



DRAFT

TO Mike Smith, PG and Dave Bisko, PG

FROM Bill Brusse, PG

DATE January 2, 2015

RE Junior Coal Contraction, Inc. Runk Operation
DEP December 2014 Sampling
SMP #17980117
Decatur Township, Clearfield County

On December 8 and 9, 2014, I collected samples at three (3) monitoring points (MP-13, MP-14, and MP-16D) and six (6) discharges (sample points SEQ-039, SEQ-040, SEQ-043, SEQ-044, SEQ-045, and SEQ-049) that are located at the Clarion Rider and Clarion coal horizons southeast of the permit boundary. These discharges discharge to a wetland. I also collected a sample (SEQ-046) where the wetland surface water discharges across a railroad bed near the northeastern limit of the wetland. (Exhibit A).

In general, the sampling indicates discharges with pH less than 5, hot acidity greater than alkalinity, manganese exceeding the instantaneous discharge limit, and elevated aluminum (Table 1) along an approximately 650 foot long horizon southeast of the permit boundary (SEQ-039 to SEQ-045). The exceptions to the general finding are MP-13 and MP-16D (pH 5.4 to 6.4 and alkalinity greater than hot acidity). MP-13 monitors a discharge from an abandoned underground mine (UGM) slope entry. The Operator excavated the slope entry in the fall of 2014. There is a marked change in MP-13 water quality post-excavation (see Tables 1 and 2). It appears limestone was used as backfill, effectively creating an anoxic limestone drain passive treatment system at the discharge. The majority of flow at MP-16D was from an upslope discharge that reports the effects of heavy alkaline addition during mining reclamation. Iron exceeded the instantaneous discharge limit at MP-13, MP-14 and SEQ-043.

Samples SEQ-040, SEQ-045 and SEQ-046 were collected at locations sampled by DEP staff in June 2012 (Table 2). The hot acidity, metals, and sulfate concentrations in the 2012 samples are 2 to 3 times greater than the 2014 samples, and may indicate decreasing concentrations or may be the result of seasonal variability.

Samples SEQ-039 and SEQ-040 were collected near background sample BG-12 (1998) and samples SEQ-044 and SEQ-049 were collected near background sample BG-33 (1998). Data summarized in Tables 1, 2, and 3 indicate little impact to water quality prior to Runk Operation mining and impacts to water quality following Runk Operation mining. Monitoring points MP-13 and MP-14 report the same finding.

Operator representatives posited that a boney pile from mining prior to the Runk Operation and adjacent to SEQ-044 is the source of the acid mine drainage (AMD) at and northeast of MP-14. SEQ-044 is located at the toe-of-slope of the boney pile. If the boney pile is the source of the AMD, elevated iron should be present at a discharge so close to source. A very low iron concentration is reported at SEQ-044 (Table 1) indicating that the boney pile is not the AMD source. Operator representatives completed a hydrogeologic investigation (April to September 2014) that included the installation of eight (8) groundwater monitoring wells up-slope and up-

hydrogeologic gradient of the boney pile and SEQ-044. Table 4 summarizes the SEQ-044 analytical results and data from monitoring well PZ-6B. Based on the results of the hydrogeologic investigation and my December 2014 sampling, it is my opinion that SEQ-044 and the other discharges report water from a source (Runk Operation) up-gradient of the boney pile.

Table 5 summarizes water quality data from a flowing hole (sample point SP-13BH) that is located near MP-13. SP-13BH reports water quality (pH 5.5 to 6.5, high iron, and low aluminum) that is different from the other discharges. SP-13BH appears to report water from a water-bearing unit below the other discharge points, and the elevated iron, manganese, and acidity in the discharge may be the result of previous mining. This conclusion is supported by data (Table 6) from other flowing holes that are located southwest of the Runk Operation and in a similar hydrogeologic setting.

Presented with the evidence collected prior to the Operator's hydrogeologic investigation, in the Operator's hydrogeologic investigation, and the December 2014 sampling, it continues to be my conclusion that mining at the Runk Operation is the cause of the degraded water at on-permit discharges (MP-16 and SP-118 and SP-127), at off-permit MP-13 and MP-14, and at other seeps and springs (MP-14A, SEQ-039 to SEQ-045 and SP-161) near the southeastern Runk Operation boundary.

cc:

TABLE 1: RUNK OPERATION DEP DECEMBER 2014 SAMPLES

	SEQ-039	SEQ-040	MP-13 ³	MP-13 ⁴	MP-14	SEQ-043	SEQ-044	SEQ-045	SEQ-046	MP-16D	SEQ-049
pH-Color-Fld ¹	4.9	3.8	5.8	5.85	3.7	3.4	3.7	3.8	4	5.4	3.93
pH w/3.9 Alk ¹	4.8	3.8	6.3	6.4	3.4	3.2	3.6	3.8	3.9	6.1	4.6
SPC @ 25.0C ²	592	864	971	907	1232	1376	2140	1236	1242	1305	1014
Water Temp	5.2 C	7 C	7.7 C	9.7 C	6.7 C	3.4 C	8.3 C	5.4 C	3.5 C	3.8 C	5.96 C
ALKALINITY	0	0	82.6	117.8	0	0	0	0	0	23.2	0
HOT ACIDITY	18.6	73.4	-40.4	-91	124	132.6	144.4	60.6	57.2	-4.2	30.4
IRON T	0.29	0.66	8.72	1.07	13.89	7.37	0.27	1.78	2.25	0.02	0.19
MANGANESE T	3.31	7.31	6.92	5.75	13.37	16.13	25.4	11.75	11.38	2.65	4.68
ALUMINUM T	2.44	7.04	4.64	3.23	11.1	10.02	17.34	5.47	5.15	1.16	2.75
SULFATE T	244.2	352.9	394.8	366.8	577.2	572.9	1281.3	619	664.3	692.2	520.7
CALCIUM T	45.35	61.53	108.9	119	102.5	112.4	243.5	131.4	130.5	172.5	113
CHLORIDE	32.2	33.4	18.9	13.8	8.3	10.1	7.4	4.3	5.2	4.3	4.1
MAGNESIUM T	32.42	47.74	48.44	46.7	79.62	78.37	170.7	76.66	83.73	99.05	59.9
Nitrate-N	0.88	0.49	0.69	0.65	0.31	0.09	0.34	<0.04	<0.04	0.35	0.07
POTASSIUM T	3.6	3.99	3.83	3.48	4	3.93	5.79	4.79	4.2	4.66	3.38
SODIUM T	14.26	16.13	9.96	8.1	5.11	4.66	6.57	3.51	4.04	4.3	2.73
T SUSP SOLID	<5	<5	12	16	<5	<5	<5	<5	<5	<5	<5
ZINC T	0.27	0.44	0.37	0.33	0.58	0.36	0.967	0.29	0.23	0.09	0.19

Concentrations in milligrams per liter (mg/L) except as noted below

¹pH units

²umhos/cm

³Sample collected December 8, 2014

⁴Sample collected December 8, 2014

TABLE 2: RUNK OPERATION DEP JUNE 2012 SAMPLES

	151	157	161	162	163	165	MP-13	MP-14		
pH-Color-Fld ¹	4	4	4	4	4	4.5	4	4		
pH w/3.9 Alk ¹	3.5	3.8	3.3	3.3	3.6	4.5	3.9	3.3		
ALKALINITY	0	0	0	0	0	11	0.6	0		
HOT ACIDITY	132	172	261	247	179	220	167	226		
IRON T	1.5	5.8	43.3	14.8	8.5	46.9	0.76	7.1		
MANGANESE T	21.7	21.1	36.7	36.9	27.9	34.1	21.4	25.6		
ALUMINUM T	8.1	22.1	13.3	21	16.3	15.9	22.5	23.4		
SULFATE T	1044	808	935	1576	1202	1517	916	1084		
CALCIUM T	209	NA	61.53	142	247	291	140	168		
MAGNESIUM T	121	104	47.74	97	142	181	104	125		
T SUSP SOLID	<5	<5	<5	<5	<5	<5	<5	<5		

Concentrations in milligrams per liter (mg/L) except as noted below

¹pH units

TABLE 3: RUNK OPERATION 1998 BACKGROUND SAMPLES

	BG-12	MP-13	MP-14	BG-15	MP-16	BG-33			
pH-Color-Fld ¹	5.3	4.5	4.6	4.4	5	5.4			
pH w/3.9 Alk ¹	6	4.3	4.2	4.4	4.9	5.5			
SPC @ 25.0C ²	89	138	141	125	61	75			
Water Temp	8 C	10.5 C	12 C	10 C	10 C	13 C			
ALKALINITY	13	6	4	6	8	11			
HOT ACIDITY	0	22	26	21	8	10			
IRON T	0.08	0.69	0.45	0.32	0.04	1.05			
MANGANESE T	0.05	0.69	1	0.71	0.11	0.5			
ALUMINUM T	0.07	0.99	0.95	1.11	0.13	NA			
SULFATE T	19	35	35	36	16.5	17			
T SUSP SOLID	2.5	1	2.7	0.5	0.3	2.5			

