permit and the regulations. Woody species densities were greater on the reclaimed pinyon-juniper area in 1994 (2283 plants/acre) and 1995 (2325 plants/acre) than in the associated reference area in 1994 (279 plants/acre) and 1995 (430 plants/acre). The reclaimed riparian area was small enough so that all woody species could be counted, thus eliminating the need to meet a minimum sample size requirement. The reclaimed riparian area also met and exceeded the technical standard of 2000 woody plants/acre in 1994 (3340 plants/acre) and 1995 (2352 plants/acre).

The MacArthur's diversity index indicates that diversity is greater in the reclaimed pinyon-juniper for both 1994 and 1995 (9.57 and 10.46, respectively) than in the reference area for 1994 and 1995 (2.49 and 2.57, respectively). Table 2 shows that the numbers of species per meter square was also greater in the riparian area for 1994 and 1995 than the comparison area for the same years.

A site inspection was conducted by the Division on June 27, 1996 to assess the site for the Phase III bond release. The site appeared to be meeting the post mining land use of grazing and wildlife. While most of the site had been fenced to exclude cattle, elk use had been heavy especially on the upper area. Cattle had not been excluded from the reclaimed riparian area and the site appears in good condition.

The sediment pond was removed in the summer of 1995 and the area seeded. At the time of the June 27, 1996 site inspection seedling density appeared good. The reseeded area of sediment pond removal does not have to meet the 10 year liability period, however, it does need to meet other standards of being diverse, effective and permanent. In other words, the area should look like the rest of the site prior to release. The reclaimed pond area was inspected on August 27, 1997 and was considered established.

Finding:

Vegetation on the reclaimed mine site (including the reclaimed sediment pond area which was documented at an August 27, 1997 inspection) was determined to be established.

Finding and Supporting Documentation of No Pollution of Surface and Subsurface Waters

ANALYSIS:

All applicable data collected by the mine was tabulated. However, no summary statistics were conducted by the applicant. This information should have been supplied by the applicant; however, because there is a small amount of data and because there have been no agency or public issues raised concerning water quality and quantity at this site, the Division conducted some data analysis and constructed some data graphs to support the following findings for issues raised in the CHIA:

- Little Bear Spring flows do not appear to be impacted by mining that occurred at the Huntington #4 mine;
- No exceedence in water quality standards for the Mill Fork Drainage were observed for the data analyzed;
- No water is being discharged from the Huntington #4 mine. Regulatory requirements of 40 CFR 434.50 for alkaline underground mine drainage does not apply. A pre-SMCRA portal discharge in the adjacent area is not associated with the Huntington #4 mine.

Little Bear Springs Analysis

Data for Little Bear Springs flow was presented in the Bond Release application, a technical analysis for this permit indicated that mining from the Huntington #4 Mine ceased in order to prevent impacts to Little Bear Springs. Little Bear Spring flows do not appear to be impacted by mining that occurred at the Huntington #4 Mine. This station was formally identified and monitored as site 4-1-W under the Huntington #4 mining permit and is currently monitored by the Castle Valley Special Services District. Data presented provide information for Little Bear Spring Flows for the last three years of mining and through 1996 for the reclamation period.

No obvious changes to seasonal variation have occurred due to mining. The influence of monthly flow patterns are best illustrated in Figures 1, 3, 4. Figure 1, presents the mean monthly flows for the period of record, during mining, and following reclamation. Figure 3 illustrates spring discharges for selected years during a dry climatic period and figure 4, shows discharge for

