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OGMCOAL - C0070039 Dugout Cyn - Water Quality Memos WQ07-3 to WQ08-3

From: Kevin Lundmark
To: esass@archcoal.com
Date: 1/11/2010 3:49 PM
Subject: C0070039 Dugout Cyn - Water Quality Memos WQ07-3 to WQ08-3
CC: OGMCOAL
Attachments: C0070039_DUG_WQ08-3.pdf; C0070039_DUG_WQ07-3.pdf; C0070039_DUG_WQ07-4.pdf;
C0070039_DUG_WQ08-1.pdf; C0070039_DUG_WQ08-2.pdf

Erwin:
Please find attached copies of Water Quality Memos for Dugout Canyon Mine for WQ07-3 to WQ08-3. These reports have been completed retroactively.

Regards,

Kevin Lundmark
Environmental Scientist II
Division of Oil, Gas & Mining
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(801)538-5352

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

December 22, 2009

TO: Internal File

THRU: James Smith, Permit Supervisor *ORAS*

FROM: Kevin Lundmark, Environmental Scientist II *KWZ*

RE: 2008, 3rd Quarter Water Monitoring, Canyon Fuel Company (CFC), LLC, Dugout Mine, C/007/0039-WQ08-3, Task ID #3183

Canyon Fuel Company is conducting mining operations in Dugout Canyon. Mining is progressing north and eastward under the Book Cliffs. Several springs are located in the canyons. Operations are also taking place at a fan portal in Pace Canyon and a refuse pile in the valley below Dugout Canyon. This report is based on data compiled in file O:\0070039.dug\WaterQuality\Dugout_All_Dec2009.xls.

Table 7-4 of the MRP identifies the ground water monitoring (frequency) plan for wells and springs. Table 7-4 also identifies the parameters that will be monitored. Appendix 7-6 of the MRP identifies the UPDES sites, and current status monitoring parameters, discharge limits and monitoring frequency. Table 7-5 identifies the surface water program and water quality parameters that will be monitored.

The protocols set forth in Table 7-4 and 7-5 identify monitoring programs to be followed during years of normal precipitation and non-normal precipitation, as defined in the PHC. Selected surface and groundwater sites will be monitored weekly from April 1 through August 31 during the first non-normal wet (>110% of average) and dry (<70% of average) years following permit issuance, as defined by the NRCS snow pack for the Price - San Rafael area on March 1. The first non-normal dry year occurred in 2002, and weekly monitoring was completed April to August 2002 per the protocol. The NRCS snow pack data on February 29, 2008 for the Price-San Rafael area was 108% of average, as reported in the Dugout Canyon 2007 Annual Report.

1. Was data submitted for all required sites?

Springs YES [X] NO []

Springs in the operational and post-mining groundwater monitoring program include SC-65, SP-20, SC-14, SC-100, SC-116, 200, 203, 227, 259, 259A and 260. Locations of these springs are noted on Plate 7-1. Groundwater discharge from the old

Gilson coal seam workings is also monitored and identified as location MD-1.

No flow was reported for springs MD-1, 200, 227, and 259. All other springs in the groundwater monitoring program reported flow. Data were also submitted for springs 321, 322 and 324.

Streams **YES** **NO**

Surface Water sites DC-1, DC-2, DC-3, PC-1a, PC-2, PC-3, FAN, and RC-1 are monitored for flow and chemistry once each calendar quarter during years with normal precipitation.

Stream site RC-1 reported no flow. In the Dugout Creek drainage, sites DC-1, DC-2 and DC-3 reported flows of 400, 13 and 10 gpm, respectively. In the Pace Creek drainage, sites PC1a, PC-2, PC-3 and FAN reported flows of 15, 446, 18 and 22 gpm respectively. Data were also submitted for stream sites SS-1, SS-2 and 323.

Wells **YES** **NO**

Table 7-4 and Section 731.200 of the MRP specify that wells GW-10-2, GW-11-2 and GW-24-1 are to be monitored quarterly for water levels. Well GW-24-1 became blocked during the winter of 1999-2000 and was removed from monitoring after 4th Quarter 2004.