Concentrations are the median of the 1998 background samples

Concentrations in milligrams per liter (mg/L) except as noted below

¹pH units

²umhos/cm

**TABLE 4: RUNK OPERATION
MONITORING WELL PZ-6 AND BONEY PILE (044) COMPARISON**

Sampe Point	pH ¹	Spe Con ²	Alkalinity	Acidity	Iron	Mang	Aluminum	Sulfate	Calcium	Mag	Sus Solids	Dis Solids
PZ-6B (5/13/14)	3.5	2490	0	375	0.6	31.6	36.9	1636	266.7	213.3	<5	NA
PZ-6B (6/19/14)	3.8	2150	0	217	1.18	21.5	20.6	1265	177.8	146.8	98	1974
PZ-6B (8/21/14)	3.9	1890	0	178	2.4	15.9	14.5	1119	70.7	43.3	44	1771
044 (12/8/14)	3.6	2140	0	144	0.3	25.4	17.3	1281	243.5	170.7	<5	NA

Concentrations in milligrams per liter (mg/L) except as noted below

¹pH Units

²umhos/cm

TABLE 5: RUNK OPERATION BOREHOLE SP-13BH

	6/21/12 ³	3/27/13 ³	7/25/13 ³	1/6/14 ³	1/25/14 ⁴	2/6/14 ⁴	2/13/14 ⁴	3/20/14 ³	6/19/14 ⁴	9/04/14 ³	10/17/14 ³
pH-Color-Fld ¹	6	5.5	6	6	NR	NR	5.6	6	6.1	6.5	6
pH w/3.9 Alk ¹	6.2	5.9	6.1	6.3	6	3.5	3.3	5.9	5.5	6.2	6.3
SPC @ 25.0C ²	NR	1514	1475	NR	1520	1550	1500	NR	1620	NR	NR
Water Temp	NR	8.5 C	NR	NR	9 C	NR	9 C	NR	12 C	NR	NR
ALKALINITY	46.6	36.6	42.8	49	30	0	0	41	12	78.4	57
HOT ACIDITY	196.6	212	203	172	214	186	192	157.4	239	113.8	113.4
IRON T	132	184	141	126	128.62	119.28	117	97.77	136.31	95.65	98.84
MANGANESE T	12.5	12.3	13	10.92	12.61	11.99	11.49	11.68	12.91	12.96	11.94
ALUMINUM T	<0.2	4	<0.2	<0.5	0.26	0.39	0.13	2.6	<0.25	1.29	<0.5
SULFATE T	845.2	788.9	799	743.6	811	826	889	724.1	848	803.6	746.4
CALCIUM T	145	139	147	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	19.1	20.9	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM T	66.8	70.5	71	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate-N	NA	<0.04	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM T	NA	3.82	3.9	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM T	NA	2.24	1.9	NA	NA	NA	NA	NA	NA	NA	NA
T SUSP SOLID	<5	104	58	20	34	47	106	14	40	14	14
ZINC T	NA	0.05	<0.04	NA	NA	NA	NA	NA	NA	NA	NA

Concentrations in milligrams per liter (mg/L) except as noted below

¹pH units

²umhos/cm

³DEP sample 14

⁴Operator sample

TABLE 6: BOREHOLE DISCHARGES

	S-1 3/2012	S-2 3/2012	BH-1 3/2014	BH-2 3/2014	BH-1 11/2014	BH-2 11/2014		
pH-Color-Fld ¹	NR	NR	6.6	6.5	5.95	6.02		
pH w/3.9 Alk ¹	5.8	5.8	5.8	5.9	5.8	6.2		
SPC @ 25.0C ²	1210	1125	1060	1250	961	1103		
Water Temp	NR	NR	9	7	10.8	11.2		
ALKALINITY	30	23	22	24	24.4	41.2		
HOT ACIDITY	176	161	173	162	182.4	157.2		
IRON T	87.1	74.3	79.94	76.95	84.2	80.8		
MANGANESE T	20.5	17.5	11.54	14.41	12.5	15.7		
ALUMINUM T	<0.05	<0.05	0.24	<0.05	1.84	<0.2		
SULFATE T	654	580	518	610	483.6	579.5		
CALCIUM T	NA	NA	NA	NA	64.6	87.6		
CHLORIDE	NA	NA	NA	NA	NA	NA		
MAGNESIUM T	NA	NA	NA	NA	46.6	60		
Nitrate-N	NA	NA	NA	NA	<0.04	<0.04		
POTASSIUM T	NA	NA	NA	NA	2.87	3		
SODIUM T	NA	NA	NA	NA	3.53	5.3		
T SUSP SOLID	5	5	5	19	12	16		
ZINC T	NA	NA	NA	NA	0.21	0.06		

Concentrations in milligrams per liter (mg/L) except as noted below

¹pH units

²umhos/cm

S-1 and S-2 were discharges from geophysical boreholes that affected Sub-F points at the Junior West Decatur Operation
 BH-1 and BH-2 are flowing holes approximately 1,500 feet west of the Runk Operation. 3/2014 -Operator samples. 11/2014 - DEP samples.

Exhibit A



EXHIBIT B

Runk Operation Non-complying discharge point locations:

<u>Location ID:</u>	<u>Latitude:</u>	<u>Longitude</u>
MP-13	40° 54' 56"	-78° 15' 26"
MP-14	40° 54' 56.5"	-78° 15' 23"
MP-14N	40° 54' 58.68"	-78° 15' 23.33"
MP-16	40° 55' 0.15"	-78° 15' 26"
SP 118	40° 55' 4.22"	78° 15' 30.96"
SP-127	40° 55' 1.56"	78° 15' 31.49"
SP 161	40° 54' 58.20"	78° 15' 24.10"
SEQ-039	40° 54' 55.54"	-78° 15' 29.19"
SEQ-040	40° 54' 56.49	-78° 15' 28.08
SEQ-043	40° 54' 57.81"	-78° 15' 25.37"
SEQ-044	40° 54' 59.71"	-78° 15' 23.77
SEQ-045	40° 54' 59.54"	-78° 15' 22.46

EXHIBIT C

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

KEYED IN
2367028
MAY 06 2015
322830
ANDREA

In the Matter of:

Junior Coal Contracting, Inc.
2330 Six Mile Road
Philipsburg, PA 16866

SMP No. 17980117 (Runk Operation)
Decatur Township, Clearfield County
Alternate Mine Drainage Treatment Agreement
COA # 154010

CONSENT ORDER AND AGREEMENT

This Consent Order and Agreement is entered into this 10th day of April, 2015, by and between the Commonwealth of Pennsylvania, Department of Environmental Protection ("Department"), and Junior Coal Contracting, Inc. ("Junior").

The Department has found and determined the following:

A. The Department is the agency with the duty and authority to administer and enforce the Surface Mining Conservation and Reclamation Act, Act of May 31, 1945, P.L. 1198, as amended, 52 P.S. § 1396.1 *et seq.*, (Surface Mining Act); The Clean Streams Law, Act of June 22, 1937, P. L. 1987, as amended, 35 P. S. §691.1 *et seq.*, (The Clean Streams Law); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P. L. 177, as amended, 71 P.S. §510-17 (Administrative Code); and the rules and regulations promulgated thereunder.

B. Junior is a Pennsylvania corporation with a registered business address of 2330 Six Mile Road, Philipsburg, Pennsylvania 16866, whose business includes the mining of coal by the surface method.

C. The principal and sole officer of Junior is George Cowfer, Jr. who is president, secretary and treasurer.

D. At all times relevant hereto, Junior was authorized to conduct surface mining in Pennsylvania pursuant to Surface Mining Operator's License No. 4900.

E. Junior is the permittee and operator of the Runk Operation (Runk), located in Decatur Township, Clearfield County, pursuant to Surface Mining Permit No. 17980117 (the Permit) issued on September 20, 1999.

F. Junior completed mining and backfilling the site in April 2009. The site status is Stage 1/Regraded.

G. Beginning in December 2008 and continuing to the present, monthly analysis by Junior has indicated acid mine drainage (AMD) at monitoring points MP-13, MP-14, and MP-16. MP-16 is located within the Permit boundary. MP-13 and MP-14 are located off the Permit.

H. On May 31, 2012, the Department issued Compliance Order No. 124022 to Junior requiring treatment at or upstream of MP-16 to meet effluent limits. Junior did not appeal the Compliance Order.

I. In June 2012, Department Surface Mine Conservation Inspector (SMCI) Tim Wertz collected samples at MP-13, MP-14, MP-16, and other seepages immediately southeast of the permit Permit boundary.

J. From April 1, 2014 to June 30, 2014, Junior conducted a test to determine if MP-16 and immediately below MP-16 would meet effluent limits without the application of continued treatment. That test showed that a point down gradient of MP-16, referred to as MP-16DN, exceeded effluent limits unless receiving treatment in the form of a diversion of alkaline water.

K. Junior has a continuing obligation to ensure that the flow at MP-16 and at MP-16-DN continue to meet effluent limits.

L. Monitoring Points MP-13 and MP-14 are located within an extensive AMD ground water seepage zone which is located immediately southeast of the Permit boundary

(“seepage area”). SMCi Wertz requested that the District Office conduct a hydrogeological investigation of the causes of that AMD.

M. Department Geologist Bill Brusse, P.G. conducted a hydrogeological investigation and concluded that coal mining on the Runk Operation created the AMD at MP-13, MP-14, MP-16, and the seepage area near the southeast Permit boundary. The hydrogeological investigation is summarized in a report dated January 2, 2014.

N. The results of that investigation were shared with Junior who requested approval to conduct its own investigation. Junior submitted its plan of investigation on April 3, 2014. It was approved by the Department on April 8, 2014. The investigation results were due to be submitted to the Department on September 30, 2014.

