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DEPARTMENT OF NATURAL RESOURCES

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Technical Analysis and Findings
Utah Coal Regulatory Program

PID: C0150018
TaskID: 4443
Mine Name: DEER CREEK MINE
Title: REDUCE HYDROLOGIC MONITORING SITES

Environmental Resource Information

Climatological Resource Information

Analysis:

The application includes climatological factors in Section R645-301-724.400 such as precipitation, temperature, and wind.

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Hydro Sampling and Analysis

Analysis:

All baseline samples collected were analyzed by a State certified laboratory for all Section R645-301-731.211 required baseline parameters. Laboratory reports are included in Volume 12 Appendix C.

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Operation Plan

Hydrologic Ground Water Monitoring

Analysis:

This amendment was previously evaluated as part of Task 4381. This previous task proposed 26 springs for removal from the monitoring plan. This revised amendment proposes 33 springs for remove. As part of the submitted revised amendment 8 springs were reexamined including springs: 79-29, 82-52, 89-60, 80-47, 79-40, 18-2-1, 84-56, and 17-35-1. In addition, arguments for the ceasing of monitoring at Springs 79-23, 79-24, 80-43, 80-44, 79-28, 80-46, and 18-1-1 are presented which were not included for removal as part of Task 4381. Detailed analysis of spring is presented below:

Spring 89-61 and Elk Spring - The justification for eliminating these springs from the groundwater monitoring program is that there has been no change in pre-mining and post-mining water quality or quantity. In addition, no mining was conducted below the panels and no subsidence has occurred. Further the springs were developed in 2009 for culinary use by the North Emery Water users. This explanation is justified for removal of these springs from the monitoring plan.

Spring 79-10 - The justification for eliminating this spring from the groundwater monitoring program is that there has been no change in pre-mining and post-mining water quality or quantity. This explanation is justified for removal of this spring from the monitoring plan.

Springs 79-15 and 79-34 The justification for eliminating these springs from the groundwater monitoring program is a pre-mining dataset is not available for these springs but the Permittee has analyzed the data and shows no abnormality in the post mining dataset to believe any impacts from mining occurred. This explanation is justified for removal from these springs from the monitoring plan.

Spring 79-35 - The justification for eliminating this spring from the groundwater monitoring program is that there has been no change in pre-mining and post-mining water quality or quantity. This explanation is justified for removal of this spring from the monitoring plan.

Spring 79-29 - The justification for eliminating this spring from the groundwater monitoring program is that there has been no change in pre-mining and post-mining water quality or quantity. This explanation is justified for removal of this spring from the monitoring plan. This spring can be released.

Spring 79-38 - The justification for eliminating this spring from the groundwater monitoring program is that there has been no change in pre-mining and post-mining water quality or quantity. At 79-38 the highest recorded flow was in the early 1980's. Following the early 80's the flow fluctuated up and down but around 2003 the flow appear to have begun to correlate to the PDI. This explanation is justified for removal of this spring from the monitoring plan.

Spring 89-60 - The lease associated with the spring was mined in 1988 and completed in 1993 with water monitoring was begun in 1989. Subsidence was completed in 1996 with approximately 1 foot of subsidence present near the spring. The flow tracks well with the Palmer Drought Index with a large spike in flow in 2006 which is post mining and associated with a large flow year. This spring can be released.

Spring Ted's Tub - The justification for eliminating this spring from the groundwater monitoring program is that there has been no change in pre-mining and post-mining water quality or quantity. At Ted's Tub the highest recorded flow was in the early 1980's. Following the early 80's the flow fluctuated up and down but around 2003 the flow appear to have begun to correlate to the PDI. This explanation is justified for removal of this spring from the monitoring plan.

Spring 82-52 - The lease associated with the spring was mined in 1975 and monitoring began in 1989. Approximately 2 feet of subsidence was present near the spring. The flow tracks well with the Palmer Drought Index with a large spike in flow in 1983 which is post mining and associated with a large flow year. This spring can be released.

Springs 79-26 and 79-32 are outside the PacifiCorp's permit areas. The justification for eliminating these springs from the groundwater monitoring program is that they are outside of the area of influence any mining plan. This explanation is justified for removal from these springs monitoring plan.

Springs 79-23 and 79-24 - The lease associated with these springs was mined in 1974 and second mined in 1987 and 1994. With water monitoring was begun in 1982. Subsidence was completed in 1995 with approximately 1 foot of subsidence present near the spring. Flows were present from 0 – 20 gpm minute from 1981 to 1986 and then 0 gpm from 1987 to present. The Division is concerned about the lack of flow present at these sites and would like to conduct a site visit before removal is considered.

Burnt Tree Spring - The justification for eliminating this spring from the groundwater monitoring program is that there has been no change in pre-mining and post-mining water quality or quantity. The follow goes down from the measurements taken in the early 1980's. This decrease is typical for the East Mountain springs. After this decrease the flow tracks well with the Palmer Drought Index. The provided explanation is justified for removal of this spring from the monitoring plan.

Springs 79-2- The justification for eliminating this spring from the groundwater monitoring program is that there has been no change in pre-mining and post-mining water quality or quantity. This explanation is justified for removal of this spring from the monitoring plan.