A water level was not recorded at well GW-11-2 due to a caved casing. Though not required by the MRP, water level data were collected for wells DH-1, DH-2 and DH-3.

UPDES **YES** **NO**

There are six discharge sites from the disturbed area and mine into Dugout and Pace Canyon Creeks under UPDES permit UT0025593 issued by the Utah Division of Water Quality. The permit identifies the maximum discharge levels and monitoring requirements for specified constituents. Mine water is currently pumped directly into the Dugout Creek (001). Disturbed runoff is directed to the sedimentation pond that can discharge to the Dugout Creek (002). Discharge Site 003 is a discharge from the 30,000-gallon water tank and Site 004 is the discharge from the waste rock area. Mine water is pumped to Pace Creek (005) out the Fan Portal. Disturbed area runoff from Pace Canyon is directed to a catch pond, which discharges to Pace Creek (006).

Sites 004 and 006 did not discharge during 3rd quarter 2008. Site 001 discharged between 164 and 695 gpm and Site 005 discharged 75 to 768 gpm. Sites 002 and 003 discharged 0.000069 and 0.3 gpm, respectively, in July and did not discharge August and September.

2. Were all required parameters reported for each site?

Springs YES NO

The required parameters were reported when flow was present.

Streams YES NO

The required parameters were reported when flow was present.

Wells YES NO

UPDES YES NO

The required parameters were reported when discharges took place.

3. Were irregularities found in the data?

Springs YES NO

Conductivity measurements for sites SC-116 and SP-20 are elevated. Dissolved magnesium, sulfate and TDS concentrations reported for SC-116 are the highest values reported to date.

Streams YES NO

Sites where conductivity appeared elevated include DC-2, PC-2, DC-3, FAN and PC-1a, with measurements at DC-2 and PC-2 being substantially higher than previously measured values. Other parameters which are elevated include dissolved potassium (DC-2), dissolved sodium (DC-2 and PC-2), chloride (DC-2 and PC-2), sulfate (DC-2 and PC-2), TDS (DC-2) and carbonate (DC-2).

Wells YES NO

UPDES YES NO

The discharge reported for Site 002 (sediment pond discharge to Dugout Creek) on July 18, 2008 was 0.000069 gpm, or approximately 0.1 gallon per day. The operator did not provide an explanation of how such a low flow rate was measured.

4. On what date does the MRP require a five-year resampling of baseline water data.

The resampling due date is July 2014

5. Based on your review, what further actions, if any, do you recommend?

None.

Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements? [] Yes [X] No

A copy of the data file will be e-mailed to the Mine Operator and DOGM Mine Inspector identifying any missing and irregular data.

6. Follow-up from last quarter, if necessary.

Did the Mine Operator submit all the missing and/or irregular data (datum)?

This report and the previous report were delayed to process mine permits.

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

December 16, 2009

TO: Internal File

THRU: James Smith, Permit Supervisor *J/S 12/16/09*

FROM: Kevin Lundmark, Environmental Scientist II *KLW*

RE: 2007, 3rd Quarter Water Monitoring, Canyon Fuel Company (CFC), LLC, Dugout Mine, C/007/0039-WQ07-3, Task ID #3179

Canyon Fuel Company is conducting mining operations in Dugout Canyon. Mining is progressing north and eastward under the Book Cliffs. Several springs are located in the canyons. Operations are also taking place at a fan portal in Pace Canyon and a refuse pile in the valley below Dugout Canyon. This report is based on data compiled in file O:\0070039.dug\WaterQuality\Dugout_All_Dec2009.xls.

Table 7-4 of the MRP identifies the ground water monitoring (frequency) plan for wells and springs. Table 7-4 also identifies the parameters that will be monitored. Appendix 7-6 of the MRP identifies the UPDES sites, and current status monitoring parameters, discharge limits and monitoring frequency. Table 7-5 identifies the surface water program and water quality parameters that will be monitored.

The protocols set forth in Table 7-4 and 7-5 identify monitoring programs to be followed during years of normal precipitation and non-normal precipitation, as defined in the PHC. Selected surface and groundwater sites will be monitored weekly from April 1 through August 31 during the first non-normal wet (>110% of average) and dry (<70% of average) years following permit issuance, as defined by the NRCS snow pack for the Price - San Rafael area on March 1. The first non-normal dry year occurred in 2002, and weekly monitoring was completed April to August 2002 per the protocol. The NRCS snow pack data on March 1, 2007 for the Price-San Rafael area was 60% of average, as reported in the Dugout Canyon 2006 Annual Report.

