Exhibit 96.5

TUNNEL RIDGE MINE
SEC S-K 1300
TECHNICAL REPORT SUMMARY

PREPARED FOR

Tunnel Ridge, LLC
1146 Monarch Street
Suite 350
Lexington, Kentucky 40513

FEBRUARY 2023

RESPEC

RESPEC.COM

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TECHNICAL REPORT SUMMARY

PREPARED BY
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Project Number M0062.21001

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1.0 EXECUTIVE SUMMARY

1.1 PROPERTY DESCRIPTION

Tunnel Ridge, LLC (Tunnel Ridge) owns and operates the Tunnel Ridge Mine (TRM). Tunnel Ridge is a wholly owned subsidiary of Alliance Coal, LLC. TRM is an underground coal mining operation located in Ohio County, West Virginia and Washington County, Pennsylvania and currently has approximately 20,890 acres permitted. The mine property is controlled through both fee ownership and leases of the coal. Surface facilities are controlled through ownership or lease.

1.2 GEOLOGY AND MINERALIZATION

The Pittsburgh No. 8 seam is mined through longwall mining and room and pillar methods. The seam is located in the Appalachian Basin, specifically, the northern portion of the Appalachian Basin. The Appalachian Basin is an elongated synclinal structure that contains a large volume of predominantly sedimentary stratified rocks and encompasses an area of about 207,000 square miles. The primary coal-bearing strata is of Carboniferous age in the Pennsylvanian system.

1.3 STATUS OF EXPLORATION

The TRM reserve block has been extensively explored through drilling conducted by Tunnel Ridge and previous developers. Drilling records are the primary dataset used in the evaluation of the reserve. Drill records have been compiled into a geologic database which includes location, elevation, detailed lithologic data and, when available, coal quality data.

1.4 MINERAL RESOURCE AND RESERVE ESTIMATES

This information is used to generate geologic models that identify potential adverse mining conditions, define areas of thinning or thickening coal and predict coal quality for marketing purposes. This information is used to create a resource model using Carlson's Geology module, part of an established software suite for the mining industry. In addition, to coal thickness and quality data, seam recovery is modeled. Classification of the resources is based on distances from drill data. Carlson then estimates in-place tonnages, qualities, and average seam recovery within a set of polygons. These polygons are the result of the intersection of polygons outlining property boundaries, adverse mining conditions, mining method, mine plan boundaries, and resource classification boundaries. These results are exported to a database which then applies the appropriate percent ownership, mine recovery and seam recovery. Table 1-1 is a summary of the coal reserves based on a life-of-reserve plan.

Table 1-1. Summary of Controlled Coal Reserves Estimates as of December 31, 2022

Reserve Category	Controlled Recoverable (1,000 tons)
Pittsburg No. 8 Seam	
Proven	61,732
Probable	58,254
Total Proven and Probable	**119,986**

1.5 CAPITAL AND OPERATING COST ESTIMATES

TRM is an on-going operating coal mine; therefore, the capital and operating cost estimates were prepared with consideration of historical operating performance. Table 1-2 shows the estimated average capital costs and mining and processing costs for the life of reserve plan. The coal operation is not subject to federal and state income taxes as it is held by a partnership for tax purposes and not taxed as a corporation.

Table 1-2. Capital and Operating Costs

Category	Life of Reserve Estimate 2023-2038 (US$ 000's)
Capital Costs	847,114
Mining and Processing Cost	5,050,286
TOTAL	**5,897,400**

1.6 PERMITTING REQUIREMENTS

TRM is located on the border of West Virginia and Pennsylvania and operates in each state. Thus, regulatory requirements for each state must be met pertaining to mining operations and facilities located in each respective state.

For operations and facilities in West Virginia, the West Virginia Department of Environmental Protection (WVDEP) is the regulatory authority over mining activities. Within the WVDEP, the Division of Mining and Reclamation (DMR) is responsible for review and issuance of all permits relative to coal mining and reclamation activities.

For operations and facilities in Pennsylvania, the Pennsylvania Department of Environmental Protection (PADEP) is the regulatory authority over mining activities. Within the PADEP, the Bureau of District Mining Operations (DMO) is responsible for review and issuance of all permits relative to coal mining and reclamation activities.

All applicable permits for the current operation's underground mining, coal preparation and related facilities and other incidental activities have been obtained, remain in good standing, and will be expanded as needed.

1.7 QUALIFIED PERSON'S CONCLUSIONS AND RECOMMENDATIONS

It is the Qualified Person's (QP) opinion that the mine operating risks are low. The mining operation, processing facilities, and the site infrastructure are in place. Mining practices are well established. All required permits for current operations are issued and remain in good standing. Given the operation's ability to obtain and retain permits, it is reasonably likely that future required permits will be acquired in a timely fashion to facilitate additional mining. Market Risk is discussed in Section 16.1 and could materially impact the reserve.

2.0 INTRODUCTION

2.1 ISSUER OF REPORT

Tunnel Ridge has retained RESPEC Company, LLC (RESPEC) to prepare this Technical Report Summary (TRS). TRM is operated by Tunnel Ridge. Tunnel Ridge is a wholly owned subsidiary of Alliance.

2.2 TERMS OF REFERENCE AND PURPOSE

The purpose of this TRS is to support the disclosure in the annual report on Form 10-K of Alliance Resource Partners, L.P., (ARLP 10-K) of Mineral Resource and Mineral Reserve estimates for the TRM as of 12/31/2022. This report is intended to fulfill 17 Code of Federal Regulations (CFR) §229, "*Standard Instructions for Filing Forms Under Securities Act of 1933, Securities Exchange Act of 1934 and Energy Policy and Conservation Act of 1975 – Regulation S-K*," subsection 1300, "Disclosure by Registrants Engaged in Mining Operations." The mineral resource and mineral reserve estimates presented herein are classified according to 17 CFR§229.133 – Item (1300) Definitions.

Unless otherwise stated, all measurements are reported in U.S. imperial units and currency in U.S. dollars ($).

This TRS for the Tunnel Ridge Mine was prepared by RESPEC and updates the TRS for the Tunnel Ridge Mine dated July 2022, which updated the TRS for the Tunnel Ridge Mine dated February 2022.

2.3 SOURCES OF INFORMATION

During the preparation of the TRS, discussions were held with several Alliance personnel.

The following information was provided by Tunnel Ridge and Alliance:

- Property history
- Property Data
- Laboratory Protocols
- Sampling Protocols
- Topographic Data
- Mining Methods
- Processing and Recovery Methods
- Site Infrastructure information
- Environmental permits and related data/information
- Historic and forecast capital and operating costs.

2.4 PERSONAL INSPECTION

A RESPEC QP and a company representative conducted a site visit on February 9, 2022. During the site visit, the RESPEC QP visited the river barge load-out, the preparation plant, the raw coal stockpile, the clean coal stockpile, the mine slope, the mine shafts, load-out structure, and the refuse impoundments.

3.0 PROPERTY DESCRIPTION

3.1 PROPERTY DESCRIPTION AND LOCATION

The TRM (40°09’17” N, -80°39’26” W), an underground longwall coal mine in the Pittsburgh No. 8 seam, currently has approximately 20,890 underground acres permitted.

Figure 3-1 shows the general location of the TRM surface facilities and underground reserve areas.

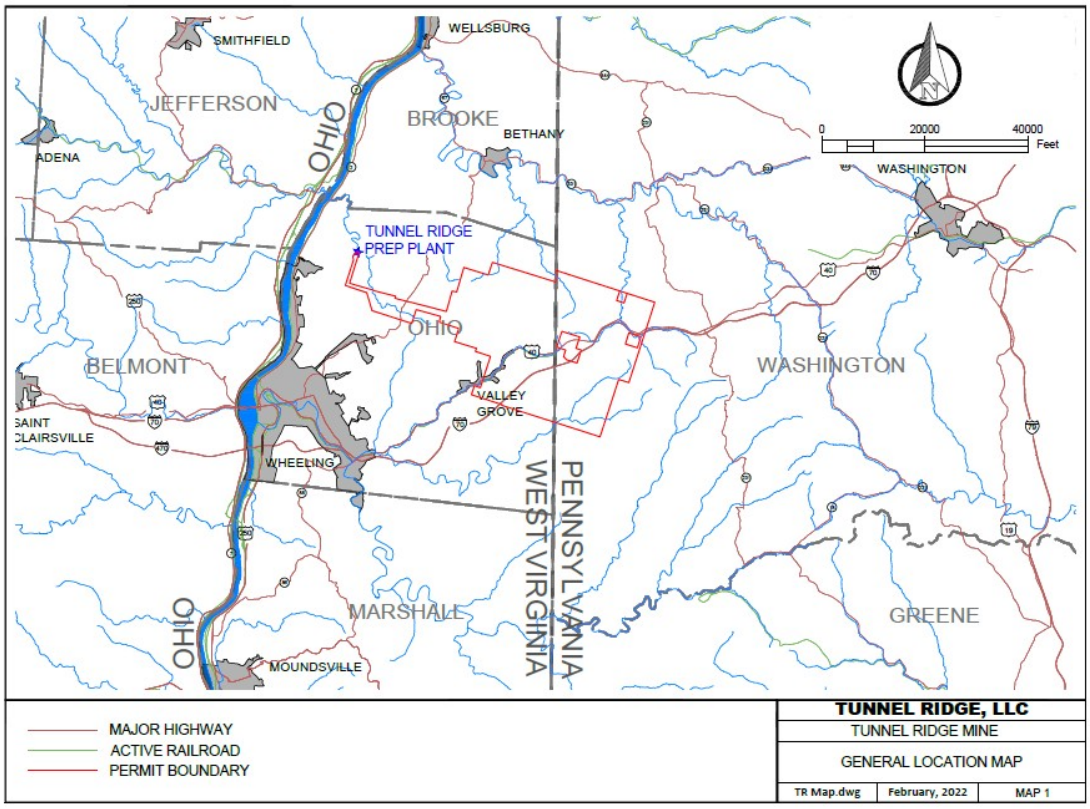


Figure 3-1. General Location Map

3.2 MINERAL RIGHTS

Tunnel Ridge has mining rights to 70,516 acres through ownership and lease, of which 17,925 acres are identified as reserve and resource areas. The majority of the property is controlled through leases with the Joseph W. Craft III Foundation, the Kathleen S. Craft Foundation, Natural Resource Partners, L.P., and an affiliated company, Alliance Resource Properties. Historically, adverse tracts encountered within the mine area are leased or acquired as needed. It is reasonable to assume this will continue in the normal course of business.