O. Junior completed its hydrogeological investigation which included the installation of eight (8) groundwater monitoring wells within the Permit boundary and up-slope and up-hydrogeological gradient of MP-13, MP-14, MP-16, and the seepage area. Junior summarized its hydrogeological investigation in a report dated September 29, 2014. Data from the report shows that spoil located on the Runk Operation is generating AMD that is similar to the AMD at MP-13, MP-14, MP-16, and the seepage area.

P. Mr. Brusse reviewed the Junior investigation and concluded in a memorandum dated October 17, 2014 that the Junior hydrogeological investigation further supported his conclusion that coal mining on the Runk Operation created the AMD at MP-13, MP-14, MP-16, and the seepage area.

Q. In December 2014, Mr. Brusse collected additional samples at MP-13 and MP-14, at pre-mining background sample locations collected by Junior in 1998 (SEQ-039 and SEQ-049), and at locations sampled by SMCi Wertz in 2012 (MP-14A, SEQ-040, SEQ-043, SEQ-

044, and SEQ-045). An aerial photo depicting the locations of the monitoring points is attached hereto as **Exhibit A**. The Department's 2014 data confirms the 2012 data that AMD is present near the southeast boundary of the Permit area.

R. Mr. Brusse concluded in a Memorandum dated January 2, 2015 that the Junior hydrogeological investigation and the December 2014 sampling support the January 2, 2014 conclusion that coal mining on the Runk Operation created the AMD at MP-13, MP-14, MP-16, and the seepage area near the southeast Permit boundary.

S. Mining on the Runk Operation has impacted groundwater which emanates in the seepage area below the Runk Operation in the vicinity of MP-13, MP-14, and MP-16, including sample points: SEQ-039, SEQ-040, MP-13, MP-14, SEQ-043, SEQ-044, SEQ-045, SEQ-046 and MP-16D. They are collectively monitored at point SEQ-046.

T. Junior has not been determined to be responsible for impacting the "borehole discharge," which appears to emanate from an underlying source near MP-13.

U. Junior is responsible for meeting Section 87.102, 25 Pa. Code § 87.102, effluent limits and applicable Chapter 93 limits at the monitoring points identified above and other AMD seepages in the seepage area, except the borehole discharge.

V. The violations described in Paragraphs S and U constitute unlawful conduct under Section 611 of the Clean Streams Law, 35 P.S. § 691.611, and Section 18.6 of the Surface Mining Act, 52 P.S. § 1396.18f; and constitute a statutory nuisance under Section 601 of the Clean Streams Law, 35 P.S. § 691.601 and Section 4.2 of the Surface Mining Act, 52 P.S. § 1396.4b.

W. The individual discharges identified herein emanate diffusely in a wooded wetland as a large area of ground water seepage. Collection and treatment of the seepage area

would be difficult to accomplish, would necessitate disruption or elimination of the wooded wetland, and could result in more environmental damage. Therefore, the Department has determined that it is in the best interest to allow treatment to take place on abandoned mine drainage discharges elsewhere in the watershed in lieu of treatment at the Runk seepage area.

After full and complete negotiation of all matters set forth in this Consent Order and Agreement and upon mutual exchange of the covenants contained herein, the parties desiring to avoid litigation and intending to be legally bound, it is hereby ORDERED by the Department and AGREED to by Junior as follows:

1. **Authority.** This Consent Order and Agreement is an Order of the Department authorized and issued pursuant to Section 5 of The Clean Streams Law, 35 P.S. §691.5; Sections 4.2 and 4.3 of the Surface Mining Act, 52 P.S. §1396.4b and 1396.4c; and Section 1917-A of the Administrative Code, 71 P.S. § 510-17.

2. **Findings.**

a. Junior agrees that the findings in Paragraphs A through W are true and correct and, in any matter or proceeding involving Junior and the Department, Junior shall not challenge the accuracy or validity of these findings.

b. The parties do not authorize any other persons to use the findings in this Consent Order and Agreement in any matter or proceeding.

3. **Corrective Action.**

a. Within 90 days of the date of this Consent Order and Agreement (COA) Junior shall submit to the Department a plan to treat the discharges emanating in the seepage area described in Paragraph S, above, either individually or collectively at point SEQ-046. The borehole discharge described in Paragraph T, above, may be diverted so that it is not included in the water to be treated under this paragraph. The plan must provide for construction of treatment facilities that will be adequate to meet applicable effluent and water quality limits. The plan shall include a timetable for implementation and an application for a revision to the SMP and NPDES permits. The Department will review the proposed treatment plan and act on any proposals in a timely manner.

b. In lieu of the treatment plan discussed in Paragraph 3.a, above, within 6 months of the date of this COA, Junior may submit a proposal to treat acid mine drainage at an alternate location within the same watershed as the Runk Operation (Laurel Run). The alternate treatment proposal must treat the entire discharge, not a portion thereof. The proposal must provide for the treatment of at least two times the acid load and metals load from the Runk Operation discharges, as measured at point SEQ-046. Metals load is the total of iron, manganese, and aluminum. For comparative purposes, loading rates for point SEQ-046 and the alternate treatment point will be based on a minimum of six flow measurements and samples taken during the same day, with sampling dates spanning at least a 120-day period. Junior may adjust the flow rate at point SEQ-046 to account for the borehole discharge; however the adjusted flow at SEQ-046 cannot be less than zero gallons per minute. The alternate treatment proposal must include a plan for treatment adequate to meet applicable effluent limits for mining activities and water quality standards, a timetable for implementation, and a draft NPDES permit

application. The Department will review the proposed abatement plan and act on any proposals in a timely manner; however, the Department reserves the right to reject the alternate treatment proposal and require Junior to proceed as required under paragraph 3.a or as otherwise authorized by the Department in writing.

c. Acid mine drainage treatment at the Runk Operation described in Paragraph 3.a above shall be fully implemented in accordance with the approved timetable but in no circumstance shall construction of the treatment facilities extend beyond August 1, 2015, unless Junior begins interim treatment of the Runk discharges. If Junior elects to proceed under Paragraph 3.b above, Junior shall begin interim treatment of the Runk discharges within 90 days of the date of this COA sufficient to meet the pH and alkalinity/acidity standards at 25 Pa. Code § 87.102.

d. At any time after Junior has begun treatment at the Runk Operation pursuant to Paragraph 3.a above, Junior may submit a proposal to treat acid mine drainage at an alternate location. The proposed alternate treatment must be within the same watershed as the Runk Operation (Laurel Run) and provide for treatment of at least two times the acid load and metals load from the Runk Operation discharges, as measured at point SEQ-046. Metals load is the total of iron, manganese, and aluminum. For comparative purposes, loading rates for point SEQ-046 and the alternate treatment point will be based on a minimum of six flow measurements and samples taken during the same day, with sampling dates spanning at least six months or by comparing subchapter F statistical analysis over the same water year. Junior may adjust the flow rate at point SEQ-046 to account for the borehole discharge; however the total flow at SEQ-046 cannot be less than zero gallons per minute. The alternate treatment proposal must include a plan for treatment, adequate to meet applicable effluent limits for mining activities and water

quality standards, a timetable for implementation, and a draft NPDES permit application. The Department reserves the right to reject the alternate treatment proposal and require Junior to proceed as required under paragraph 3.a or as otherwise authorized by the Department in writing. After the proposed alternate treatment system becomes operational, Junior may discontinue treatment at the Runk Operation.

e. Any required changes to be made to the treatment plan submitted pursuant to paragraphs 3.a, 3.b, or 3.d, above, must be submitted to the Department within 30 days of notice of the date the Department requests that such changes be made.

f. Long-term treatment costs, at the Runk Operation shall be provided for either by the establishment of a post-mining treatment trust fund or by adequate bond in an amount to be determined by the Department. If treatment is at an alternate location, then Junior must establish a post-mining treatment trust fund. The treatment trust fund or bond should be adequate in amount to assure the perpetual operation and maintenance of the treatment system and for required capitalization of treatment system components.

g. Junior shall continue to maintain the Runk SMP No. 17980117 and NPDES No. PA0256269 for water treatment only, for as long as Junior is treating AMD at the Runk Operation. In the event Junior elects to treat AMD at an alternate location, Junior shall maintain the Runk SMP No. 17980117 and obtain a new NPDES permit from the Department for that alternate treatment system.

h. At any time after implementation of a Department approved treatment plan, either at the Runk Mine Operation or at an alternate location, Junior may propose abatement activities to reduce or abate the pollution load at that treatment location. The Department will review the proposed abatement plan and act on any proposals in a timely

manner. If the abatement activities successfully reduce acidity and metals pollution loads, Junior shall be only required to treat the remaining pollution load. If the Department determines that, as a result of Junior's abatement activities, the pollution load has been completely eliminated, then the obligation to treat AMD shall terminate and Junior shall have no further obligation to provide perpetual treatment.

4. **Civil Penalty Settlement.** Provided this COA is fully executed on or before March 30, 2015, the Department agrees that Junior shall not be responsible for payment of any civil penalties related to discharge violations at the Runk Operation from the time period August 1, 2012 to the date this COA is fully executed. This time period begins from the date the last noted discharge violation set forth in Compliance Order No. 124022, was corrected and the associated civil penalty paid .