1. Were data submitted for all required sites?

Springs YES [X] NO []

Springs in the operational and post-mining groundwater monitoring program include SC-65, SP-20, SC-14, SC-100, SC-116, 200, 203, 227, 259, 259A and 260. Locations of these springs are noted on Plate 7-1. Groundwater discharge from the Gilson coal seam workings is also monitored and identified as location MD-1.

Springs 200, 227, 259, SC-100 and MD-1 reported no flow. Springs 203, 259A, 260, SC-116, SC-14, SC-65 and SP-20 reported flows. Complete data were submitted for the flowing springs. Although not required by the MRP in 3rd Quarter 2007, monitoring data were also submitted for spring locations 321 and 322.

Streams YES NO

Surface Water sites DC-1, DC-2, DC-3, PC-1a, PC-2, RC-1 and FAN (a new site on Pace Creek) are monitored for flow and chemistry once each calendar quarter during years with normal precipitation.

Stream sites DC-3 and RC-1 reported no flow. DC-1 reported flow of 804 gpm. DC-2 and PC-1a both had flows of 10 gpm. Stream sited PC-2 and FAN had flows of 13 gpm and 41 gpm, respectively. Water quality data were reported for all stream sites that had flow. Although not required by the MRP in 3rd Quarter 2007, stream monitoring was also performed at locations SS-1 and SS-2.

Wells YES NO

Table 7-4 and Section 731.200 of the MRP specify that wells GW-10-2, GW-11-2 and GW-24-1 are to be monitored quarterly for water levels. Well GW-24-1 became blocked during the winter of 1999-2000 and was removed from monitoring after 4th Quarter 2004.

Water level measurements were reported for wells GW-10-2 and GW-11-2. In addition, water level data were collected for wells DH-1, DH-2 and DH-3, and water quality data was submitted for DH-1.

UPDES YES NO

There are six discharge sites from the disturbed area and mine into Dugout and Pace Canyon Creeks under UPDES permit UT0025593 issued by the Utah Division of Water Quality. The permit identifies the maximum discharge levels and monitoring requirements for specified constituents. Mine water is currently pumped directly into the Dugout Creek (001). Disturbed runoff is directed to the sedimentation pond that can discharge to the Dugout Creek (002). Discharge Site 003 is a discharge from the 30,000-gallon water tank and Site 004 is the discharge from the waste rock area. Mine water is pumped to Pace Creek (005) out the Fan Portal. Disturbed area runoff from Pace Canyon is directed to a catch pond, which discharges to Pace Creek (006).

Site 001 discharged between 1 to 260 gallons per minute. Sites 002, 004 and 006 showed no discharge in the quarter. Site 003 discharged 1 to 604 gpm and Site 005 discharged 489 to 700 gpm.

2. Were all required parameters reported for each site?

Springs YES NO

The required parameters were reported when flow was present.

Streams YES NO

The required parameters were reported when flow was present.

Wells YES NO

UPDES YES NO

The required parameters were reported when discharges took place.

3. Were irregularities found in the data?

Springs YES NO

Streams YES NO

Water monitoring samples collected August 7, 2008 contained elevated TSS concentrations at location DC-1 (3,840 mg/L) and DC-2 (10,700 mg/L). Total iron and total manganese were also elevated for these stream monitoring locations. The operator reported that the elevated values were due to a storm event and muddy water.

Wells YES NO

UPDES YES NO

4. On what date does the MRP require a five-year resampling of baseline water data.

The resampling due date is July 2014.

5. Based on your review, what further actions, if any, do you recommend?

None.

Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements? Yes No

A copy of the data file will be e-mailed to the Mine Operator and DOGM Mine Inspector

identifying any missing and irregular data.

6. Follow-up from last quarter, if necessary.

Did the Mine Operator submit all the missing and/or irregular data (datum)?

This report and the previous report were delayed to process mine permits.