Beginning in 2005, Tunnel Ridge began acquiring surface properties for slope and shaft development, overland conveyors construction, refuse disposal facilities and other ancillary surface facilities. TRM continues to acquire additional surface properties as needed to support mining operations.

Coal produced from the TRM is transported by conveyor belt to a barge loading facility on the Ohio River that is owned by Tunnel Ridge.

3.3 SIGNIFICANT ENCUMBRANCES OR RISKS TO PERFORM WORK ON PERMITS

ARLP's revolving credit facility is secured by, among other things, liens against certain Tunnel Ridge surface properties, coal leases and owned coal. Documentation of such liens is of record in the Office of the Recorder of County Commission of Ohio County, West Virginia and the Office of the Recorder of Deeds of Washington County, Pennsylvania. Please refer to Item [8.] Financial Statements and Supplementary Data—Note 8 – Long-term Debt" of the ARLP 10-K for more information on the revolving credit facility.

Accounts receivable generated from the sale of coal mined from this property are collateral for ARLP's accounts receivable securitization facility, evidenced by financing statement of record in the Office of the Recorder of County Commission of Ohio County, West Virginia and the Office of the Recorder of Deeds of Washington County, Pennsylvania. Please refer to -K, "Item [8.] Financial Statements and Supplementary Data—Note 8 – Long-term Debt" of the ARLP 10-K for more information on the accounts receivable securitization facility.

TRM is located on the border of West Virginia and Pennsylvania, operating in each state. The regulatory requirements for each state must be met pertaining to mining operations and facilities located in each respective state.

In addition to state mining and reclamation laws, operators must comply with various federal laws relevant to mining. All applicable permits for underground mining operations, coal preparation, and related facilities and other incidental activities have been obtained and remain in good standing.

4.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

4.1 TOPOGRAPHY AND VEGETATION

The TRM is located in the Permian Hills physiographic region of West Virginia per USEPA. This region is mostly unglaciated and hilly, consisting of a dissected plateau with 200 to 750 feet of local relief. It is composed of horizontally bedded sedimentary rock. The surface facilities and mine access are located to the northeast of Wheeling, WV, which sits on the Ohio River, and to the southwest of Pittsburgh, PA. The elevation ranges across the mine permit area from about 800 to 1500 feet above mean sea level. The vegetation across the mine permit area consists primarily of pastureland, deciduous forest, and mixed forest.

4.2 ACCESSIBILITY AND LOCAL RESOURCES

The primary access shaft (Schoolhouse Portal) to TRM (40°05’47” N, -80°33’13” W) is located at 184 Schoolhouse Ln, Valley Grove, WV 26060. It is accessible from Wheeling, WV, via Interstate 70 E to US-40 E to Trestlework Rd to Schoolhouse Ln. The secondary access shaft (Battle Run Portal) to TRM (40°07’18” N, -80°35’19” W) is located at 2596 Battle Run Rd, Triadelphia, WV 26059. Interstate 70 is a major transportation artery passing through the area located 0.9 miles to the southeast of the mine’s primary access shaft. The city of Wheeling, WV is 9.1 miles to the southwest of the mine and the city of Washington, PA, is 17.1 miles to the east of the mine. The Ohio River is 8.3 miles due west of the mine. Raw coal is transported by belt from the underground mine to the surface at the slope access (40°08’04” N, -80°38’44” W) located 5.5 miles northwest of the primary access shaft. The raw coal is transported by overland belt from the slope to the mine’s processing facilities (40°09’17” N, -80°39’26” W) located 1.5 miles to the northwest of the slope access. The processed coal is transported by belt from the processing facilities through an underground corridor to the barge loading facility (40°10’30” N, -80°41’06” W) on the Ohio River (mile marker 82) 1.9 miles to the northwest of the processing facilities. The nearest large FAA-designated commercial service airport is Pittsburgh International Airport (PIT) located 32 miles to the northeast of the mine near Pittsburgh, PA.

4.3 CLIMATE

The TRM and surrounding Wheeling, WV, area has four distinct seasons with average annual precipitation of 40.4 inches according to U.S. Climate Data. The average annual high temperature is 63°F and the average annual low temperature is 43°F. The average annual snowfall is 20 inches. The climate of the area has little to no effect on underground and surface operations at the mine. The mine operates year-round with exceptions for holiday and vacation shutdowns.

4.4 INFRASTRUCTURE

The TRM obtains its potable water from various municipal water districts. Water used for underground operations is pumped overland from the Ohio River. Water used for coal processing is sourced from a combination of collection ponds and the Ohio River. Electricity is provided to the TRM by American Electric Power (AEP) through a 138 kV transmission line from Brilliant, OH. and West Penn Power (WPP)

through 3 phase residential transmission lines. Employment in the area is competitive given the established mining and manufacturing industries. However, the mine has been able to attract a mixture of skilled and unskilled labor with its competitive pay package and benefits. Mine personnel primarily come from Ohio, Marshall, and Brooke Counties, West Virginia, Belmont County, Ohio and Washington County, Pennsylvania. The city of Wheeling, WV, is 9.1 miles southwest of the mine. Its population is 27,052 according to the 2020 U.S. Census, making it the 5th most populous city in West Virginia. Wheeling is the principal city of the Wheeling, WV-OH Metropolitan Statistical Area, which has a population of 147,950 according to the 2010 U.S. Census. Most supplies are trucked to the mine from regional vendors.

5.0 HISTORY

5.1 PRIOR OWNERSHIP

Valley Camp Coal Company (VCCC) operated mines on the property.

5.2 EXPLORATION HISTORY

VCCC drilled 25 of a 40-hole exploration program (1959 to 1977) in and adjacent to the reserve area to check thickness, quality, and mineability of the Pittsburgh No. 8 seam. In general, holes are cased through the surface material and then continuously cored to collect roof, coal, and floor samples for the target seam. Core diameter is typically 2” from NX core drilling equipment. Coal quality was performed on almost all the Pittsburgh No. 8 seam samples with varying combinations of the top split. No geophysical work was available for the holes. TRM (WTR-series) accounts for over 80 of the remaining holes drilled from 2001 to present. Nearly all of these holes have quality and geophysical logs. About 115 other exploration holes or thickness points were obtained from various other companies that had previously conducted exploration within the area. Tunnel Ridge has collected over 680 channel samples from the TRM to supplement the exploration drilling. In general, all drilling has shown a highly consistent coal seam of mineable thickness and marketable quality for the thermal utility market.

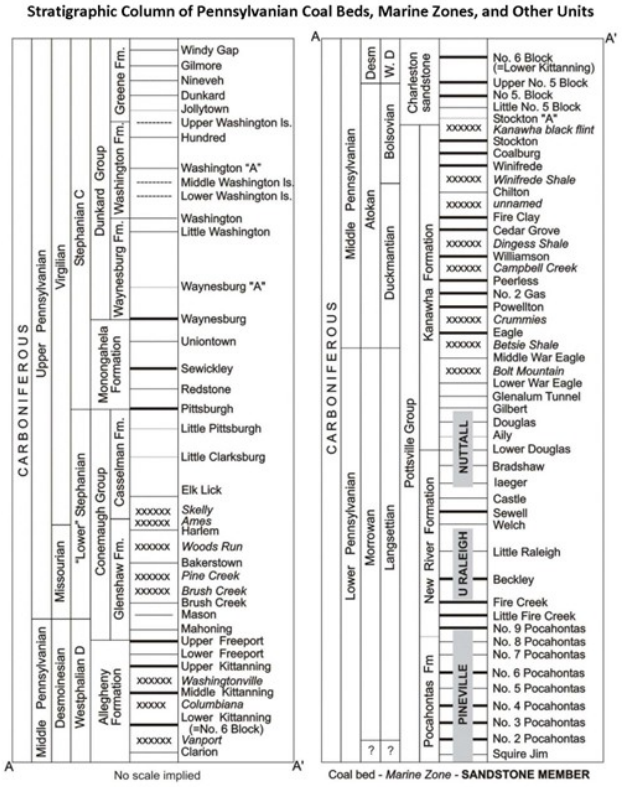
See Appendix A for a map showing all drillhole locations.