5. **Stipulated Civil Penalties.**

a. In the event Junior fails to comply in a timely manner with any term or provision of this Consent Order and Agreement, Junior shall be in violation of this Consent Order and Agreement and, in addition to other applicable remedies, shall pay a civil penalty in the amount of \$200.00 per day for each violation.

b. Stipulated civil penalty payments shall be payable monthly on or before the fifteenth day of each succeeding month, and the payment shall be made by corporate check or the like made payable to the Commonwealth of Pennsylvania and sent to the Department of Environmental Protection, Moshannon District Office, Attn: Environmental Protection Compliance Specialist, 186 Enterprise Drive, Philipsburg, PA 16866.

c. Any payment under this paragraph shall neither waive Junior's duty to meet its obligations under this Consent Order and Agreement, nor preclude the Department from

commencing an action to compel Junior's compliance with the terms and conditions of this Consent Order and Agreement. The payment resolves only Junior's liability for civil penalties arising from the violations of this Consent Order and Agreement for which payment is made.

d. Stipulated civil penalties shall be due automatically and without notice.

6. Additional Remedies.

a. In the event Junior fails to comply with any provision of the Consent Order and Agreement, the Department may, in addition to the remedies prescribed herein, pursue any remedy available for a violation of an order of the Department, including an action to enforce this Consent Order and Agreement.

b. The remedies provided by this paragraph and Paragraph 4 (Stipulated Civil Penalties) are cumulative, and the exercise of one does not preclude the exercise of any other. The failure of the Department to pursue any remedy shall not be deemed to be a waiver of that remedy. The payment of a stipulated civil penalty, however, shall preclude any further assessment of civil penalties for the violation for which the stipulated civil penalty is paid.

7. Reservation of Rights. The Department reserves the right to require additional measures to achieve compliance with applicable law. Junior reserves the right to challenge any action which the Department may take to require those measures.

8. Liability of Operator. Junior shall be liable for any violations of the Consent Order and Agreement, including those caused by, contributed to, or allowed by its officers, agents, employees, or contractors. Junior also shall be liable for any violation of the Consent Order and Agreement caused by, contributed to, or allowed by its successors and assigns.

9. Transfer of site.

a. The duties and obligations under this Consent Order and Agreement shall not be modified, diminished, terminated or otherwise altered by the transfer of any legal or equitable interest in the Runk Operation, or any part thereof.

b. If Junior intends to transfer any legal or equitable interest in the Runk Operation which is affected by this Consent Order and Agreement, Junior shall serve a copy of this Consent Order and Agreement upon the prospective transferee of the legal and equitable interest at least thirty (30) days prior to the contemplated transfer and shall simultaneously inform the Moshannon District Mining Office of the Department of such intent.

c. The Department in its sole discretion may agree to modify or terminate Junior's duties and obligations under this Consent Order and Agreement upon transfer of the Runk Operation. Junior waives any right that it may have to challenge the Department's decision in this regard.

10. **Correspondence with Department.** All correspondence with the Department concerning this Consent Order and Agreement shall be addressed to:

Moshannon District Mining Manager
DEP- District Mining Office
186 Enterprise Drive
Philipsburg, PA
814.342.8200
814.342.8216 (FAX)

11. **Correspondence with Junior.** All correspondence with Junior concerning this Consent Order and Agreement shall be addressed to:

Mr. George Cowfer, Jr.
President
2333 Six Mile Road
Philipsburg, PA 16866
814.342.2012
814.342-3554 (FAX)

Junior shall notify the Department whenever there is a change in the contact person's name, title, or address. Service of any notice or any legal process for any purpose under this Consent Order and Agreement, including its enforcement, may be made by mailing a copy by first class mail to the above address.

12. Force Majeure.

a. In the event that Junior is prevented from complying in a timely manner with any time limit imposed in this Consent Order and Agreement solely because of a strike, fire, flood, act of God, or other circumstances beyond Junior's control and which Junior, by the exercise of all reasonable diligence, is unable to prevent, then Junior may petition the Department for an extension of time. An increase in the cost of performing the obligations set forth in this Consent Order and Agreement shall not constitute circumstances beyond Junior's control. Junior's economic inability to comply with any of the obligations of this Consent Order and Agreement shall not be grounds for any extension of time.

b. Junior shall only be entitled to the benefits of this paragraph if it notifies the Department within five (5) working days by telephone and within ten (10) working days in writing of the date it becomes aware or reasonably should have become aware of the event impeding performance. The written submission shall include all necessary documentation, as well as a notarized affidavit from any authorized individual specifying the reasons for the delay, the expected duration of the delay, and the efforts which have been made and are being made by Junior to mitigate the effects of the event and to minimize the length of the delay. The initial written submission may be supplemented within ten (10) working days of its submission. Junior's failure to comply with the requirements of this paragraph specifically and in a timely fashion shall render this paragraph null and of no effect as to the particular incident involved.

c. The Department will decide whether to grant all or part of the extension requested on the basis of all documentation submitted by Junior and other information available to the Department. In any subsequent litigation, the operator shall have the burden of proving that the Department's refusal to grant the requested extension was an abuse of discretion based upon the information then available to it.

13. **Severability.** The paragraphs of the Consent Order and Agreement shall be severable and should any part hereof be declared invalid or unenforceable, the remainder shall continue in full force and effect between the parties.

14. **Entire Agreement.** This Consent Order and Agreement shall constitute the entire integrated agreement of the parties. No prior or contemporaneous communications or prior drafts shall be relevant or admissible for purposes of determining the meaning or extent of any provisions herein in any litigation or any other proceeding.

15. **Attorney Fees.** The parties shall bear their respective attorney fees, expenses and other costs in the prosecution or defense of this matter or any related matters, arising prior to execution of this Consent Order and Agreement.

16. **Modifications.** No changes, additions, modifications, or amendments of this Consent Order and Agreement shall be effective unless they are set out in writing and signed by the parties hereto.

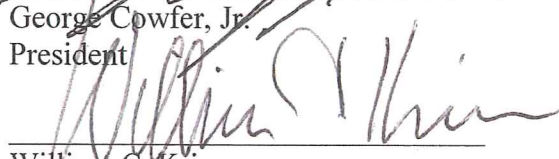
17. **Titles.** A title used at the beginning of any paragraph of this Consent Order and Agreement may be used to aid in the construction of that paragraph, but shall not be treated as controlling.

IN WITNESS WHEREOF, the parties hereto have caused this Consent Order and Agreement to be executed by their duly authorized representatives. The undersigned representatives of Junior certify under penalty of law, as provided by 18 PA C.S. §4904, that they are authorized to execute this Consent Order and Agreement on behalf of Junior, that Junior consents to the entry of this Consent Order and Agreement as a final ORDER of the Department; and that Junior hereby knowingly waives any rights to appeal this Consent Order and Agreement and to challenge its content or validity, which rights may be available under Section 4 of the Environmental Hearing Board Act, the Act of July 13, 1988, P.L. 530, No. 1988-94, 35 P.S. §7514; the Administrative Agency Law, 2 PA C. S. §103(a) and Chapters 5A and 7A; or any other provision of law. Signature by Junior's attorney certifies only that the agreement has been signed after consulting with counsel.

FOR JUNIOR



George Cowfer, Jr.
President



William C. Kriner
Attorney for Junior

FOR THE COMMONWEALTH OF
PENNSYLVANIA, DEPARTMENT OF
ENVIRONMENTAL PROTECTION:



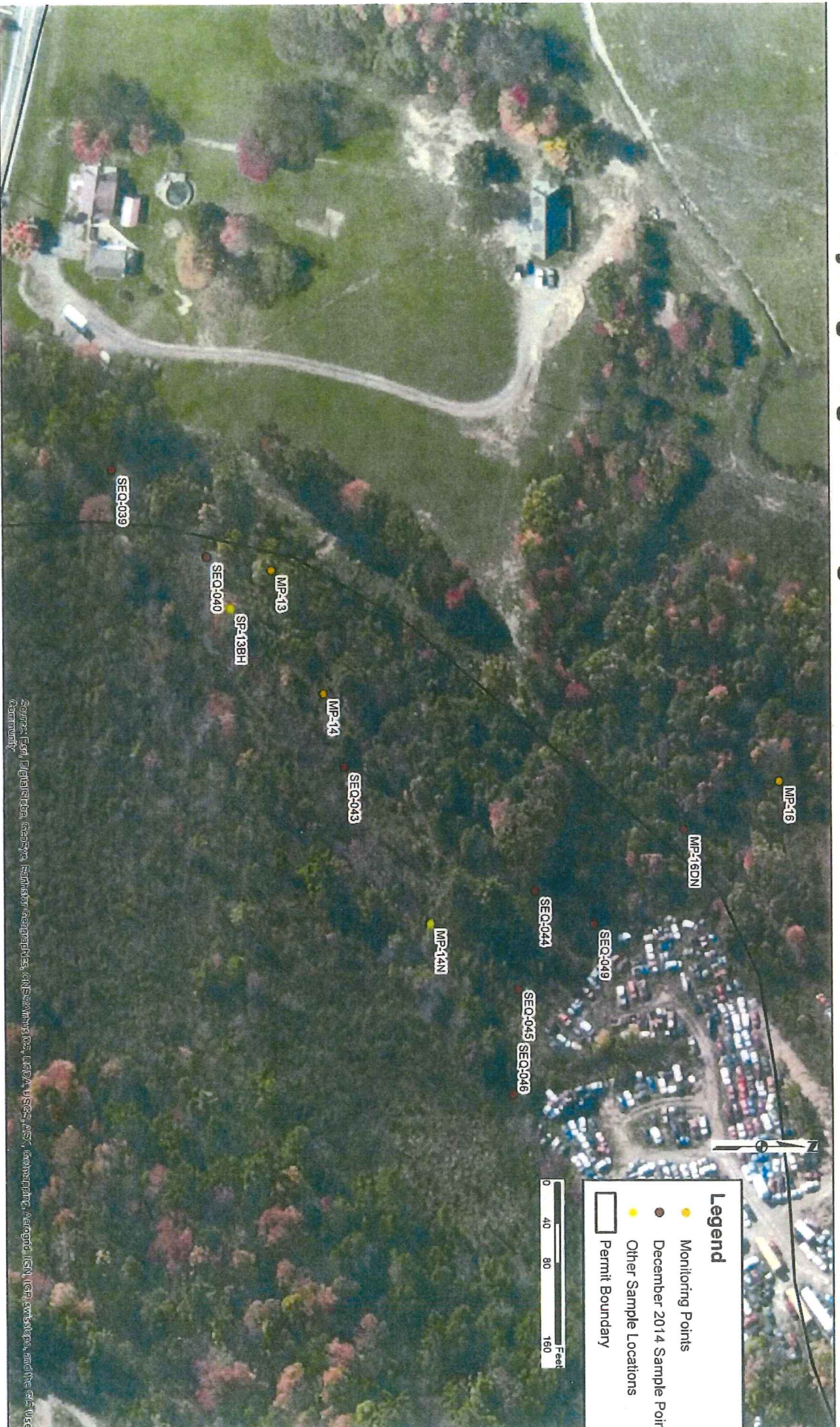
Michael W. Smith
District Mining Manager