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WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

December 16, 2009

TO: Internal File

THRU: James Smith, Permit Supervisor *JS 12/16/09*

FROM: Kevin Lundmark, Environmental Scientist II *KWL*

RE: 2007, 4th Quarter Water Monitoring, Canyon Fuel Company (CFC), LLC, Dugout Mine, C/007/0039-WQ07-4, Task ID #3180

Canyon Fuel Company is conducting mining operations in Dugout Canyon. Mining is progressing north and eastward under the Book Cliffs. Several springs are located in the canyons. Operations are also taking place at a fan portal in Pace Canyon and a refuse pile in the valley below Dugout Canyon. This report is based on data compiled in file O:\0070039.dug\WaterQuality\Dugout_All_Dec2009.xls.

Table 7-4 of the MRP identifies the ground water monitoring (frequency) plan for wells and springs. Table 7-4 also identifies the parameters that will be monitored. Appendix 7-6 of the MRP identifies the UPDES sites, and current status monitoring parameters, discharge limits and monitoring frequency. Table 7-5 identifies the surface water program and water quality parameters that will be monitored.

The protocols set forth in Table 7-4 and 7-5 identify monitoring programs to be followed during years of normal precipitation and non-normal precipitation, as defined in the PHC. Selected surface and groundwater sites will be monitored weekly from April 1 through August 31 during the first non-normal wet (>110% of average) and dry (<70% of average) years following permit issuance, as defined by the NRCS snow pack for the Price - San Rafael area on March 1. The first non-normal dry year occurred in 2002, and weekly monitoring was completed April to August 2002 per the protocol. The NRCS snow pack data on March 1, 2007 for the Price-San Rafael area was 60% of average, as reported in the Dugout Canyon 2006 Annual Report.

1. Was data submitted for all required sites?

Springs YES [X] NO []

Springs in the operational and post-mining groundwater monitoring program include SC-65, SP-20, SC-14, SC-100, SC-116, 200, 203, 227, 259, 259A and 260. Locations of these springs are noted on Plate 7-1. Groundwater discharge from the old Gilson coal seam workings is also monitored and identified as location MD-1.

Springs 200, 227, 259, SC-14, SC-100 and MD-1 reported no flow (data). Springs 203, 259A, 260, SC-116, SC-65 and SP-20 reported flows. Data were submitted for the flowing springs. Although not required by the MRP in 4th Quarter 2007, monitoring was also reported for spring location 321.

Streams YES NO

Surface Water sites DC-1, DC-2, DC-3, PC-1a, PC-2, RC-1 and FAN (a new site on Pace Creek) are monitored for flow and chemistry once each calendar quarter during years with normal precipitation.

Stream sites DC-3 and RC-1 reported no flow. In the Dugout Creek drainage, locations DC-1 and DC-2 reported flow of 377 gpm and 2 gpm, respectively. Flows measurements in the Pace Canyon were 11 gpm at location PC-1A, 28 gpm at location FAN, and 470 gpm at location PC-2. Water quality data was reported for all stream sites that had flow. Although not required by the MRP in 4th Quarter 2007, stream monitoring data were also reported for locations SS-1 and SS-2.

Wells YES NO

Table 7-4 and Section 731.200 of the MRP specify that wells GW-10-2, GW-11-2 and GW-24-1 are to be monitored quarterly for water levels. Well GW-24-1 became blocked during the winter of 1999-2000 and was removed from monitoring after 4th Quarter 2004.

Water level measurements were reported for the wells GW-10-2 and GW-11-2. In addition, water level data were collected for wells DH-1, DH-2 and DH-3.

UPDES YES NO

There are six discharge sites from the disturbed area and mine into Dugout and Pace Canyon Creeks under UPDES permit UT0025593 issued by the Utah Division of Water Quality. The permit identifies the maximum discharge levels and monitoring requirements for specified constituents. Mine water is currently pumped directly into the Dugout Creek (001). Disturbed runoff is directed to the sedimentation pond that can discharge to the Dugout Creek (002). Discharge Site 003 is a discharge from the 30,000-gallon water tank and Site 004 is the discharge from the waste rock area. Mine water is pumped to Pace Creek (005) out the Fan Portal. Disturbed area runoff from Pace Canyon is directed to a catch pond, which discharges to Pace Creek (006).