6.0 GEOLOGICAL SETTING, MINERALIZATION AND DEPOSIT

6.1 REGIONAL GEOLOGY

The TRM extracts coal from the Pittsburgh No. 8 seam in a reserve block located in northern West Virginia and western Pennsylvania. The TRM is located in the Appalachian Basin, specifically, the northern portion of the Appalachian Basin. The Appalachian Basin is an elongated synclinal structure that contains a large volume of predominantly sedimentary stratified rocks and encompasses an area of about 207,000 square miles. Primary coal-bearing strata, including the Pittsburgh No. 8 seam, are in formations of Pennsylvanian aged rocks, which were deposited about 325 to 290 million years ago. In the Appalachian Basin, Pennsylvanian aged rocks constitute a thick wedge of relatively coarse-grained clastic debris that is thickest along the eastern side of the basin. Pennsylvanian sediments in the region consist of shales, sandstones, conglomerates, siltstones, coals, and limestones and are largely alluvial deltaic in origin. The Pittsburgh No. 8 coal seam extends over 11,000 square miles across four states, including Ohio, West Virginia, Pennsylvania, and Maryland.

See Figure 6-1 for a stratigraphic column.



from Blake, B. M., Jr., Cross, A. T., Eble, C. F., Gillespie, W. H., and Pfefferkorn, H. W., 2002, Selected plant megafossils from the Carboniferous of the Appalachian region, United States; *in* L. V. Hills, C. M. Henderson and E. W. Bamber eds., Carboniferous and Permian of the World: Canadian Society of Petroleum Geologists, Memoir 19, pp 259-335.

Figure 6-1. Generalized Stratigraphic Column of Pennsylvanian Coal Beds, Marine Zones and Other Units

6.2 LOCAL GEOLOGY

The TRM resource block is located in the Appalachian Plateau province in northern West Virginia and southwestern Pennsylvania. This area is characterized by generally flat lying strata. The primary economic coal-bearing strata in northern West Virginia and southwestern Pennsylvania is comprised of the Monongahela Formation, including the Pittsburgh No. 8 seam. Structurally, the seam is gently folded with a series of synclines and anticlines crossing the eastern portion of the reserve that trends in a northeast-southwest direction.

The Pittsburgh No. 8 seam varies in thickness throughout the resource area. The Pittsburgh No. 8 seam is broken into a main bench, a variably thick parting and a rider coal of inferior quality. The main bench averages about 5.0 feet thick. The claystone parting varies from about zero to 1.6 feet thick. The upper bench, or rider, varies from zero to over two feet thick and is typically high ash, high sulfur, lower quality coal. Depending on its thickness and the overall seam thickness, the rider is either left for roof coal or mined with the rest of the seam. The immediate roof within the TRM reserve block is generally a dark gray shale or claystone, overlain by a shaley limestone that has thin shale partings. Though it's uncommon in the TRM reserve, a thin, discontinuous sandstone can be found in the main roof. The floor varies between a thin, shaley limestone to a gray-green claystone that transitions to a sandy shale.

See Figure 6-1 for a stratigraphic column and Figures 6-2 and 6-3 for geologic cross sections representing the local geology. See Appendix A for a plan view showing the locations of the cross sections.

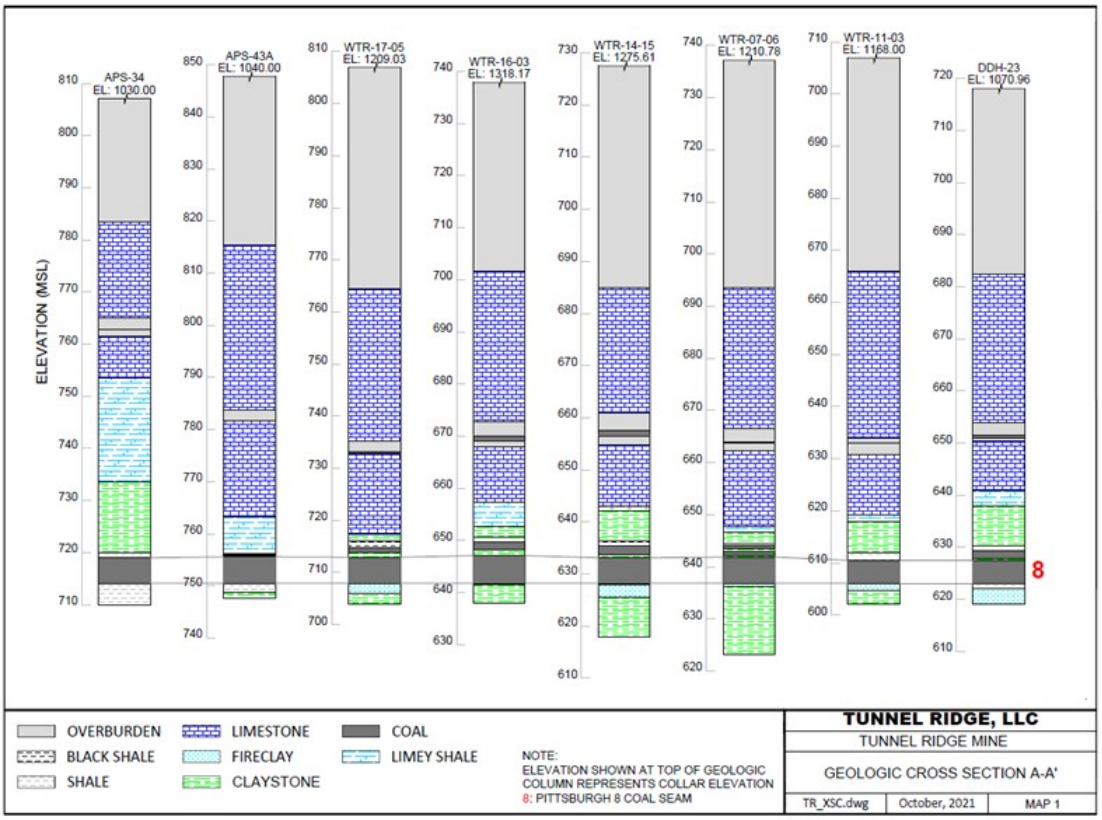


Figure 6-2. Geological Cross-Section A-A'

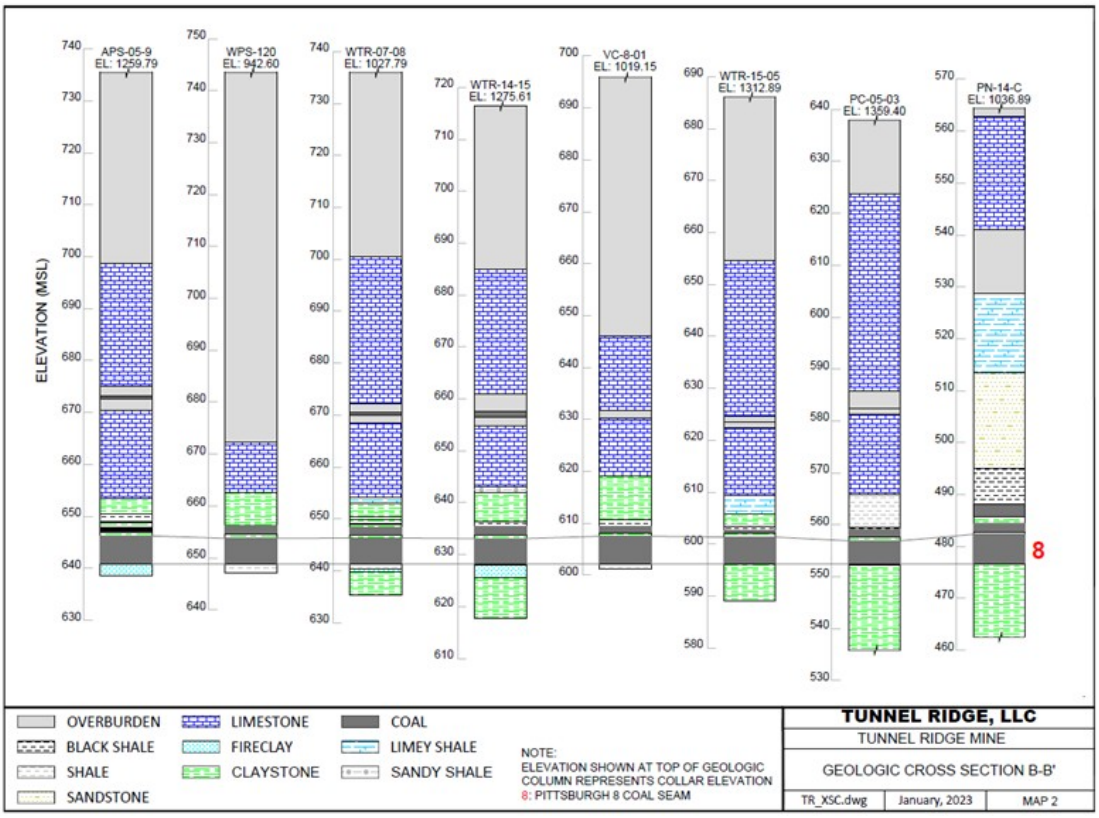


Figure 6-3. Geological Cross-Section B-B'

6.3 PROPERTY GEOLOGY AND MINERALIZATION

The TRM extracts coal from the Pittsburgh No. 8 seam. The seam is mainly mined in northern West Virginia and southwestern Pennsylvania. The depth of cover depends on if the seam lies under a hill or valley. This results in a depth of cover that ranges from about 300 feet to over 950 feet. The area is bounded to the west, southwest, and south by previous mining. Coal-bearing strata dip toward the southeast at less than one percent grade.