Figure 1

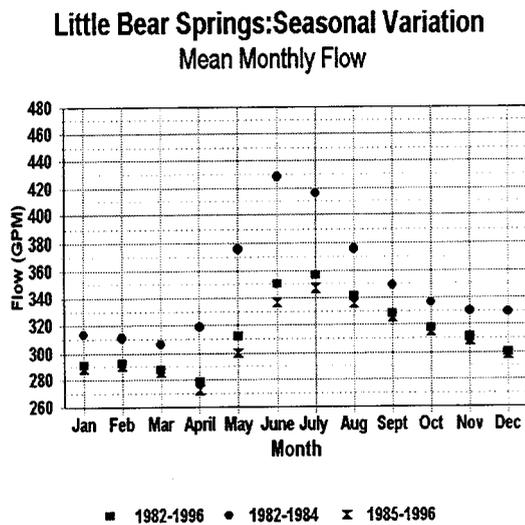


Figure 2

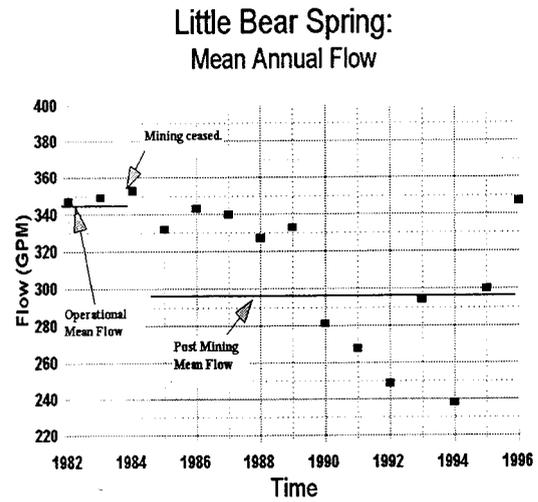


Figure 3

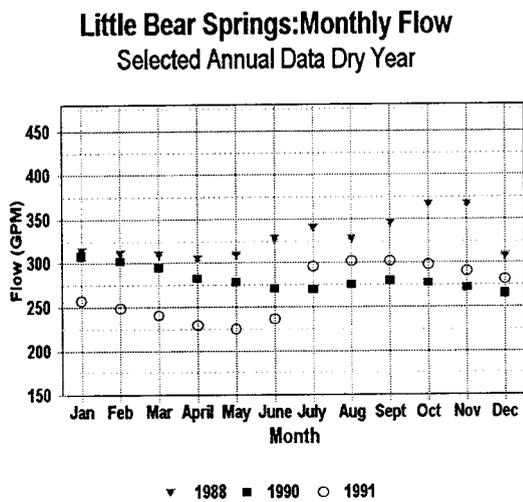
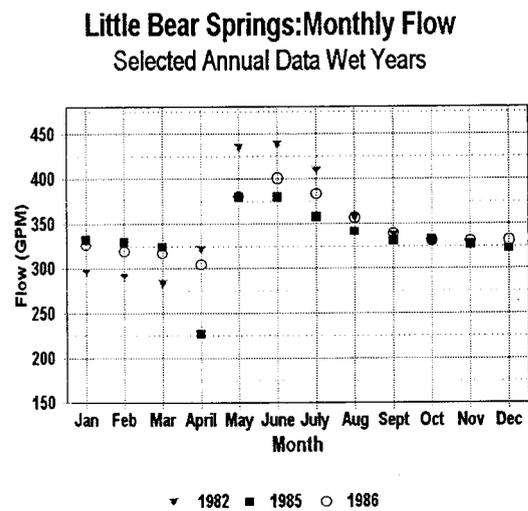
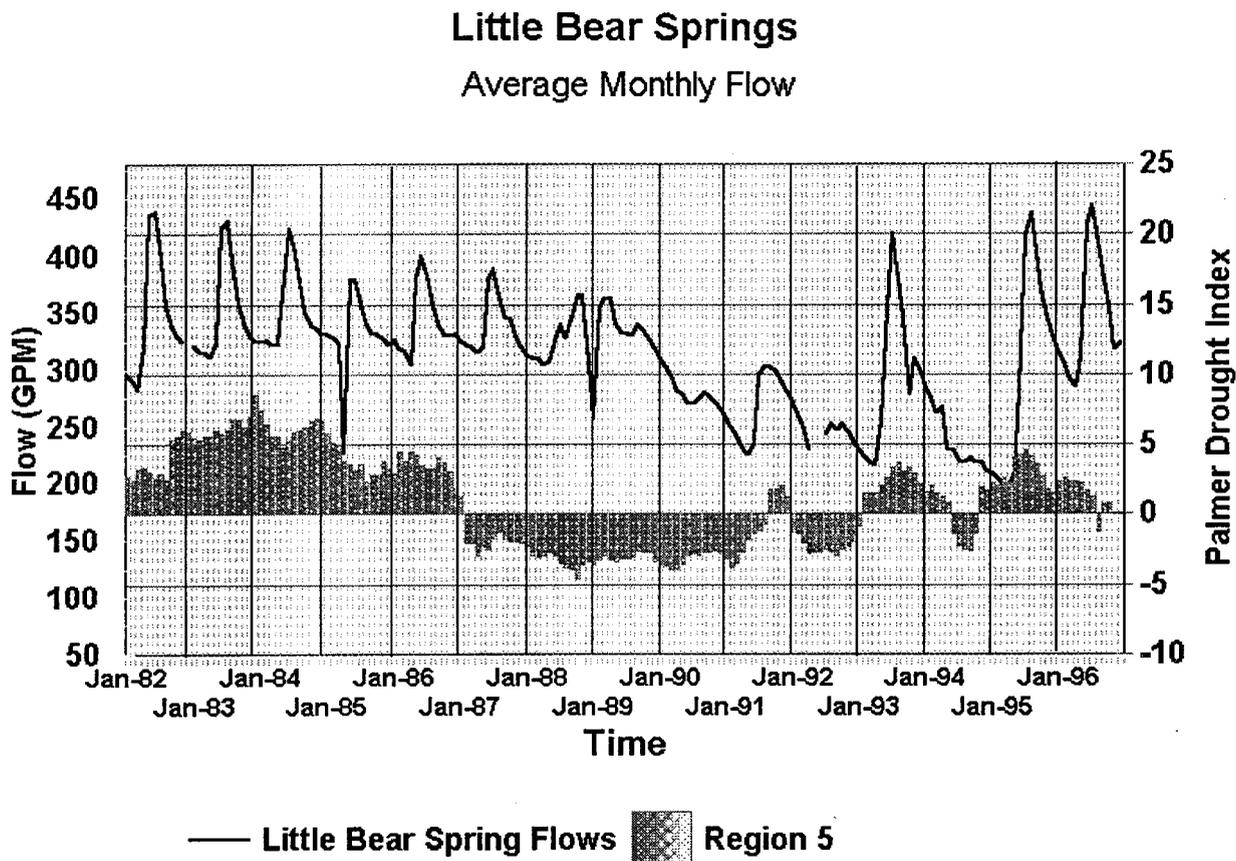