Robyn Katzman Bowman
Assistant Counsel

SMP#17980117 Runk Operation Hydrogeologic Investigation

Exhibit A





COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF MINING PROGRAM

EXHIBIT D

17980117

Permit No.

**CONSENT TO RIGHT OF ENTRY FOR OPERATION AND MAINTENANCE OF A
MINE DRAINAGE TREATMENT FACILITY COVERED BY A BOND OR A
POST-MINING DISCHARGE TREATMENT TRUST AGREEMENT**

Property Owner(s): List everyone with an ownership interest in the property which is the subject of this Agreement.

Name: Alvin L. & Judy E. Hughes

Name: _____

Address: 9 Runk Farm Ln., Philipsburg, PA 16866

Address: _____

WHEREAS, the Property Owner(s) own surface property containing 66.86 +/- acres located in Decatur Township, Clearfield County, Pennsylvania, and described in Instrument # 201009572, 201304363 in the Clearfield County Recorder's Office (the Property);

WHEREAS, the Commonwealth of Pennsylvania, Department of Environmental Protection (DEP) is authorized to administer and enforce the Surface Mining Conservation and Reclamation Act, 52 P.S. §§ 1396.1-1396.19a, the Clean Streams Law, 35 P.S. §§ 691.1-691.1001, and their implementing regulations, including requiring the construction, operation and maintenance of facilities designed to remediate the effects of mine drainage;

WHEREAS, Junior Coal Contracting, Inc. ("*Operator*") conducted surface mining activities on or adjacent to the Property pursuant to Surface Mining Permit No. 17980117;

WHEREAS, DEP has determined that mine drainage caused by *Operator's* mining activities is discharging from or passing through the Property, and the mine drainage on the Property is causing pollution, or a danger of pollution, to waters of the Commonwealth;

WHEREAS, *Operator* is required, under the mining law and its surface mining permit, to construct, operate and maintain mine drainage treatment facilities on a portion of the Property (the Treatment Facility Property), for purposes of treating the pollutional discharge(s);

WHEREAS, a map showing the boundaries of the Treatment Facility Property is attached as Exhibit A;

WHEREAS, *Operator* has posted a bond with the Department, or has established a trust with a financial institution as an alternative financial assurance mechanism, in order to provide sufficient funds to guarantee *Operator's* legal obligation to operate and maintain the mine drainage treatment facilities on the Property and the *Operator's* obligation for long-term treatment, or abatement, of the post-mining pollutional discharge(s) on the Property;

WHEREAS, to assure compliance with its legal obligations, *Operator* and DEP [*and the Trustee*] must have access to the Treatment Facility Property to conduct and/or oversee the mine drainage treatment activities required by law and the mining permit;


WHEREAS, *Operator and DEP* have requested and the Property Owner(s) is willing to grant *Operator and DEP* [*and Trustee*] a right of entry into, under, over and upon the Treatment Facility Property to construct, operate and maintain mine drainage treatment facilities;

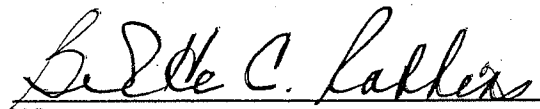
WHEREAS, the Property Owner(s) acknowledge that treatment of the mine drainage on the Property will provide benefits to the Property Owner and to the Commonwealth through abatement of a nuisance, restoration of land affected by mining operations, and prevention of pollution to waters of the Commonwealth;

NOW THEREFORE, in consideration of the benefits which the Property Owner(s) and the general public will receive, and with the intention of being legally bound, it is agreed as follows:

1. Right of Entry. The Property Owner(s) hereby grants and conveys to Operator and DEP [and Trustee], its employees, agents, servants, contractors and subcontractors, a right of entry into, under, over and upon the Treatment Facility Property. This right of entry includes all necessary rights of ingress, egress and regress with all personnel, materials, and equipment needed to perform the discharge treatment activities.
2. Duration of Right of Entry. The term of this Right of Entry shall extend for the length of time necessary to complete the discharge treatment activities in accordance with applicable law. It is specifically understood and agreed that the term of this Right of Entry extends for the length of time necessary to operate and maintain all mine drainage treatment facilities on the Treatment Facility Property, and shall only terminate when such treatment facilities are no longer necessary to remediate or prevent pollution to waters of the Commonwealth.
3. Insurance. DEP will require Operator to obtain and keep in force insurance coverage in accordance with the requirements of 25 Pa. Code § 86.168.
4. Property Use. During the term of this Right of Entry, the Property Owner(s) will not, without the written consent of DEP, make any use of the Property which will interfere with the construction, operation or maintenance of the mine drainage treatment facilities installed on the Treatment Facility Property.
5. Notification. This Consent to Right of Entry shall be recorded by Operator in the Clearfield County Recorder's Office within thirty days of its execution. In the event that the Property Owner(s) intends to sell, lease, or otherwise transfer any interest in the Property prior to the termination of this Right of Entry, the Property Owners shall advise the prospective owner or lessee of the terms and conditions of this Right of Entry. The Property Owner(s) shall advise DEP, by notifying the Department representative whose signature appears below or his successor, of the intent to sell the Property prior to any sale.
6. Representation of Interests. The Property Owners represent that they are the only persons authorized to grant access to the Treatment Facility Property.
7. Binding on Successors. All the covenants, representations, consents, waivers and agreements contained herein shall be binding upon and inure to the benefit of the parties and their heirs, successors and assigns.

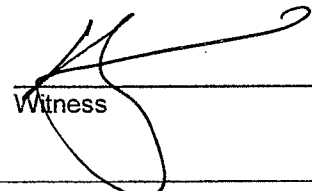
For [Operator]


 Name: George Cowfer, Jr.
 Title: President


 Witness

For the Department of Environmental Protection:


 Name: Michael Smith
 Title: District Mine Manager


 Witness

IN WITNESS WHEREOF, each of the parties set its respective hand and seal, for itself, its heirs, executors, administrators, successors and assigns, intending to be legally bound, this _____ day of _____, 2015.

The Property Owner(s)
(Each owner sign and print
their name under the signature.)

Alvin L. Hughes
Name: Alvin L. Hughes

Judy E. Hughes
Name: Judy E. Hughes

ACKNOWLEDGEMENT

STATE OF Pennsylvania :
COUNTY OF Clearfield : ss

On this, the 27th day of July, 2015, before me, the undersigned Notary, personally appeared

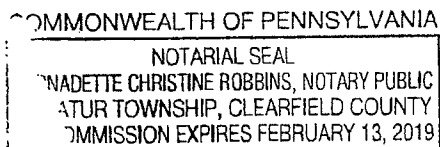
Alvin L. & Judy E. Hughes
(Name (s))

known to me (or satisfactorily proven) to be the person(s) whose name(s) is/are subscribed to this instrument, and who acknowledged that (he, she or they) have executed the same and desire it to be recorded.

IN WITNESS WHEREOF, I have hereunder set my hand and official seal.