The Pittsburgh No. 8 seam varies in thickness over the reserve area and averages about 7.2 feet thick, including the parting and upper bench. Coal thickness averages about 6.4 feet (including the rider)

The mineral deposit type mined at the TRM property is bituminous coal. The primary coal-bearing strata is of Carboniferous age, in the Pennsylvanian system. The geologic model developed to explore the reserve is a bedded sedimentary deposit model. This is generally described as a continuous, non-complex, typical cyclothem sequence that follows a bedded sedimentary sequence. The geology continues to be verified by an extensive drilling program.

A stratigraphic column (Figure 6-1) and geologic cross sections (Figure 6-2 & Figure 6-3) representing the local geology, are included in this report.

6.4 STRATIGRAPHY

Pennsylvanian rocks are composed of shale, sandy shale, sandstone, limestones, and coal. The TRM extracts coal from the Pittsburgh No. 8 seam in the Monongahela Formation.

6.4.1 THE MONONGAHELA FORMATION

The Monongahela Formation overlies the Conemaugh Group and extends from the base of the Pittsburgh No. 8 Coal to the base of the Waynesburg Coal. The Formation ranges in thickness from 250 to 400 feet. It was deposited in vast deltas, large rivers flowing through coastal lowlands, numerous lakes, and wetlands where sea level change allowed the development of large peat mires. The Pennsylvanian System in northern West Virginia and southwestern Pennsylvania is broken into five distinct Groups and Formations. The five Groups and Formations in ascending order are the Pottsville Group, the Allegheny Formation, the Conemaugh Group, the Monongahela Formation, and the Dunkard Group.

7.0 EXPLORATION

7.1 DRILLING EXPLORATION

The TRM resource has been extensively explored through drilling conducted by Tunnel Ridge and previous developers. Drilling records are the primary dataset used in the evaluation of the property. Drill records have been compiled into a geologic database which includes location, elevation, detailed lithologic information and coal quality data. This information is used to generate geologic models that identify potential adverse mining conditions, define areas of thinning or thickening coal, and predict coal quality for marketing purposes. The drilling density on the property is sufficient to identify and predict geological trends.

Exploration also includes an extensive channel sampling program, mine sections from underground surveys and underground geologic mapping conducted by geologists. Channel samples are samples collected from the coal seam within the coal mine. Once a suitable location is found within the mine, equal, representative portions of the coal seam are extracted using hand tools from the top of the seam to the bottom. The sample is placed within a heavy-duty plastic bag which is securely sealed with tape. The sample is then transported from the mine to the lab where the requested analyses are conducted.

Channel sample data and mine surveys are useful for thickness data and identifying any partings or anomalies within the coal seam. Underground geologic mapping is beneficial for identifying facies changes, poor roof trends, and supplementing hazards maps generated from drilling data. The TRM property has adequate drilling to define geological trends. Exploration continues to be added to the geologic database on an annual basis.

Drilling on the property targets the Pittsburgh No.8 seam and is conducted using industry standard methods by a third-party contractor. A geologist or other company representative oversees all drilling conducted on the property. The most common method of drilling is continuous, wireline core. This method provides the most efficient core sample extraction from the rock mass. The rock core sample is removed from the bottom of the hole in the inner barrel assembly by a device on the wireline cable. Spot coring is a method that uses either mud or air rotary drilling to reach a specific depth, usually twenty or thirty feet above the target seam. Once this depth is reached, the drill string is removed, and the rig sets up for core drilling. The core barrel is advanced to the bottom of the hole where coring commences. Core is advanced to about ten feet below the target seam.

Once drilling is completed on a hole, a suite of geophysical parameters is collected for the entire borehole. Parameters such as naturally occurring gamma, resistivity, high resolution density and caliper data are collected. This information is used to verify the driller's log, geologist's log, thickness of the coal, and core recovery. Geophysical logs are helpful when core is not collected. The information from the geophysical log can be used to determine coal thickness and identify critical strata. All core is described by a geologist, photographed for future reference, and stored until it is no longer needed.

7.2 HYDROGEOLOGIC INVESTIGATIONS

WVDEP and PADEP require a groundwater users' survey in and within 1,000' of the permitted boundary. Issuance of permit needs the respective agencies to complete a Cumulative Hydrologic Impact Assessment (CHIA). Both items were completed for this site and indicated groundwater issues would not be significant or require any sort of aquifer characterization. Groundwater inflow associated with mining has historically not been a significant issue and is dealt with as encountered.

7.3 GEOTECHNICAL INFORMATION

Due to the well-established history of mining in the Pittsburgh No. 8 seam and the relatively consistent nature of the overlying and underlying rock strata no rock mechanics data has been collected thus far for the TRM reserve block. Keystone Mining Services (a division of Jennmar) has conducted evaluations of horizontal stress and adverse roof conditions in the TRM.

To comply with state and federal requirements regarding the construction of refuse impoundments, geotechnical data is gathered and analyzed on a continuous basis. C.T.L. Engineering of West Virginia, Inc. performs daily compaction testing of refuse placed during construction of the TRM refuse impoundments. Proctor tests are performed in conjunction with compaction testing to ensure material compaction requirements are met. Compaction testing performed in the field is reviewed with mine management on a daily basis. Standard penetration testing is performed during various phases of construction to calculate the load bearing capability of the subsurface.

8.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

8.1 SAMPLE PREPARATION AND ANALYSIS

Prior to sending any type of sample to the laboratory for analysis, company representatives prepare samples for transport. This includes a sample request form, which has information such as sample ID, depths, and requested analyses to be performed, that is placed securely inside the sample container. If the sample is rock core, the core remains sealed in plastic bags and in the box provided by the drilling contractor. The box is secured using heavy duty packing tape. Channel samples are placed in a heavy-duty plastic bag. The bag is clearly labelled with the operation name, sample ID and location where the sample was collected. Within the sample bag, another smaller plastic bag contains a form that has the operation name, sample ID, date of sample collection, and the requested analyses. Company representatives then arrange for sample delivery to a representative from the laboratory. Once the laboratory assumes possession of the sample, rigorous quality control and quality assurance standards are strictly adhered to.

Tunnel Ridge contracts with Miltech Analytical Services (MAS), Inc. located in Hunker, PA. Miltech is ISO 9002 Compliant, and USEPA PA10462, PA DEP 65-03568 certified. Miltech uses ASTM D7448 for Laboratory Practice and Quality Management. Tunnel Ridge has historical information from other regional laboratories including Commercial Testing and Engineering, Dickinson Laboratories, Standard Laboratories, and Precision Testing.

All laboratories, both past and present, prepare, assay, and analyze samples in accordance with ASTM international standards.

Typical coal quality analyses include the following:

- Channel samples are processed using ASTM D4596.
- Core samples are processed using ASTM D5192.
- Ultimate Analysis using ASTM Method D5291 for percent nitrogen, carbon, and hydrogen and for the determination of percent oxygen.
- Mineral Analysis of Ash (major and minor metals by ICP) using ASTM Method D6349 for measuring percent silicon dioxide, aluminum dioxide, ferric oxide, calcium oxide, magnesium oxide, potassium oxide, sodium oxide, titanium dioxide, phosphorus pentoxide, magnesium dioxide, barium oxide, strontium oxide, sulfur trioxide.
- Proximate Analysis using ASTM Method D5865 for the determination of thermal caloric value in BTU/LB. ASTM Method D3174 is used for the determination of percent ash. ASTM Method D5016 is used for measuring percent sulfur. Method D3175 is used to determine percent volatiles and ASTM D3172 is used to determine percentage of fixed carbon.
- Ash Fusion Temperatures are determined using ASTM Method D1857, Sulfur Forms are determined using ASTM Method 8214. The Hardgrove Grindability Index (HGI) is measured using ASTM Method D409 (M) and the Total Moisture is determined using ASTM Method D3173 and D2961. The Mercury value, measured in parts per million is determined using ASTM

Method D6722 and chlorine is determined using method D8247. The Free Swelling Index is determined by ASTM Method D720. The Equilibrium Moisture is determined using ASTM Method D1419. Water Soluble Alkalis are determined using ASTM Method D 8014.

- Trace element analysis to include Antimony, Arsenic, Barium, Beryllium, Boron, Bromine, Cadmium, Chromium, Cobalt, Copper, Fluorine, Lead, Lithium, Manganese, Molybdenum, Nickel, Selenium, Silver, Strontium, Thallium, Tin, Vanadium, Zinc, determined by ICP ASTM Method D6357.

The TRM has sufficient drilling across the extent of the property to identify general trends in coal quality. The majority of the data comes from samples collected from core drilling. However, on occasion it becomes necessary to collect channel samples in order to delineate local changes in coal quality. The procedure for collecting channel samples was described in a previous section.

8.2 QUALITY CONTROL/QUALITY ASSURANCE (QA/QC)

No significant disruptions, issues or concerns have ever arisen as a result of processing or laboratory error. Therefore, it's reasonable to conclude that the quality assurance actions employed by these laboratories is adequate to provide reliable results for the requested parameters.

8.3 OPINION OF THE QUALIFIED PERSON ON ADEQUACY OF SAMPLE PREPARATION

No significant disruptions, issues or concerns have ever arisen as a result of sample preparation. Therefore, it's reasonable to assume that sample preparation, security, and analytical procedures in place are adequate to provide a reliable sample from which requested parameters can be analyzed.