Figure 4



selected years during wet climatic periods. Mean annual flows are illustrated in figure 2.

Figure 5



These figures were developed to assess whether changes in water quantity may have occurred due to mining. No obvious changes in flow rate can be tied to mining at the Huntington # 4 mine. The variation in flow rate appears to be tied to climatic factors. Average monthly trends for the 1982-1996 flows followed a similar discharge pattern during mining and following reclamation of the Huntington #4 Mine as can be observed on figure 2. Although the data for the operational period is limited to a short period of record within a wet cycle, the figure showing the postmining data suggests the characteristic flow response for wet and dry cycles.

Figure 5 shows the operational and post-mining water quantity for Little Bear Spring and includes the Palmer Drought index for region 5. Because Little Bear Spring is shown to be in drought

index region 4, region 4 was also used to compare Little Bear Spring flows. It appeared that Region 5 more closely fit the recharge characteristics of this spring. The reason for the better fit is believed to be caused from the extent that region 4 is influenced by the drought pattern of the south central region of the state and because the Little Bear spring is influenced by the mountain terrain of the Wasatch Plateau which is encompassed in Region 5.

It should be noted that the data obtained in the months of April 1985 and January 1989 are questionable as to their validity. These data appear as though they may be approximately 100 g.p.m. less than the flow expected by observing the trend. Data collection, reporting or calculation errors may have influenced these data. In observing the trend of low flows there appears to be a slow decline in flow rate in conjunction with the drought. There is a gradual decline in the low flows over the drought period from 1987 through 1993. The low flows continue to decline at a slower rate from April 1991 through May, 1995 when the flow rate quickly rises. When a comparison of the average annual flow and the average annual drought index is made the trends for spring flow and for recharge are more similar for the years 1994 through 1996. Local precipitation data may also follow a similar relationship to the high peak flows but, these data were not provided so, the relationship was not assessed.

In 1989 and 1990 the variation in flow rate for the year were the lowest for the period of record. The lack of variation appears to be tied to having water available for recharge. These decreased flows and reduced peak flows occurred during the 3rd and 4th years of a drought cycle. See figure 5. Peak flows were observed in April and January for 1989 and 1990, respectively. The 1996 flow rates appear to have regained flow levels and monthly flow characteristics of those observed during mining in 1982, as is suggested in figure 4.

Although the Tie Fork well was determined to be impacted by mining and has been considered in a separate geohydrologic region from Little Bear Spring, a similar quick response trend was observed in the Tie Forks well over this period. This may indicate the quick recharge response is a regional characteristic and is related to climatic conditions and similar recharge properties.

No obvious changes to seasonal variation have occurred due to mining. Peak flows were observed in April and January for 1989 and 1990, respectively. The 1996 flow rates appear to have regained flow levels and monthly flow characteristics of those observed during mining in 1982. The variation in flow rate appears to be tied to climatic factors.

Mill Fork Drainage

Mill Fork Drainage is a tributary of Huntington Creek. According to the R317-2 Utah Administrative Code the Classification for Huntington Creek and it's tributaries are 1C, 2B, 3A and 4, upstream of the highway U-10 crossing. In the plan, a list of current water rights could not be located. The worse case scenario for each parameter analyzed for the classification system is assumed to apply to the flows in Mill Fork Drainage.