Monitoring is required to be completed twice monthly per the UPDES permit. Monitoring data for December 2007 was not provided for Sites 002, 003, 004 and 006. During 4th Quarter 2007, Site 001 discharged between 224 to 574 gpm, Site 003 discharged 100 to 494 gpm, and Site 005 discharged 233 to 947 gpm.

2. Were all required parameters reported for each site?

Springs YES NO

The required parameters were reported when flow was present.

Streams YES NO

The required parameters were reported when flow was present.

Wells YES NO

UPDES YES NO

The required parameters were reported when discharges took place.

3. Were irregularities found in the data?

Springs YES NO

The temperature for spring 260 was reported as 0 degrees C. Dissolved calcium and total alkalinity also appeared slightly elevated at this location.

Streams YES NO

The sample collected at location DC-1 contained elevated concentrations of dissolved calcium, magnesium, potassium, sulfate, and TDS, and the field-measured conductivity at this location was also elevated. The operator reported that the monitoring at this location represented storm water conditions. Other locations with elevated measurements during 4th Quarter 2007 include DC-2 (alkalinity), FAN (TDS), PC-1A (TSS), and PC-2 (hardness).

Wells YES NO

UPDES YES NO

The reported concentration of TDS in the sample collected November 28, 2007 at Site 003 (340 mg/L) is below the range of previously measured TDS for this site (926 to 1,641 mg/L).

4. On what date does the MRP require a five-year resampling of baseline water data.

The resampling due date is July 2014

5. Based on your review, what further actions, if any, do you recommend?

None.

Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements? [] Yes [X] No

A copy of the data file will be e-mailed to the Mine Operator and DOGM Mine Inspector identifying any missing and irregular data.

6. Follow-up from last quarter, if necessary.

Did the Mine Operator submit all the missing and/or irregular data (datum)?

This report and the previous report were delayed to process mine permits.

WATER QUALITY MEMORANDUM Utah Coal Regulatory Program

December 22, 2009

TO: Internal File

THRU: James Smith, Permit Supervisor *NSA*

FROM: Kevin Lundmark, Environmental Scientist II *klw*

RE: 2008, 1st Quarter Water Monitoring, Canyon Fuel Company (CFC), LLC, Dugout Mine, C/007/0039-WQ08-1, Task ID #3181

Canyon Fuel Company is conducting mining operations in Dugout Canyon. Mining is progressing north and eastward under the Book Cliffs. Several springs are located in the canyons. Operations are also taking place at a fan portal in Pace Canyon and a refuse pile in the valley below Dugout Canyon. This report is based on data compiled in file O:\0070039.dug\WaterQuality\Dugout_All_Dec2009.xls.

Table 7-4 of the MRP identifies the ground water monitoring (frequency) plan for wells and springs. Table 7-4 also identifies the parameters that will be monitored. Appendix 7-6 of the MRP identifies the UPDES sites, and current status monitoring parameters, discharge limits and monitoring frequency. Table 7-5 identifies the surface water program and water quality parameters that will be monitored.

The protocols set forth in Table 7-4 and 7-5 identify monitoring programs to be followed during years of normal precipitation and non-normal precipitation, as defined in the PHC. Selected surface and groundwater sites will be monitored weekly from April 1 through August 31 during the first non-normal wet (>110% of average) and dry (<70% of average) years following permit issuance, as defined by the NRCS snow pack for the Price - San Rafael area on March 1. The first non-normal dry year occurred in 2002, and weekly monitoring was completed April to August 2002 per the protocol. The NRCS snow pack data on February 29, 2008 for the Price-San Rafael area was 108% of average, as reported in the Dugout Canyon 2007 Annual Report.

1. Was data submitted for all required sites?

Springs YES [X] NO []

Springs in the operational and post-mining groundwater monitoring program include SC-65, SP-20, SC-14, SC-100, SC-116, 200, 203, 227, 259, 259A and 260. Locations of these springs are noted on Plate 7-1. Groundwater discharge from the old

Gilson coal seam workings is also monitored and identified as location MD-1.

Spring MD-1 reported no flow. All other springs were not accessible due to snow.