The qualified person is of the opinion that the sample preparation, security, and analytical procedures for the samples supporting the resource estimation work are adequate for the statement of mineral resources. Results from different laboratories show consistency and nothing in QA/QC demonstrates consistent bias in the results.

9.0 DATA VERIFICATION

9.1 SOURCE MATERIAL

TRM maintains a detailed geologic database used to develop several types of models used to predict the mineability and coal quality of the Pittsburgh No. 8 seam. Data verification of the accuracy of this database is conducted on a regular basis by company engineers and geologists. This includes a detailed review of drilling data, coal quality data and coal seam correlation of all exploration drillholes to what is found in the database. The verification process also entails underground geologic mapping by a geologist to field verify the accuracy of compiled geologic models from drillhole data. Furthermore, maps generated from coal quality data to predict the coal quality across the reserve are checked for accuracy against actual output from the preparation plant.

Alliance contracted Weir International (Weir) to conduct an audit of Alliance's reserve estimates prepared under Industry Guide 7. Weir submitted its findings in a report dated July 23, 2015. Weir's review included methodologies, accuracy of Carlson gridding, and drillhole data. A similar review was conducted by Weir in 2010. During the 2015 audit, 10% to 20% of the new drillhole data was reviewed and confirmed.

RESPEC was provided with e-log data for all new holes or data obtained in 2016 and more recently. RESPEC compared 20% of those e-logs to the Carlson database. RESPEC also verified the thickness and quality grids. As part of the verification process, a new thickness grid was created from the database, and that resultant grid compared to TRM's model using Carlson grid file utilities.

9.2 OPINION OF THE QUALIFIED PERSON ON DATA ADEQUACY

Based on the verification of TRM data by the QP and review of prior database audits, the QP deems the adequacy of TRM data to be reasonable for the purposes of developing a resource model and estimating resources and subsequently reserves.

10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

10.1 ANALYTICAL PROCEDURES

The TRM has sufficient drilling across the extent of the reserve to identify general trends in coal quality. The majority of the data comes from samples collected from core drilling. However, on occasion it becomes necessary to collect channel samples in order to delineate local changes in coal quality. The procedure for collecting channel samples was described in a previous section.

10.2 REPRESENTATIVE SAMPLES

The parameters that the TRM analyze are adequate to define the characteristics necessary to support the marketability of the coal.

10.3 TESTING LABORATORIES

Currently, Tunnel Ridge contracts with Miltech Analytical Services (MAS), Inc. located in Hunker, PA. Miltech is ISO 9002 Compliant and USEPA PA10462, PA DEP 65-03568 certified. Miltech uses ASTM D7448 for Laboratory Practice and Quality Management. This laboratory provides unbiased, third-party results and operates on a contractual basis.

No significant disruptions, issues, or concerns have ever arisen as a result of processing or laboratory error. Therefore, it's reasonable to assume that this laboratory should provide assurance that the data processing and reporting procedures are reliable.

10.4 RESULTS

Tunnel Ridge performed a series of washability tests to develop washability curves. These curves predict coal qualities and recoveries at different specific gravities. The existing plant operates at a specific gravity of approximately 1.5 -1.65. The results from the coal quality sampling program are adequate to determine the specification requirements for customers located in both the domestic and export markets.

10.5 OPINION OF QUALIFIED PERSON ON DATA ADEQUACY

It is the opinion of the QP that the coal processing data collected from these analyses is adequate for modeling the resources and reserves for marketing purposes. All analyses are derived using standard industry practices by laboratories that are leaders in their industry.

11.0 MINERAL RESOURCE ESTIMATES

11.1 DEFINITIONS

A mineral resource is an estimate of mineralization, considering relevant factors such as cut-off grade, likely mining dimensions, location, or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable.

Mineral resources are categorized based on the level of confidence in the geologic evidence. According to 17 CFR § 229.1301 (2021), the following definitions of mineral resource categories are included for reference:

An inferred mineral resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. An inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability. An inferred mineral resource, therefore, may not be converted to a mineral reserve.

An indicated mineral resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. An indicated mineral resource has a lower level of confidence than the level of confidence of a measured mineral resource and may only be converted to a probable mineral reserve. As used in this subpart, the term “adequate geological evidence” means evidence that is sufficient to establish geological and grade or quality continuity with reasonable certainty.

A measured mineral resource is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. As used in this subpart, the term conclusive geological evidence means evidence that is sufficient to test and confirm geological and grade or quality continuity.

11.2 LIMITING FACTORS IN RESOURCE DETERMINATION

Resources in the Pittsburgh No. 8 seam are delineated based on the following limitations:

- Mineable thickness
- Marketable quality
- Structural limits, such as faults or sandstone channels, existing mining, and subsidence protection zones
- Government and social approval

11.2.1 MINEABLE THICKNESS

Thicknesses are extracted from the database to create a geologic model. Grids are created using an inverse distance algorithm using a weighting factor of three. The minimum Pittsburgh No. 8 coal

thickness within the resource area is 4.58 feet. The average coal thickness (including the rider) in the geologic database is 6.42 feet.

11.2.2 MARKETABLE QUALITY

The primary source quality data is from core holes drilled for the purpose of coal exploration. The qualities that are of primary interest are ash, sulfur, and BTU. These qualities have limitations which affect the value of the coal. The table below summarized the values and ranges of each in the geologic database. The range of critical qualities in the database indicates that the coal in the Pittsburgh No. 8 seam is within marketable limits. The potential resource areas are considered to meet the quality standard and no further consideration or analyses of these parameters are made. All resource estimates include average anticipated values for ash, sulfur, and BTU.

Table 11-1. Qualities at 1.5 Specific Gravity – Dry Basis

Seam	Quality	Number of samples	Average	Minimum	Maximum	Standard Deviation
Pittsburgh No. 8	Ash	818	8.57	6.12	12.59	1.02
Pittsburgh No. 8	Sulfur	818	3.17	1.63	4.88	0.44
Pittsburgh No. 8	BTU	817	13,617	12,971	14,068	179

Values in Table 11-1 are dry basis qualities based on laboratory analysis of core or channel samples. Marketable qualities reflect moisture and adjustments for plant variability. Typical as received quality specifications for the TRM product are approximately:

- BTU – 12,500 to 12,700
- Moisture – 6.0% to 7.0%
- Ash – 8.0% to 9.5%
- Sulfur – 2.6% to 3.8%
- Volatile Matter - 38.0% to 39.0%

11.2.3 STRUCTURAL LIMITS

There are no identified geologic limits to the resource boundary. No faulting is identified in the region. Coal thicknesses throughout the entire resource area are considered mineable using the operation's current operational limit.

The southern and southwestern boundaries of the resource are defined by the existing Pittsburgh No. 8 seam underground mines: Old Valley Camp #1 and Valley Camp mines. A buffer of approximately 200 feet is maintained around previously mined areas. The small Masten Mine is located along the eastern edge of the resource boundary with a buffer of approximately 500 feet. The Bailey and Enlow Fork mines border the area to the southeast.

A subsidence protection zone is maintained near the northwestern corner of the resource. This zone protects the Castleman Run Public Fishing Area.

11.2.4 GOVERNMENT AND SOCIAL APPROVAL

There are no significant limitations to the TRM obtaining the permits required. The TRM holds the necessary permits to mine, process, and transport coal. Historically, the company has been able to amend, or revise permits as needed. The public is notified of significant permitting actions and may participate in the process.

11.3 CLASSIFICATION RESOURCES

11.3.1 CLASSIFICATION CRITERIA

The identified resources are divided into three categories of increasing confidence: inferred, indicated, and measured. The delineation of these categories is based on the distance from a known measurement point of the coal. The distances used are presented in USGS Bulletin 1450-B, “Coal Resource Classification System of the U.S. Bureau of Mines and U.S. Geological Survey.” These distances are presented in Table 11-2.

Table 11-2. Coal Resource Classification System

Classification	Distance from measurement point
Measured	<1,320’
Indicated	1,320’ – 3,960’
Inferred	3,960’ – 15,840’

These distances for classification division are not mandatory. However, these values have been used since 1976, have proven reliable in the estimation of coal resources, and are considered reasonable by the QP.

11.3.2 USE OF SUPPLEMENTAL DATA

Due to the continuity of coal seams in the Appalachian Basin, mineability limits are the most important factor in resource assessment. The limits of the adjacent underground mines are used as supplemental data to confirm thickness trends and identify structural limits. Coal thickness grids are generated from drillhole information, mine measurements, and channel samples. These are data points in which the company has a high degree of confidence in thickness measurement. This data is used by the company to generate the model for its internal planning. The combined information increases the overall reliability of the resource estimate, and all data points are included within the classification system.

11.4 ESTIMATION OF RESOURCES

Resource estimates are based on a database of geologic information gathered from various sources. The sources of this data are presented in Section 7 of this report. Thickness and quality data are extracted from the database to create a model using Carlson’s Geology module. The model consists of

a set of grids, generated using an inverse distance algorithm with a weighting factor of three. In addition to the thickness and quality data, plant recovery is modeled. Quality data and recovery rates are determined through a set of tests generating washability curves. The current operation washes the run-of-mine coal at a specific gravity of approximately 1.5-1.65. The qualities and plant yield are based on this specific gravity.