Two sites were monitored, 4-3W and 4-8W upstream and downstream of the site on Lower Mill Fork. No comparisons of data prior to, during, or following mining could be completed because data collection started in 1985 after mining ceased. Data analyses completed included averages, variances from average and minimum and maximum values observed for each parameter in the data set. Where the monitored parameters had values that could be compared against a water quality standards they were presented in table 1. The remaining data summary can be found in Appendix A.

No exceedence in water quality standards for the Mill Fork Drainage were observed for the data analyzed. Although Nitrate as N and Fluoride are standards for the Mill Fork Drainage no data are available down stream of the site. However, there is no suspected reason that either of these parameters might change due practice and contribution of runoff from this site.

Table 1.

Parameter	Site	Mean	Deviation from Mean	Minimum	Maximum
pH units	4-3W	8.05	0.1	7.46	8.5
	4-8W	8.02	0.17	8.9	7.31
Standard	6.5 - 9.0		Class 1C, 2A, 2B, 3B and 4		
	6.0 - 9.0		40 CFR Subpart E- post-mining areas		
TDS (mg/l)	4-3-W	378.28	99.22	176	710
	4-8-W	341.89	112.05	204	616
Standard	1,200		Class 4		
Total Iron	4-3-W	0.72	0.63	0.06	3.03
	4-8-W	0.37	0.28	ND	1.15
Standard	1000(acid soluble)		Class 1C, 2A, 2B, 3B and 4		
Fluoride (mg/l)	4-3W	0.14	0.04	0.11	0.16
	4-8W	#	#	#	#
Standard	1.4-2.4		Class 1C		

Parameter	Site	Mean	Deviation from Mean	Minimum	Maximum
Nitrates as N (mg/l)	4-3W	0.32	0.06	0.31	0.33
	4-8W	#	#	#	#
Standard	10; 4		Class 1C; Class 2B		

‘ ND = not detected at the detection limit.
No data available.

Discharge From Mine Portals

No water is being discharged from the Huntington #4 mine 40 CFR 434.50 for underground mine drainage does not apply. One other area within the permit and reclaimed area is issuing water. However, this site is associated with Title IV and was reclaimed under the abandoned mine reclamation program Spring Canyon Project, Mill Fork Site AMR/007/905. This discharge location has not been considered part of the Huntington #4 permitting actions.

Finding:

No pollution of surface and subsurface water has occurred and, future occurrence of pollution from this site is expected to have a low probability as determined through the information and data analyzed.

Finding of No Subsidence Damage

The bond release application was analyzed and determinations were made as to whether or not the site has met three criteria: 1) the site has been restored to its approximate original contour (AOC); 2) subsidence has ceased and post-operational monitoring adequately confirms that it has ceased; and 3) any surface damage due to subsidence has been adequately mitigated. The determination that these three criteria have been met.

- The site has been restored to AOC. This was initially confirmed when the site was regraded. It has since been reconfirmed on June 27, 1996 during a joint inspection conducted by representatives of the Division, including Jess Kelley and Mike Rosenthal of the Office of Surface Mining. The highwalls and portal cuts in the upper portal area have been eliminated, the lower facilities area backfilled, and both areas have been

regraded. More recently, the sediment pond has also been backfilled and regraded.

- Through a cooperative agreement with the permittee, the U.S. Forest Service monitored subsidence at this site by aerial photogrammetric methods from 1979 until 1987. In 1987, this subsidence monitoring program was discontinued because subsidence, which was slight to begin with (less than 1 foot total) was no longer occurring.
- From 1987, when subsidence monitoring was discontinued, until the present, the permittee has conducted a yearly on-the-ground search for subsidence damage. These searches, which have been documented in every annual report, have turned up neither subsidence damage nor even visible surface manifestations of subsidence. In the fall of 1996, Jess Kelley also conducted an on-the-ground search for subsidence damage. Like the searches conducted by the permittee, this search turned up no subsidence damage and no surface manifestations of subsidence.

Finding:

No subsidence damage nor any surface manifestations of subsidence have been noted in searches conducted by the permittee and documented by Jess Kelley, Division staff. The site has been restored to approximate original contour (AOC).

Decision for Phase III Bond Release

Based on the documented findings, it is determined that: 1) All surface coal mining and reclamation operations have been successfully completed and 2) all reclamation requirements of the Act and the permit have been fully met. Therefore, the Division proposes to release the bond for the Huntington #4 Mine in full.