Springs 79-40, 80-41, 80-43, and 80-44 - The lease associated with these springs mining began in 1982 and completed in 1986. With water monitoring was begun in 1981. Subsidence was completed in 1998 with approximately 1 to 3 feet of subsidence with springs 79-40, 80-41, 80-43, and 80-44 and 8 feet of subsidence with 79-2. Many of these springs had good flow in the early 1980's but post mining have had many years of zero flow. The Division is concerned about the lack of flow present at these sites and would like to conduct a site visit before removal is considered.

Spring 79-28 - The leases adjacent to this site were first mined in 1978 and 1993 but water monitoring was begun in 1981. No subsidence has been present. This site had lots of flow but then decreased to 1-2 gpm prior to mining. The flow has been present at 1 gpm since 1989. This spring can be released.

Spring 80-46 - The lease associated with these springs was mined in 1977. With water monitoring was begun in 1981. Approximately 1 foot of subsidence was present near the spring. Flows peaked in 1984 at 60 gpm; however since 1986 flows have varied from 0 to less than 10 gpm with many periods of zero flow. The Division is concerned about the periods of zero flow present at this site and would like to conduct a site visit before removal is considered.

Spring 89-47 - The lease associated with the spring was mined in 1977 but water monitoring was begun in 1981. Approximately 1 foot of subsidence was present near the spring. The flow tracks well with the Palmer Drought Index with a large spike in flow in 1981 and 2011 which is post mining and associated with a large flow year. This spring can be released.

Spring 82-51 - The justification for eliminating this spring from the groundwater monitoring program is that there has been no change in historic water quality or quantity. The follow goes down from the measurements taken in the early 1980's. This decrease is typical for the East Mountain springs. During the subsidence time window from 1987 to 1990 the spring is dry but then recovers in 1993 and begins to flow. Following 1993 the flow tracks the Palmer Drought Index. The provided explanation is justified for removal of this spring from the monitoring plan.

Springs 84-56 - The lease associated with this spring was mined in 1987 and second mined in 1989. With water monitoring was begun in 1984. Subsidence was completed in 1997 with approximately 2 feet of subsidence present near the spring. Flows were present from 2-6 gpm minute from 1981 to 1986 and then after subsidence many periods of no flow exist. The Division is concerned about the periods of no flow at this site and would like to conduct a site visit before removal is considered.

Springs 17-21-1, 17-22-1, and 79-32 are outside the PacifiCorp's permit areas. The justification for eliminating these springs from the groundwater monitoring program is that they are outside of the area of influence any mining plan. This explanation is justified for removal from these springs monitoring plan.

Spring 17-35-1 - The lease associated with this spring was mined in 1987 and second mined in 1989. With water monitoring was begun in 1984. Subsidence was completed in 1997 with approximately 2 feet of subsidence present near the spring. Flows were present from 2-6 gpm minute from 1981 to 1986 and then after subsidence many periods of no flow exist. The Division is concerned about the periods of no flow at this site and would like to conduct a site visit before removal is considered.

Spring 17-35-2 - The justification for eliminating this spring from the groundwater monitoring program is that there has been no change in pre-mining and post-mining water quality or quantity. The permittee states mining was first began in 1990. The Division water quality database reports has data beginning in 1987 and has never recorded a flow. This explanation is justified for removal of this spring from the monitoring plan.

Spring 18-2-1 - The lease associated with this spring was mined in 1996 and second mined in 1999. With water monitoring was begun in 1988. Subsidence was completed in 2002 with approximately 1 foot of subsidence present near the spring. Flows were present from 0-11 gpm minute from 1988 to 1998 and then after subsidence many periods of no flow exist. The Division is concerned about the periods of no flow at this site and would like to conduct a site visit before removal is considered.

Spring 18-1-1 – This spring is actually the mine water discharge from the old Oliphant Mine. The discharge was reported as zero for years but the permittee states flow is present. To evaluate this site the Division would like to conduct a site visit before removal is considered.

Spring T-19 – Is located outside of the Trail mountain permit boundary and has been monitored since 1988. In the first 10 years of data the high measurement was 450 gpm and in the most recent 10 years the high measurement was 580 gpm. The justification for eliminating this spring from the groundwater monitoring program is that there has been no change in pre-mining and post-mining water quality or quantity. This explanation is justified for removal from of this spring from the monitoring plan.

Deficiencies Details:

The application does not meet the water monitoring requirements of the State of Utah R645-Coal Mining Rules. The following deficiencies must be addressed prior to the Division approval of the application:

R645-301-731.214: Springs 79-23, 79-24, 79-40, 80-41, 80-43, 80-44, 80-46, 84-56, 17-35-1, and 18-2-1 Each of these springs has recent periods of no flow. Due to these recent periods of lack of flow the Division would like to conduct site visits to each location before ceasing of sampling so that each location can be fully evaluated.

R645-301-731.214: Spring 18-1-1 The discharge was reported as zero for years but the permittee states flow is now present. To evaluate this site the Division would like to conduct a site visit to fully evaluate removal.

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