Section 12 presents the modifying factors considered in determining whether resources qualify as reserves. Table 11.3 presents all resources. The tonnages are reported on a saleable basis and exclude resources that are converted to reserves.

Table 11-3. Summary of Resources as of December 31, 2022

Resource	Pittsburgh No. 8 Seam
Inferred	703
Total	**703**

The EIA reported the average weekly coal commodity spot price for Northern Appalachia coal (the EIA price) on January 6, 2023, to be $115.00/ton (13,000 BTU, <3.0 lbs. SO_2 basis). The reference price used in the economic analysis is $71.62/ton, which is based on the QP's review of historical pricing and proprietary third-party coal price forecasts. The revenue projection in the economic analysis is based on this estimate of coal price and is assumed to be real 2022 US dollars.

Mining and processing costs along with general and administrative costs were estimated. Table 11.4 shows the economic basis for the estimate of each seam in real 2022 U.S. dollars.

Table 11-4. Economic Basis for Estimates (US$/ton)

Seam	Pittsburgh No. 8 Seam
Revenues	$71.62
Mining and Processing Costs	$42.09
General & Administrative Costs	$0.40

11.5 OPINION OF QUALIFIED PERSON

It is the QP's opinion that the risk of material impacts on the Resource estimate is low. The mining operations, processing facility, and site infrastructure are in place. Mining practices and costs are well established. The operation has a good track record of HSE compliance. The Energy Information Administration (EIA) predicts that global energy produced by coal will increase through 2050.

Please refer to Item 1A of the ARLP 10-K regarding the significant risks involved in investment in Alliance's operations including TRM, and the coal industry in general. It is the QP's opinion that the following technical and economic factors have the most potential to influence the economic extraction of the resource:

- Skilled labor – This site is located near a populated area, which has a history of coal mining.
- Environmental Matters
  - Greenhouse gas emission Federal or State regulations/legislation
  - Regulatory changes related to the Waters of the US
  - Air quality standards
- Regional supply and demand – Although the US electric utility market has moved to natural gas and renewable forms of energy to provide a higher percentage of electricity production, it is the QP's opinion, coal will continue to serve as a baseload fuel source in the US and other global energy markets.

The potential for changes in the circumstances relating to these factors influencing the prospect of economic extraction exists and could materially adversely impact economic extraction of the resource.

12.0 MINERAL RESERVES ESTIMATES

12.1 DEFINITIONS

A mineral reserve is an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted. *Probable mineral reserves* comprise the economically mineable part of an indicated and, in some cases, a measured mineral resource. *Proven mineral reserves* represent the economically mineable part of a measured mineral resource and can only result from conversion of a measured mineral resource.

12.2 KEY ASSUMPTIONS, PARAMETERS AND METHODS

12.2.1 RESERVE CLASSIFICATION CRITERIA

The Pittsburgh No. 8 seam has historically been successfully mined at this location and throughout the Appalachian coal basin. Several other mines in the region are currently operating in this seam. Resources are identified as described in Section 11 of this report based on geologic conditions, mineability, and marketability of the coal seam. The two critical factors in converting indicated and measured mineral resources into the mineral reserves are inclusion in an economically feasible mine plan and government approval through the various environmental and operational permits.

Table 17-1 presents the various state and federal environmental permits currently held by the operation. These include the surface mining permit (required for surface operations), air quality permits, and water discharge permits. Approval has already been granted for the required surface disturbance, construction and operation of the preparation facilities, coal refuse disposal, and coal transport. It is noted that not all the anticipated underground mining areas are currently covered under the SMRCA mining permit. Shadow areas (underground only areas) are extended using permit revisions. This is a common practice for underground operations in Appalachia.

12.2.2 CUT-OFF GRADE

The coal bed consistently exhibits qualities that make the product marketable. No reduction is made to the resources or reserves due to quality.

12.2.3 MARKET PRICE

The EIA reported the average weekly coal commodity spot price for Northern Appalachia coal (the EIA price) on January 6, 2023, to be $115.00/ton (13,000 BTU, <3.0 lbs. SO_2 basis). The reference price used in the economic analysis is $71.62/ton, which is based on the QP's review of historical pricing and proprietary third-party coal price forecasts. The revenue projection in the economic analysis is based on this estimate of coal price and is assumed to be real 2022 US dollars.

12.3 MINERAL RESERVES

12.3.1 ESTIMATE OF MINERAL RESERVES

The current operation uses the longwall and room and pillar mining methods. A 70% mining recovery is used for the combined methods. The mining recovery is applied to the in-place coal.

All coal reserve tonnages are reported as clean controlled coal. Carlson's Surface Mine Module is used to estimate in-place tonnages, qualities, density, and seam recovery within a set of polygons. These polygons are the result of the intersection of polygons outlining property boundaries, adverse mining conditions, mining method, mine plan boundaries, and resource classification boundaries. The Carlson results are exported to a database, which then applies the appropriate percent ownership, mine recovery, and seam recovery. The basic calculation is:

Tons = Area * Thickness * Density * Mine Recovery * Seam Recovery * Percent Ownership

Table 12-1. Summary of Coal Reserves as of December 31, 2022

Reserve Category / Seam	Controlled Recoverable (1,000 tons)	Sulfur (%)	Ash (%)	BTU
Pittsburgh No. 8 Seam				
Proven	61,732	3.11	7.97	13,724
Probable	58,254	3.46	8.28	13,659
Total Reserves	**119,986**	**3.28**	**8.12**	**13,692**

Values in Table 12-1 are based on a washed, dry basis.

12.4 OPINION OF QUALIFIED PERSON

It is the QP's opinion that the risk of material impacts on the reserve estimate is low. The mining operations, processing facility, and site infrastructure are in place. Mining practices are well established. The operation has a good track record of HSE compliance. The Energy Information Administration (EIA) predicts that global energy produced by coal will increase through 2050.

Please refer to Item 1A of the ARLP 10-K regarding the significant risks involved in investment in Alliance's operations including TRM, and the coal industry in general. It is the QP's opinion that the following technical and economic factors have the most potential to influence the economic extraction of the reserve:

- Extension of permitted area – Not all the Reserves are currently permitted. Underground operations in West Virginia and Pennsylvania have traditionally been able to extend the permitted shadow areas as needed. No change is anticipated in the issuance of these permit modifications in a timely fashion to facilitate future mining. It is expected that the shadow area of the permit will be expanded as needed.
- Subsidence – Tunnel Ridge must obtain subsidence rights or mitigation from surface owners in advance of longwall mining.

- Skilled labor – This site is located near a populated area, which has a history of coal mining. Although there is competition from other underground operators for skilled labor, TRM has been successful in attracting and retaining skilled staff and has programs for training less experienced miners. Should TRM not be able to maintain as skilled a labor pool as anticipated, productivity could be impacted. However, economic evaluation indicates TRM remains economic with modest downturns in productivity.
- Environmental Matters
  - Greenhouse gas emission Federal or State regulations/legislation may impact the domestic electric utility market, which is a major customer for TRM coal. While many proposed changes have been suggested, the horizon for these changes severely impacting the market is anticipated to be beyond the current planning horizon supporting the reserve estimate.
  - Regulatory changes related to the Waters of the US (WOTUS). The interpretation of the regulation and enforcement of the Clean Water Act with respect to the jurisdictional waters of the US has been modified multiple times through regulatory actions and court decisions. It is likely that further reinterpretation will occur. This could affect future modifications such as new or expanded stockpile areas, transportation areas, and refuse disposal areas. The coal industry has become experienced in adapting to these regulatory changes.
  - Miscellaneous regulatory changes. The coal industry has been subjected to many changes in regulation and enforcement in the recent past. In addition to new regulations related to greenhouse gas emissions and WOTUS, it is expected that further change will occur.
- Regional supply and demand – Although the US electric utility market has moved to natural gas and renewable forms of energy to provide a higher percentage of electricity production, it is the QP's opinion, coal will continue to serve as a baseload fuel source in the US and other global energy markets.

The potential for changes in the circumstances relating to these factors influencing the prospect of economic extraction exists and could materially adversely impact economic extraction of the reserve.

13.0 MINING METHODS

13.1 GEOTECHNICAL & HYDROLOGICAL MODELS

Geotechnical models of the TRM mineral reserves have been assembled utilizing Carlson computer software. Geologic information from drillholes, underground channel samples, and past reserve studies is entered into the database and used to build stratigraphic grid models. Attributes including coal thickness, depth, recovery percentage, and quality are some of the features utilized to accurately model the TRM reserve.

Data collection to support the models is performed as needed to ensure proper characterization of the mining area. Core drilling is performed to provide geotechnical information for permitting and mine design. Underground channel sampling is performed concurrently with mining. Laboratory analysis of corehole and channel samples are performed periodically and used to update the geotechnical models. Commonly analyzed quality parameters include moisture, ash, sulfur, and BTU.

Water inflow into the mine is managed when encountered.

13.2 PRODUCTION RATES & EXPECTED MINE LIFE

The TRM extracts coal from the Pittsburgh No. 8 seam utilizing longwall and room and pillar methods of underground mining. Room and pillar methods are used for development of mainline areas as well as longwall panel gate entries and bleeders. Longwall mining is performed in areas where 100% extraction is possible utilizing a single longwall face that is typically 1,200 feet in width and up to 20,000 feet in length. Infrastructure within the mine includes conveyors, ventilation, power, freshwater capacity, one longwall face, and up to four development units. The number of development units varies based on the rate of longwall retreat.