(SEAL) B. Decker
Notary Public

My Commission Expires: 2/13/19





Alvin L. Hughes
Landowner

By: Alvin L. Hughes
(Signature)

Alvin L. Hughes
(Print Name)

Judy E. Hughes
Landowner

By: Judy E. Hughes
(Signature)

Judy E. Hughes
(Print Name)

TREATMENT BOND/TRUST CALCULATOR

(c) 2003, 2005, 2006, 2007 by SCMF

Prepared For: Junior Coal Rev1.3
Treatment System(s) ID: Runk 17980117

Date (mm/dd/yy): Jan 25, 16

Inflation Rate:	3.1%
Yrs to Treat start:	0
Annual Treatment Cost:	\$6,247.00
Trust Fees:	1.50%
Bond (not needed for rec):	\$146,245.00
Investment Ratios:	
Effective Rate of Return:	stock: 80%
Volatility Index:	bond: 20%
	8.43%
	1.16
Rec Bond Rate of Return:	6.00%
Remaining Time on Permit:	5 years

Options	O&M only	Total with Recap	Total with Recap & Insurance
option #1			
conventional bond:	\$258,215.44	\$258,215.44	\$270,648.74
bond adjustment:	\$111,970.44	\$111,970.44	\$124,403.74
option #2			
fully funded trust:	\$143,203.74	\$152,415.74	\$155,909.66
			bond in year 6
			trust in year 1

PV of Recap (todays \$\$) @	8.43%	Eff RoR &	3.1% Inf:	\$9,212.00	for trust in year 1
PV of Recap (todays \$\$) @	6.00%	Eff RoR &	3.1% Inf:	\$0.00	for bond in year 6

Liability Insurance Factor @	\$1.00	per year, per \$1000 in the total PV of the Trust:	\$152.42	per year	PV Insurance:	\$3,493.92
Liability Insurance Factor @	\$1.00	per year, per \$1000 in total Bond:	\$258.22	per year	PV Insurance:	\$10,673.16

Fields in RED can be updated
Fields in BLUE are fixed or calculated
Fields in GREEN are partial amounts
Highlighted Fields in GREEN are final amounts

EXHIBIT E

Company Name Junior CoalProject Treatment Trust Calc - 1798011Site Name Runk rev2**AMD TREAT****Costs****AMD TREAT MAIN COST FORM****AMDTREAT**

<u>Passive Treatment</u>	<u>A</u>	<u>S</u>	
Vertical Flow Pond			\$0
Anoxic Limestone Drain			\$0
Anaerobic Wetlands			\$0
Aerobic Wetlands			\$0
Manganese Removal Bed	0	1	\$0
Oxic Limestone Channel			\$0
Limestone Bed	1	0	\$18,187
BIO Reactor			\$0
Passive Subtotal:			\$18,187
<u>Active Treatment</u>			
Caustic Soda			\$0
Hydrated Lime			\$0
Pebble Quick Lime			\$0
Ammonia			\$0
Oxidants			\$0
Soda Ash			\$0
Active Subtotal:			\$0
<u>Ancillary Cost</u>			
Ponds	1	0	\$5,000
Roads			\$0
Land Access			\$0
Ditching			\$0
Engineering Cost			\$0
Ancillary Subtotal:			\$5,000
Other Cost (Capital Cost)			\$10,554
Total Capital Cost:			\$33,741
<u>Annual Costs</u>			
Sampling	1	0	\$1,841
Labor	1	0	\$904
Maintenance	1	0	\$1,181
Pumping	1	0	\$2,180
Chemical Cost			\$0
Oxidant Chem Cost			\$0
Sludge Removal	1	0	\$141
Other Cost (Annual Cost)			\$0
Land Access (Annual Cost)			\$0
Total Annual Cost:			\$6,247
Other Cost	1	0	

Water Quality

Design Flow	<input type="text" value="17.00"/>	gpm
Typical Flow	<input type="text" value="14.00"/>	gpm
Total Iron	<input type="text" value="2.33"/>	mg/L
Ferrous Iron	<input type="text" value="0.00"/>	mg/L
Aluminum	<input type="text" value="3.50"/>	mg/L
Manganese	<input type="text" value="9.72"/>	mg/L
pH	<input type="text" value="3.80"/>	su
Alkalinity	<input type="text" value="0.00"/>	mg/L
TIC	<input type="text" value="0.00"/>	mg/L

☒ Calculate Net Acidity☐ Enter Hot Acidity manuallyAcidity mg/LSulfate mg/LChloride mg/LCalcium mg/LMagnesium mg/LSodium mg/LWater Temperature CSpecific Conductivity uS/cmTotal Dissolved Solids mg/LDissolved Oxygen mg/LTypical Acid Loading tons/yr

Total Annual Cost: per
1000 Gal of H2O Treated **\$0.848**

Company Name Junior Coal

Project Treatment Trust Calc - 1798011

Site Name Runk rev2

COMMENTS: Assumes .5hr labor/visit + flush 1 bed per month at 0.75hr/flush + 2-day stirring operation ea/3 years ave. of 5hrs/yr = 26 hrs labor/yr

Assumes \$70/hr 6" pump during flushes and stirring - 14hrs/yr = \$980/yr pumping

Company Name Junior CoalProject Treatment Trust Calc - 1798011Site Name Runk rev2

AMD TREAT RECAPITIALIZATION COST

AMDTREAT

 Calculation Period yrs Inflation Rate % Net Return Rate %
Recapitalization Name

A.	B	C	D	E	F	G
Description of Item	Unit Cost Per Item	Quantity	Total Item Cost	Life Cycle	Number of Periods	Total PV
1. Stone - 691 ton	22	691	15,202	30	2	4,090
2. AgriDrain	800	1	800	25	3	309
3. Valves	380	9	3,420	25	3	1,323
4. Curb Boxes	94	9	846	30	2	228
5. Trash Racks	50	9	450	25	3	174
6. PVC 6"	3,760	1	3,760	30	2	1,012
7. PVC 8"	1,188	1	1,188	30	2	320
8. Pump and Electric	1,500	1	1,500	12	6	1,757
9.	0	0	0	0	0	0
10.	0	0	0	0	0	0
11.	0	0	0	0	0	0
12.	0	0	0	0	0	0
13.	0	0	0	0	0	0
14.	0	0	0	0	0	0
15.	0	0	0	0	0	0
16.	0	0	0	0	0	0
17.	0	0	0	0	0	0
18.	0	0	0	0	0	0
19.	0	0	0	0	0	0
20.	0	0	0	0	0	0

 Total Capital Cost \$ PV Grand Total \$

Company Name Junior Coal

Printed on 02/01/2016

Project Treatment Trust Calc - 1798011

Site Name Runk rev2

Life of Trust Fund	75	yr
Inflation Rate	3.10	%
Return Rate	8.43	%

AMD TREAT RECAPITIALIZATION COST



AMD TREAT

Year	Trust Fund Growth Fund Before Payout	Trust Fund Growth Fund After Payout	Payout Schedule	Year	Trust Fund Growth Fund Before Payout	Trust Fund Growth Fund After Payout	Payout Schedule
	9,212	9,212	Initial Fund Amount				
1	9,988	9,988	0	51	76,886	76,886	0
2	10,830	10,830	0	52	83,367	83,367	0
3	11,743	11,743	0	53	90,395	90,395	0
4	12,733	12,733	0	54	98,015	98,015	0
5	13,807	13,807	0	55	106,278	106,278	0
6	14,971	14,971	0	56	115,237	115,237	0
7	16,233	16,233	0	57	124,952	124,952	0
8	17,601	17,601	0	58	135,485	135,485	0
9	19,085	19,085	0	59	146,907	146,907	0
10	20,694	20,694	0	60	159,291	18,808	140,483
11	22,439	22,439	0	61	20,393	20,393	0
12	24,330	22,167	2,163	62	22,112	22,112	0
13	24,035	24,035	0	63	23,976	23,976	0
14	26,062	26,062	0	64	25,998	25,998	0
15	28,259	28,259	0	65	28,189	28,189	0
16	30,641	30,641	0	66	30,566	30,566	0
17	33,224	33,224	0	67	33,143	33,143	0
18	36,025	36,025	0	68	35,936	35,936	0
19	39,062	39,062	0	69	38,966	38,966	0
20	42,355	42,355	0	70	42,251	42,251	0
21	45,925	45,925	0	71	45,813	45,813	0
22	49,797	49,797	0	72	49,675	36,163	13,511
23	53,995	53,995	0	73	39,211	39,211	0
24	58,546	55,425	3,121	74	42,517	42,517	0
25	60,098	50,080	10,018	75	46,101	-0	46,101
26	54,302	54,302	0	76	0	0	0
27	58,879	58,879	0	77	0	0	0
28	63,843	63,843	0	78	0	0	0
29	69,225	69,225	0	79	0	0	0
30	75,060	22,592	52,468	80	0	0	0
31	24,497	24,497	0	81	0	0	0
32	26,562	26,562	0	82	0	0	0
33	28,801	28,801	0	83	0	0	0
34	31,229	31,229	0	84	0	0	0
35	33,862	33,862	0	85	0	0	0
36	36,716	32,214	4,501	86	0	0	0
37	34,930	34,930	0	87	0	0	0
38	37,875	37,875	0	88	0	0	0
39	41,068	41,068	0	89	0	0	0
40	44,530	44,530	0	90	0	0	0
41	48,283	48,283	0	91	0	0	0
42	52,354	52,354	0	92	0	0	0
43	56,767	56,767	0	93	0	0	0
44	61,553	61,553	0	94	0	0	0
45	66,742	66,742	0	95	0	0	0
46	72,368	72,368	0	96	0	0	0
47	78,469	78,469	0	97	0	0	0
48	85,084	78,590	6,493	98	0	0	0
49	85,215	85,215	0	99	0	0	0
50	92,399	70,908	21,490	100	0	0	0

Company Name Junior Coal

Printed on 02/01/2016

Project Treatment Trust Calc - 1798011Site Name Runk rev2

AMD TREAT OTHER COST

AMD TREAT

Other Cost Name

A. Description of Item	B. Unit Cost Per Item	C. Quantity	D. Total Item Cost	E. Capital Cost Annual Cost
1. 6" PVC 500 l.f.	3,760.00	1	3,760	<input checked="" type="radio"/> Capital Cost <input type="radio"/> Annual Cost
2. 8" PVC 120 l.f.	1,188.00	1	1,188	<input checked="" type="radio"/> Capital Cost <input type="radio"/> Annual Cost
3. Trash Racks	50.00	9	450	<input checked="" type="radio"/> Capital Cost <input type="radio"/> Annual Cost
4. Curb Boxes, Clean Out	94.00	9	846	<input checked="" type="radio"/> Capital Cost <input type="radio"/> Annual Cost
5. AgriDrain	800.00	1	800	<input checked="" type="radio"/> Capital Cost <input type="radio"/> Annual Cost
6. 6" Valves	390.00	9	3,510	<input checked="" type="radio"/> Capital Cost <input type="radio"/> Annual Cost
7.	0.00	0	0	<input checked="" type="radio"/> Capital Cost <input type="radio"/> Annual Cost
8.	0.00	0	0	<input checked="" type="radio"/> Capital Cost <input type="radio"/> Annual Cost
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12.	0.00	0	0	<input checked="" type="radio"/> Capital Cost <input type="radio"/> Annual Cost
13.	0.00	0	0	<input checked="" type="radio"/> Capital Cost <input type="radio"/> Annual Cost
14.	0.00	0	0	<input checked="" type="radio"/> Capital Cost <input type="radio"/> Annual Cost
15.	0.00	0	0	<input checked="" type="radio"/> Capital Cost <input type="radio"/> Annual Cost