Streams YES [] NO [X]

Surface Water sites DC-1, DC-2, DC-3, PC-1a, PC-2, PC-3, FAN and RC-1 and FAN are monitored for flow and chemistry once each calendar quarter during years with normal precipitation.

Site PC-3 was not monitored 1st quarter 2008. Stream site RC-1 reported no flow. Sites DC-1 and PC-2 reported flows of 716 gpm and 803 gpm, respectively. All other stream sites were not accessible due to snow.

Wells YES [X] NO []

Table 7-4 and Section 731.200 of the MRP specify that wells GW-10-2, GW-11-2 and GW-24-1 are to be monitored quarterly for water levels. Well GW-24-1 became blocked during the winter of 1999-2000 and was removed from monitoring after 4th Quarter 2004.

Wells GW-10-2 and GW-11-2 were not accessible due to snow. Though not required by the MRP, water level data were collected for wells DH-1, DH-2 and DH-3.

UPDES YES [] NO [X]

There are six discharge sites from the disturbed area and mine into Dugout and Pace Canyon Creeks under UPDES permit UT0025593 issued by the Utah Division of Water Quality. The permit identifies the maximum discharge levels and monitoring requirements for specified constituents. Mine water is currently pumped directly into the Dugout Creek (001). Disturbed runoff is directed to the sedimentation pond that can discharge to the Dugout Creek (002). Discharge Site 003 is a discharge from the 30,000-gallon water tank and Site 004 is the discharge from the waste rock area. Mine water is pumped to Pace Creek (005) out the Fan Portal. Disturbed area runoff from Pace Canyon is directed to a catch pond, which discharges to Pace Creek (006).

Sites 002, 004 and 006 did not discharge during 1st quarter 2008. Site 001 discharged between 3 to 485 gpm, Site 003 discharged 0 (no discharge) to 500 gpm, and Site 005 discharged 32 to 794 gpm.

2. Were all required parameters reported for each site?

Springs YES [] NO []

Not applicable this quarter.

Streams YES NO

The required parameters were reported when flow was present.

Wells YES NO

Not applicable this quarter.

UPDES YES NO

The required parameters were reported when discharges took place.

3. Were irregularities found in the data?

Springs YES NO

Not applicable this quarter.

Streams YES NO

The sample collected at site DC-1 contained concentrations of dissolved sodium and alkalinity, which were higher than previously measured. Site PC-2 contained elevated concentrations of dissolved sodium, potassium, chloride and sulfate. The sodium, chloride and sulfate concentrations at PC-2 are the maximum concentrations detected at this site to date.

Wells YES NO

Not applicable this quarter.

UPDES YES NO

The total iron concentration was 1.12 mg/L in the sample from Site 001 on March 13, 2008, which exceeds the UPDES discharge limitation of 1.1 mg/L. The total iron concentration in other samples collected during 1st quarter 2008 at Site 001 ranged from 0.58 to 1.09 mg/L.

4. On what date does the MRP require a five-year resampling of baseline water data.

The resampling due date is July 2014.

5. Based on your review, what further actions, if any, do you recommend?

None.

Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements? [] Yes [X] No

A copy of the data file will be e-mailed to the Mine Operator and DOGM Mine Inspector identifying any missing and irregular data.

6. Follow-up from last quarter, if necessary.

Did the Mine Operator submit all the missing and/or irregular data (datum)?

This report and the previous report were delayed to process mine permits.

WATER QUALITY MEMORANDUM

Utah Coal Regulatory Program

December 22, 2009

TO: Internal File

THRU: James Smith, Permit Supervisor *DATA for*

FROM: Kevin Lundmark, Environmental Scientist II *KWL*

RE: 2008, 2nd Quarter Water Monitoring, Canyon Fuel Company (CFC), LLC, Dugout Mine, C/007/0039-WQ08-2, Task ID #3182

Canyon Fuel Company is conducting mining operations in Dugout Canyon. Mining is progressing north and eastward under the Book Cliffs. Several springs are located in the canyons. Operations are also taking place at a fan portal in Pace Canyon and a refuse pile in the valley below Dugout Canyon. This report is based on data compiled in file O:\0070039.dug\WaterQuality\Dugout_All_Dec2009.xls.