Planned production varies according to contracted sales volume and expectations of market conditions. Figure 13.1 provides historic raw tons mined before processing, preparation plant recovery, and clean recoverable tons. The forecasted raw tons before processing, preparation plant recovery, and clean recoverable tons contained in the economic analysis are shown in Figure 13.2.

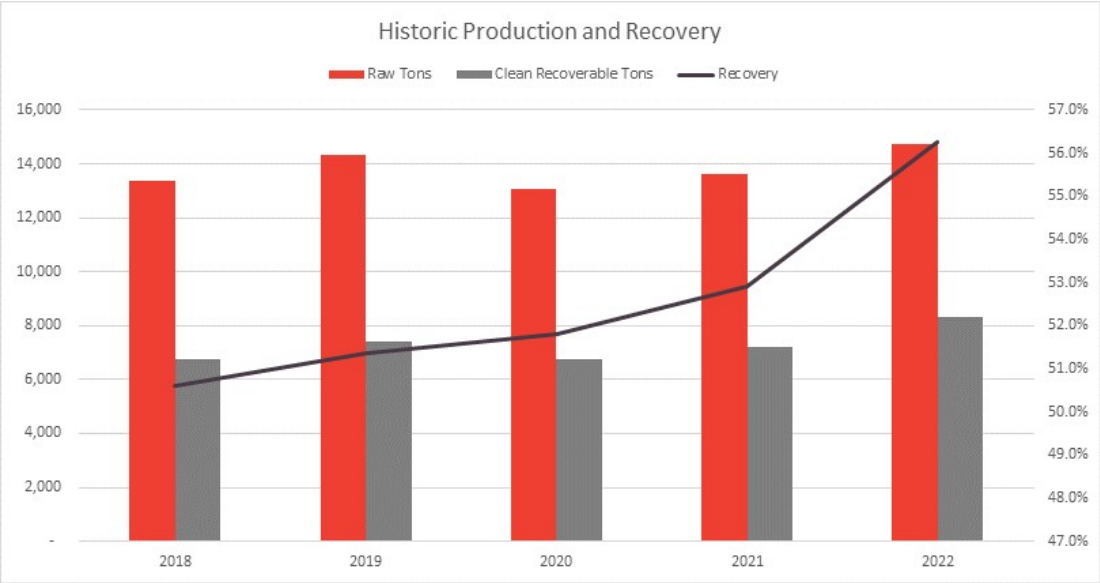


Figure 13-1. Historic Production Recovery

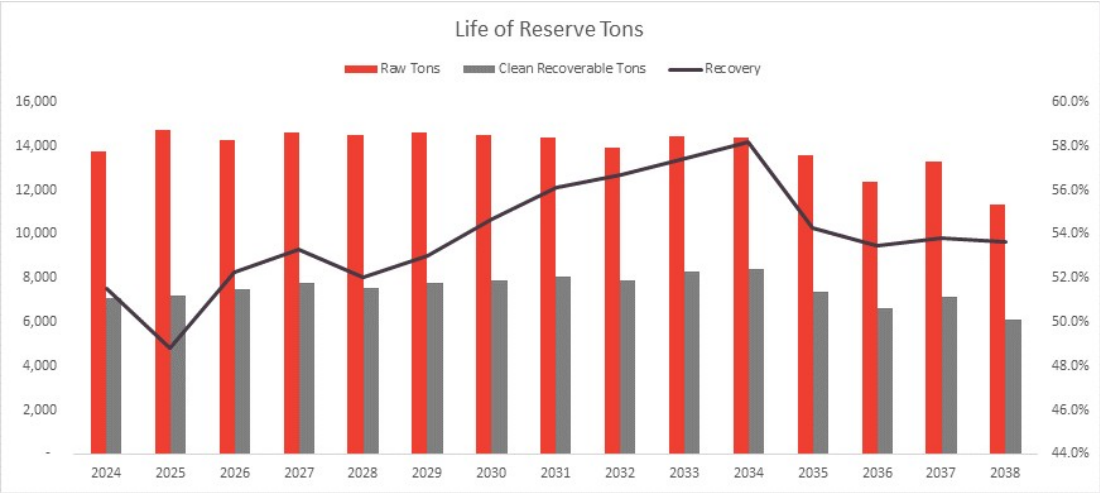


Figure 13-2. Life of Reserve Tons

There are approximately 120 million clean tons remaining in the TRM reserve to be mined within controlled properties. The current life of reserve plan anticipates exhausting the reserve in 2038. The lifespan of the mine is dependent on many factors and may vary materially from current projections. Please refer to Item 1A of the ARLP 10-K regarding the significant risks involved in investment in Alliance's operations including TRM, and the coal industry in general.

13.3 UNDERGROUND DEVELOPMENT

The TRM currently operates within the specifications of the approved permits and certifications required by all local, state (WV and PA), and federal regulatory agencies. Some of these permits and certifications are as follows:

- Local: county road agreements, regulated drainage ditch permits
- State: WVDEP and PADEP underground permits, WVDEP and PADEP surface permits, NPDES wastewater treatment permits, DAQ air permit and air permit
- Federal: US NRC nuclear material license

In addition to the above-mentioned permits, all applicable mining regulations found in Part 30 of the Code of Federal Regulations (CFR) must be followed. The Mine Safety and Health Administration (MSHA) is the federal regulatory agency that oversees compliance to the CFR. Further, plans uniquely specific to the TRM are required to be submitted, reviewed, and approved by MSHA prior to mining. Some of the approved MSHA required mine plans include:

- Roof Control Plan
- Ventilation Plan
- Emergency Response Plan
- Mine Emergency Evacuation and Fire Fighting Program Instruction Plan
- Gas Well Mine Through/Around Plan

13.4 MINING EQUIPMENT FLEET, MACHINERY & PERSONNEL

Underground equipment utilized by at the TRM includes, but is not limited to:

- Longwall Shearer
- Longwall AFC
- Stage Loader
- Continuous Miner
- Coal Loader
- Shuttle car
- Roof Bolter
- Battery and Diesel Scoop

- Fork Trucks
- Personnel Carrier (mantrip)
- Feeder Breaker
- Belt Conveyor
- Transformer/Substation
- Refuge Alternative Chamber
- Rock Dusters
- Miscellaneous Dewatering Pumps

Surface equipment required at the TRM includes, but is not limited to:

- Dozers (various sizes)
- Miscellaneous preparation plant equipment
- End loader
- Man and material hoisting equipment
- Ventilation fan
- Substation
- Mobile crane
- Belt conveyor
- Excavators
- Roller Compactors
- Articulated Trucks

Equipment that is utilized by TRM is representative of other Pittsburgh No. 8 seam operators. Personnel required to operate and maintain the TRM are generally obtained through the hiring of both skilled and unskilled workers from the immediate area. Salaried positions at the TRM are made up of production managers, business managers, engineers, information technology, preparation plant operators, maintenance foreman, purchasing agents, and safety specialists. Hourly positions include equipment operators on the surface and underground, general laborers, dust sampling technical, mechanics, examiners, warehouse clerks, etc. Total headcount numbers can vary depending on the market and demand for coal. Typical headcount ranges from 430 to 470 workers, depending on the number of development units operating.

13.5 MINE MAP

Please see Appendix A for a plan view of the mine map.

14.0 PROCESSING AND RECOVERY METHODS

14.1 PLANT PROCESS

The TRM utilizes a heavy media, float/sink style preparation plant to separate marketable coal from refuse. The plant has a design feed capacity of 1,800 tons per hour (TPH). The plant is divided into two independent 900 TPH circuits that can individually be idled to allow repairs to be made on one circuit while the other remains in operation. Once in the plant, the ROM material passes over vibratory screens to be separated by size. Approximately 80% of the ROM material reports to the heavy media circuit as coarse material. Through the introduction of magnetite, a ferromagnetic naturally occurring mineral, the gravity of the flotation solution within the heavy media circuit is manipulated to precisely control the float/sink point. The ROM material is introduced to the heavy media vessel where coal is floated in the solution and heavier rock material conveyed out for disposal. The clean coal, or product, produced by the heavy media vessel is rinsed, dried, and collected by the clean coal conveyor to be shipped. The rock, or coarse refuse, produced is also rinsed and sent to the refuse disposal area.

The 20% of material that makes up the fine circuit within the plant is also separated by gravity, but in a different manner. The fine ROM material reports to a series of classifying cyclones, spirals, and column flotation to separate the coal from the fine refuse. Clean coal produced by the spirals and column flotation is passed through screen bowl driers to remove excess moisture prior to being collected on the clean coal conveyor. Fine refuse from the same process is pumped to a static thickener. Once the fine refuse material has had sufficient time to settle to the bottom of the thickener, it is pumped away to be disposed of within the refuse impoundment.

14.2 ENERGY, WATER, PROCESS MATERIALS & PERSONNEL

American Electric Power, (AEP) provides most of the electrical power required to operate the TRM. The power required for underground mining operations is delivered by a 138kV transmission line with a 15-20-25MVa substation on site. Electrical power from this substation then branches out to other facilities owned and operated by the TRM. Preparation plant power is delivered by 69kV transmission line to a dual 10MVa substation located near the preparation plant facility. TRM maintains a separate 34.5kV transmission line to its Winters Return Fan site and Schoolhouse Portal site. Additionally, power is delivered and supplied by West Penn Power (WPP) to two bleeder shaft sites by a 12,470V power line.