Record Number

1 of 1

Current Capital Cost \$Current Annual Cost \$Total Capital Cost \$Total Annual Cost \$

EXHIBIT G

Graphical Depiction of Primary Trust Valuation and Primary Target Valuation

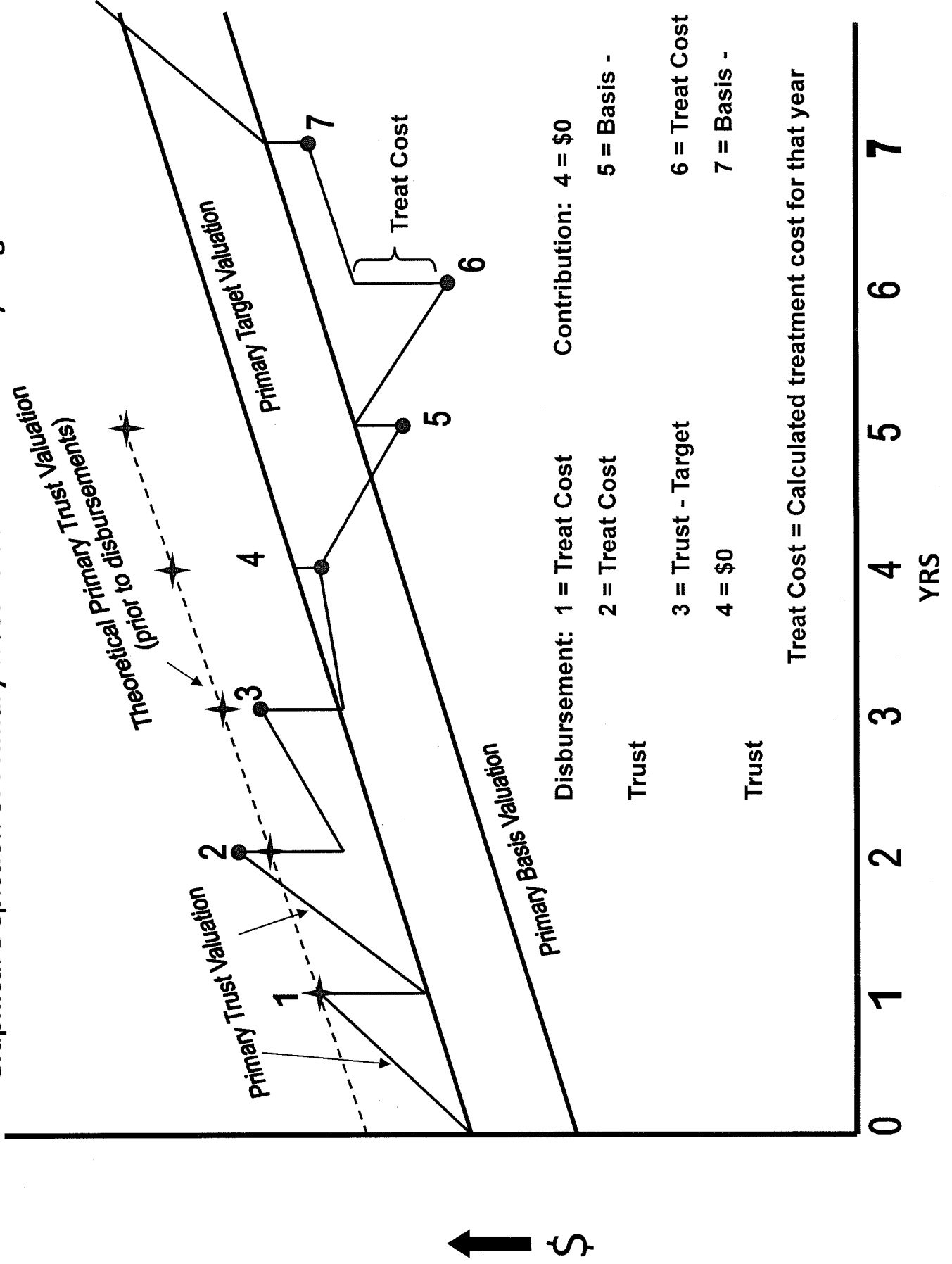


EXHIBIT H

Graphical Depiction of Adjustment to Primary Basis Valuation

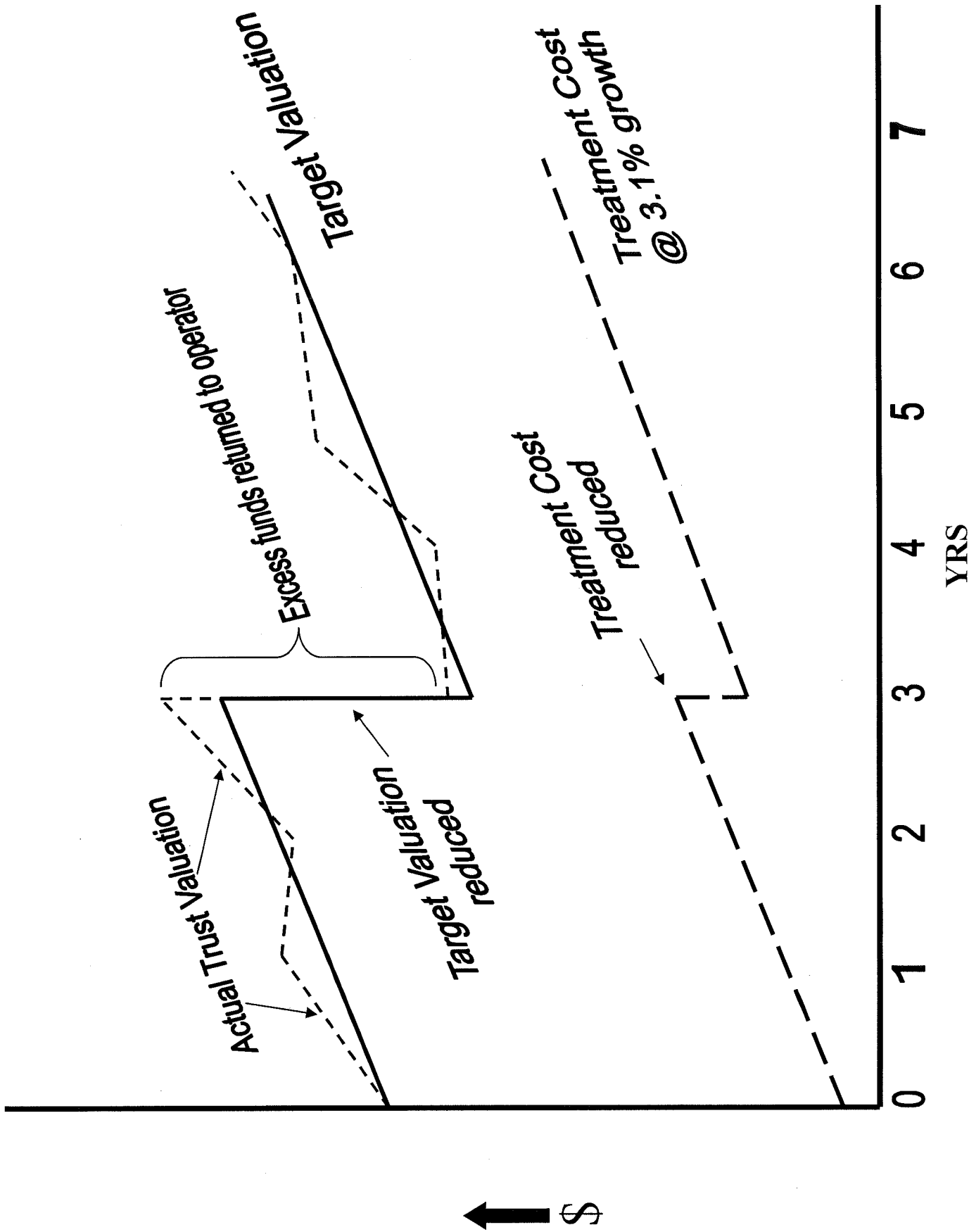


Exhibit I

Runk Operation Personal Property

1 horsepower Tsurumi pump

EXHIBIT J

BILL OF SALE AND LICENSE AGREEMENT

This Bill of Sale and License Agreement is entered into this 19th day of May, 2016 by and between **Junior Coal Contracting Company**, a Pennsylvania corporation, with its principal place of business at 2330 Sixmile Road, Phillipsburg, Pennsylvania, 16866 ("Transferor") and **Clearfield Bank and Trust Company**, as Trustee of the Junior Coal Company Post-Mining Discharge Treatment Trust (hereafter the "Junior Coal Trust") ("Trustee").