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1. **Was data submitted for all required sites?**

Springs YES [X] NO []

Springs in the operational and post-mining groundwater monitoring program include SC-65, SP-20, SC-14, SC-100, SC-116, 200, 203, 227, 259, 259A and 260. Locations of these springs are noted on Plate 7-1. Groundwater discharge from the old

Gilson coal seam workings is also monitored and identified as location MD-1.

Spring MD-1 was not accessible, and no flow was reported for springs 200, 227, and 259. All other springs in the groundwater monitoring program reported flow. Data were also submitted for springs 321 and 322.

Streams YES [] NO [X]

Surface Water sites DC-1, DC-2, DC-3, PC-1a, PC-2, PC-3, FAN, and RC-1 are monitored for flow and chemistry once each calendar quarter during years with normal precipitation.

Stream site RC-1 reported no flow. In the Dugout Creek drainage, sites DC-1, DC-2 and DC-3 reported flows of 534, 35 and 48 gpm, respectively. In the Pace Creek drainage, sites PC1a, PC-2, and FAN reported flows of 12, 860 and 65 gpm respectively. Site PC-3 in the Pace Creek drainage was apparently not monitored during 2nd quarter 2008. Data were also submitted for site 323.

Wells YES [] NO [X]

Table 7-4 and Section 731.200 of the MRP specify that wells GW-10-2, GW-11-2 and GW-24-1 are to be monitored quarterly for water levels. Well GW-24-1 became blocked during the winter of 1999-2000 and was removed from monitoring after 4th Quarter 2004.

A water level was not recorded at well GW-11-2 due to suspected caved casing. Though not required by the MRP, water level data were collected for wells DH-1, DH-2 and DH-3.

UPDES YES [X] NO []

There are six discharge sites from the disturbed area and mine into Dugout and Pace Canyon Creeks under UPDES permit UT0025593 issued by the Utah Division of Water Quality. The permit identifies the maximum discharge levels and monitoring requirements for specified constituents. Mine water is currently pumped directly into the Dugout Creek (001). Disturbed runoff is directed to the sedimentation pond that can discharge to the Dugout Creek (002). Discharge Site 003 is a discharge from the 30,000-gallon water tank and Site 004 is the discharge from the waste rock area. Mine water is pumped to Pace Creek (005) out the Fan Portal. Disturbed area runoff from Pace Canyon is directed to a catch pond, which discharges to Pace Creek (006).

Sites 002, 004 and 006 did not discharge during 2nd quarter 2008. Site 001 discharged between 179 and 639 gpm, Site 003 discharged 0 (no discharge) to 482 gpm, and Site 005 discharged 70 to 758 gpm.

2. Were all required parameters reported for each site?

Springs YES NO

The required parameters were reported when flow was present.

Streams YES NO

The required parameters were reported when flow was present.

Wells YES NO

UPDES YES NO

The required parameters were reported when discharges took place.

3. Were irregularities found in the data?

Springs YES NO

Monitoring results for 2nd quarter 2008 were the maximum reported results to date for the following sites: 260 (sulfate, alkalinity, TDS, dissolved magnesium, dissolved sodium, total cations), 259A (discharge), SC-116 (sulfate, dissolved magnesium), SC-65 (conductivity) and SP-20 (conductivity). The results for alkalinity, TDS, bicarbonate, and total cations for site SC-14 appeared depressed relative to previous results at this site.

Streams YES NO

Site PC-2 reported an elevated concentration of dissolved sodium, which is the maximum concentration detected to date at this site.

Wells YES NO

UPDES YES NO

4. On what date does the MRP require a five-year resampling of baseline water data.

The resampling due date is July 2014

5. Based on your review, what further actions, if any, do you recommend?

None.

Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements? [] Yes [X] No

A copy of the data file will be e-mailed to the Mine Operator and DOGM Mine Inspector identifying any missing and irregular data.

6. Follow-up from last quarter, if necessary.

Did the Mine Operator submit all the missing and/or irregular data (datum)?

This report and the previous report were delayed to process mine permits.

O:\007039.DUG\Water Quality\kwlWQ08-2_3182.doc