Whereas, the Junior Coal Contracting Company has entered into a Consent Order and Agreement ("CO&A") #164001, dated May 19, 2016 with the Pennsylvania Department of Environmental Protection, and

Whereas, the Junior Coal Contracting Company has entered into a Post-Mining Discharge Treatment Trust Agreement dated May 19, 2016 with Clearfield Bank and Trust Company which established the Junior Coal Trust.

Whereas, the Department requires Transferor to continue to treat the post-mining discharges covered by the CO&A, but also to immediately transfer the water treatment equipment and facilities to the Trustee to facilitate continued treatment of water and protection of the environment in the event the Junior Coal Contracting Company or its successors should cease treating the post-ming discharges.

KNOW ALL MEN BY THESE PRESENTS that the Transferor in consideration of One Dollar (\$1.00) and other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, and intending to be legally bound, does hereby bargain, sell, transfer and convey to Clearfield Bank and Trust Company, as Trustee of the Junior Coal Trust, all of its right, title and interest to the equipment, facilities, and other personal property (the "Personal Property") comprising Runk Operation Treatment Facilities, including, but not limited to, the equipment and other property described on Exhibit H, attached hereto and made a part hereof, such transfer to be effective as of the date hereof (the "Effective Date").

Transferor represents and warrants that the Personal Property is transferred to Trustee hereby free and clear of all liens and encumbrances.

PROVIDED, HOWEVER, that Junior Coal Contraction Company and its successors shall have a license to use, operate, maintain, construct or reconstruct the Personal Property to treat the post-mining discharges so long as Junior Coal Contracting Company, or its successors, is conducting the necessary water treatment operations. Pursuant to the exercise of the rights granted under this License, Junior Coal Contracting Company shall at its sole cost and expense be responsible for maintaining and replacing/upgrading, as appropriate, the Personal Property.

Parts, additional equipment, replacements, and upgrades to the Personal Property and the treatment facilities and systems shall be done with the express written consent of the Trustee and

the Department. As a condition of the License hereby granted, Junior Coal Contracting Company agrees that all such parts, additional equipment, replacements, and upgrades shall immediately and automatically become the property of the Clearfield Bank and Trust Company as Trustee of the Junior Coal Trust. As long as this license is in effect and not terminated or revoked, Junior Coal Contracting Company or its successors, shall bear all risk of loss of the Personal Property.

This Bill of Sale and License shall be governed by and construed and enforced in accordance with the laws of the Commonwealth of Pennsylvania, without regard to the conflict of laws provisions thereof.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands effective the day and year first above written.

TRANSFEROR:
JUNIOR COAL CONTRACTING COMPANY


(signature)

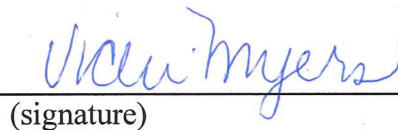
Witness:



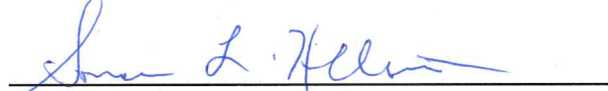
By: George Cowfer, Jr.

Its: President

TRUSTEE:
CLEARFIELD BANK AND TRUST COMPANY


(signature)

Witness:



By: Vicki Myers

Its: Vice-President / Trust Officer

EXHIBIT K

Junior Coal Contracting / Runk Operation Trust Fund

Original calculation: 2/1/2016

Year	Projected Annual O&M Cost	Primary Basis Valuation	Primary Target Valuation (PTV)	Recap (Before Payout)	Scheduled Capital Payouts	Recap (After Payout)	PTV with recap (before payout)	Insurance Present Value	PTV + Recap and Insurance
2016	\$6,247	\$123,452	\$143,204	\$9,212	\$0	\$9,212	\$152,416	\$3,494	\$155,910
2017	\$6,441	\$127,278	\$147,643	\$9,989	\$0	\$9,989	\$157,632	\$3,613	\$161,245
2018	\$6,640	\$131,224	\$152,220	\$10,831	\$0	\$10,831	\$163,051	\$3,738	\$166,788
2019	\$6,846	\$135,292	\$156,939	\$11,744	\$0	\$11,744	\$168,682	\$3,867	\$172,549
2020	\$7,058	\$139,486	\$161,804	\$12,734	\$0	\$12,734	\$174,538	\$4,001	\$178,539
2021	\$7,277	\$143,810	\$166,820	\$13,807	\$0	\$13,807	\$180,627	\$4,141	\$184,768
2022	\$7,503	\$148,268	\$171,991	\$14,971	\$0	\$14,971	\$186,962	\$4,286	\$191,248
2023	\$7,735	\$152,865	\$177,323	\$16,233	\$0	\$16,233	\$193,556	\$4,437	\$197,993
2024	\$7,975	\$157,603	\$182,820	\$17,601	\$0	\$17,601	\$200,421	\$4,594	\$205,016
2025	\$8,222	\$162,489	\$188,487	\$19,085	\$0	\$19,085	\$207,573	\$4,758	\$212,331
2026	\$8,477	\$167,526	\$194,331	\$20,694	\$2,163	\$18,531	\$215,025	\$4,929	\$219,954
2027	\$8,740	\$172,720	\$200,355	\$20,093	\$0	\$20,093	\$220,448	\$5,053	\$225,502
2028	\$9,011	\$178,074	\$206,566	\$21,787	\$0	\$21,787	\$228,353	\$5,235	\$233,588
2029	\$9,290	\$183,594	\$212,969	\$23,624	\$0	\$23,624	\$236,593	\$5,424	\$242,017
2030	\$9,578	\$189,286	\$219,571	\$25,615	\$0	\$25,615	\$245,187	\$5,621	\$250,807
2031	\$9,875	\$195,154	\$226,378	\$27,775	\$0	\$27,775	\$254,153	\$5,826	\$259,979
2032	\$10,181	\$201,203	\$233,396	\$30,116	\$0	\$30,116	\$263,512	\$6,041	\$269,553
2033	\$10,497	\$207,441	\$240,631	\$32,655	\$0	\$32,655	\$273,286	\$6,265	\$279,551
2034	\$10,822	\$213,871	\$248,091	\$35,408	\$0	\$35,408	\$283,498	\$6,499	\$289,997
2035	\$11,158	\$220,501	\$255,781	\$38,393	\$0	\$38,393	\$294,174	\$6,744	\$300,918
2036	\$11,504	\$227,337	\$263,711	\$41,629	\$0	\$41,629	\$305,340	\$6,999	\$312,339
2037	\$11,861	\$234,384	\$271,886	\$45,139	\$0	\$45,139	\$317,024	\$7,267	\$324,292
2038	\$12,228	\$241,650	\$280,314	\$48,944	\$3,121	\$45,823	\$329,258	\$7,548	\$336,806
2039	\$12,607	\$249,141	\$289,004	\$49,686	\$10,018	\$39,668	\$338,689	\$7,764	\$346,453
2040	\$12,998	\$256,865	\$297,963	\$43,012	\$0	\$43,012	\$340,975	\$7,816	\$348,791
2041	\$13,401	\$264,827	\$307,200	\$46,637	\$0	\$46,637	\$353,837	\$8,111	\$361,948
2042	\$13,816	\$273,037	\$316,723	\$50,569	\$0	\$50,569	\$367,292	\$8,420	\$375,712
2043	\$14,245	\$281,501	\$326,541	\$54,832	\$52,468	\$2,364	\$381,373	\$8,742	\$390,116
2044	\$14,686	\$290,228	\$336,664	\$2,563	\$0	\$2,563	\$339,227	\$7,776	\$347,004
2045	\$15,142	\$299,225	\$347,101	\$2,779	\$0	\$2,779	\$349,880	\$8,021	\$357,901
2046	\$15,611	\$308,501	\$357,861	\$3,014	\$0	\$3,014	\$360,875	\$8,273	\$369,147
2047	\$16,095	\$318,064	\$368,955	\$3,268	\$0	\$3,268	\$372,222	\$8,533	\$380,755
2048	\$16,594	\$327,924	\$380,392	\$3,543	\$0	\$3,543	\$383,935	\$8,801	\$392,736
2049	\$17,108	\$338,090	\$392,184	\$3,842	\$0	\$3,842	\$396,026	\$9,078	\$405,104
2050	\$17,639	\$348,571	\$404,342	\$4,166	\$4,501	-\$335\$408,508		\$9,364	\$417,872
2051	\$18,185	\$359,376	\$416,877	-\$364	\$0	-\$364\$416,513		\$9,548	\$426,061
2052	\$18,749	\$370,517	\$429,800	-\$394	\$0	-\$394\$429,406		\$9,844	\$439,249
2053	\$19,330	\$382,003	\$443,124	-\$428	\$0	-\$428\$442,696		\$10,148	\$452,844
2054	\$19,930	\$393,845	\$456,861	-\$464	\$0	-\$464\$456,397		\$10,462	\$466,859
2055	\$20,548	\$406,054	\$471,023	-\$503	\$0	-\$503\$470,521		\$10,786	\$481,307
2056	\$21,184	\$418,642	\$485,625	-\$545	\$0	-\$545\$485,080		\$11,120	\$496,200
2057	\$21,841	\$431,620	\$500,679	-\$591	\$0	-\$591\$500,088		\$11,464	\$511,552
2058	\$22,518	\$445,000	\$516,200	-\$641	\$0	-\$641\$515,560		\$11,818	\$527,378
2059	\$23,216	\$458,795	\$532,203	-\$695	\$0	-\$695\$531,508		\$12,184	\$543,692