Process water for underground mining, and the preparation plant is supplied by water pumped from the Ohio River. Potable water used in the bath houses and offices is supplied by various municipal water districts.

The preparation plant uses readily available reagents and supplies. These are competitively sourced from multiple vendors and are generally delivered to the mine by truck.

The preparation plant operates on a flexible work schedule responding to mine production and market demands. A typical shift crew includes one salaried and six hourly personnel with up to four crews to operate at full capacity.

15.0 INFRASTRUCTURE

The TRM is located at 184 Schoolhouse Lane, Valley Grove, WV. Wheeling, WV (40°04’02” N, -80°43’16” W) is located approximately 12 miles to the west via US-40W. West Alexander, PA (40°06’17” N, -80°30’28” W) is located 4 miles to the east via US-40E / National Rd. Supplies are trucked to the mine from regional vendors. All necessary utilities are in place and working. Electricity is supplied by AEP to the mine by the 69kV and 138kV transmission lines. Water required for underground and coal processing operations and other non-potable needs is pumped from the Ohio River. Potable water needed for office and bathhouse facilities is supplied by various municipal districts.

Coal is transported by barge. The TRM barge loading facility is located at Ohio River mile marker 82 (40°10’30” N, -80°41’04” W). The TRM barge loading facility has an annual capacity of 9 million tons. The TRM has a clean coal ground storage capacity of 300,000 tons and clean coal silo capacity of 28,000 tons.

Two fine refuse impoundments are located on the mine’s property. At the final stage, the embankment style impoundments will cover approximately 416 acres. The impoundment embankments are constructed of coarse refuse, creating storage space for fine refuse within the impoundment.

Figure 15-1 shows the layout for TRM surface facilities.

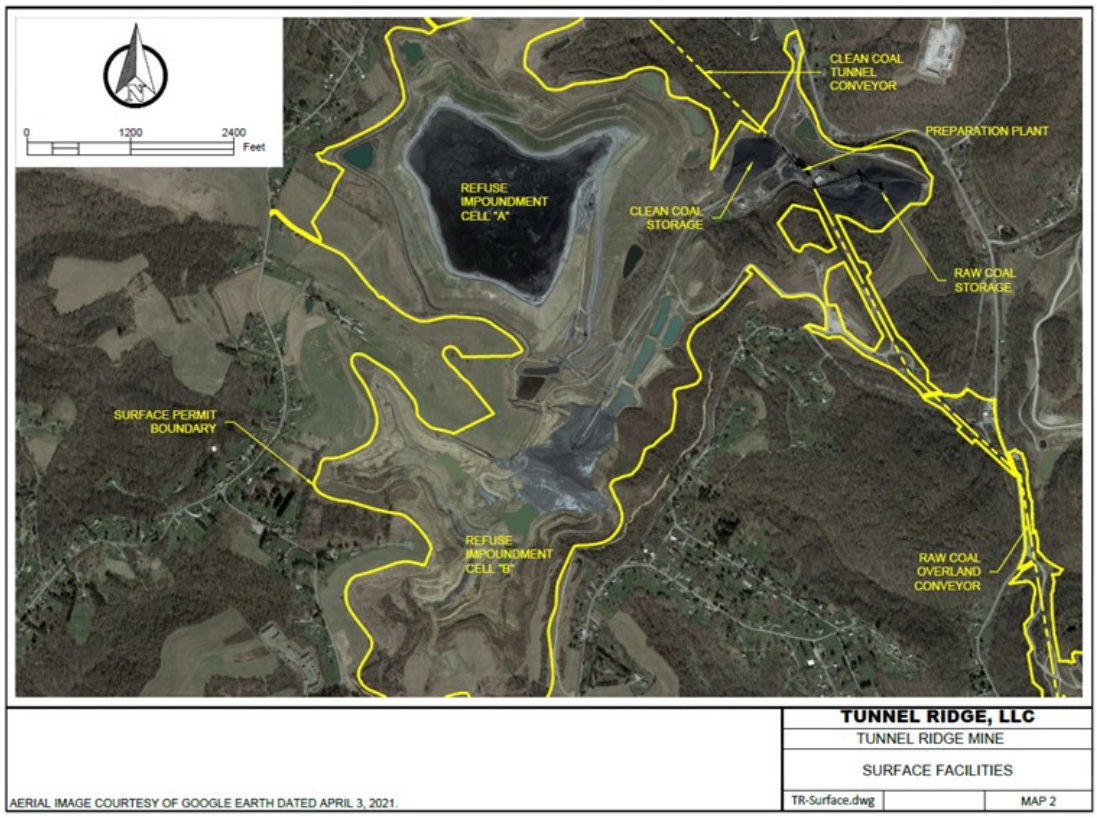


Figure 15-1. Infrastructure Layout

16.0 MARKET STUDIES

16.1 MARKETS

The TRM produces a medium/high sulfur coal that is sold to the domestic and international thermal coal markets. Production from the TRM is shipped by barge directly to customers or to various transloading facilities, including a third-party facility on the Wheeling and Lake Erie Railway providing connections to the CSX Transportation, Inc. (CSX) and Norfolk Southern Railway Company (NS) railroads.

The TRM participates in the Northern Appalachian coal market, selling coal to a diverse customer base of various domestic utilities, industrial facilities, and US East Coast and Gulf Coast exporters. While coal demand in the US is expected to decline over the coming years, the Eastern US thermal coal demand in 2021 was over 190 million tons. With its low-cost position, exceptional coal quality and core domestic customer base, it is the QP's opinion that the TRM should continue to have adequate market opportunities for its product.

Table 16-1. Economic Analysis Coal Price

Operation		5-Year Average 2018-2022	Combined Historical and Forecasted Pricing		Economic Analysis Coal Price[2]	Reserve Tons
			Minimum	Maximum		
TRM	Tons Sold[3]	7,392	---	---	---	119,986
	Price per ton[2]	---	$50.19	$124.69	$71.62[4]	---

1. Combined published EIA historical pricing and proprietary third-party pricing forecast for 13,000 BTU, 3.0 lbs. SO2 adjusted for heat content in real 2022 dollars on an annualized basis.
2. Price per ton is real 2022 dollars for the life of reserve economic analysis.
3. Tons reported in thousands.
4. The economic analysis coal price is based on the QP's review of historical pricing as reported by EIA and proprietary third-party coal price forecasts provided by Alliance.

The demand for the TRM coal is closely linked to the demand for electricity, and any changes in coal consumption by United States or international electric power generators would likely impact the TRM demand. The domestic electric utility industry accounts for approximately 91% of domestic coal consumption. The amount of coal consumed by the domestic electric utility industry is affected primarily by the overall demand for electricity, environmental and other governmental regulations, and the price and availability of competing fuels for power plants such as nuclear, natural gas, and fuel oil as well as alternative sources of energy.

Future environmental regulation of GHG emissions could also accelerate the use by utilities of fuels other than coal. In addition, federal and state mandates for increased use of electricity derived from renewable energy sources could affect demand for coal. Such mandates, combined with other incentives to use renewable energy sources such as tax credits, could make alternative fuel sources more competitive with coal. A decrease in coal consumption by the domestic electric utility industry could adversely affect the price of coal.

17.0 ENVIRONMENTAL

17.1 ENVIRONMENTAL STUDIES

No standalone environmental studies have been conducted for the properties. As part of the state and federal permitting process, various environmental assessments have been conducted. As disturbances are proposed for the operation, all relevant local, state, and federal agencies are contacted to review the proposed project. Each agency reviews the project for impacts to lands, water, and ecology.

17.2 WASTE DISPOSAL & WATER MANAGEMENT

The processing of the run-of-mine coal at TRM generates fine and course refuse waste streams. The fine and course refuse are disposed of in the two onsite refuse impoundments. The coarse refuse is used to construct the impoundments' embankments and the fine refuse is pumped to the pool areas created by the embankments. Additional permitting will be required to expand the refuse impoundments. The expansion areas will be constructed on controlled land adjacent to the existing refuse impoundments. In conjunction with the expansion area, the refuse impoundments may be increased by employing upstream construction methods.

All runoff from the site is managed by sediment control structures including diversions, sumps, and sediment basins. Prior to discharge from the permitted areas, water must meet compliance standards as defined in the NPDES permits. Water samples at discharge locations are collected in accordance with the approved permit and analyzed by an independent laboratory.

17.3 PERMITTING REQUIREMENTS

The TRM is located on the border of West Virginia and Pennsylvania and operates in each state. The regulatory requirements for each state must be met pertaining to mining operations and facilities located in each respective state.

In West Virginia, WVDEP, DMR is responsible for review and issuance of all permits relative to coal mining and reclamation activities, and financial assurance of comprehensive environmental protection performance standards related to surface and underground coal mining operations.

In Pennsylvania, PADEP is the regulatory authority over mining activities. PADEP, DMO is responsible for review and issuance of all permits relative to coal mining and reclamation activities, and financial assurance of comprehensive environmental protection performance standards related to surface and underground coal mining operations.

In addition to the state mining and reclamation laws, operators must comply with various other federal laws relevant to mining. The federal laws include:

- Clean Air Act
- Clean Water Act

- Surface Mining Control and Reclamation Act
- Federal Coal Mine Safety and Health Act
- Endangered Species Act
- Fish and Wildlife Coordination Act
- National Historic Preservation Act
- Archaeological and Historic Preservation Act

In conjunction with the WVDEP coal mining permit, the Clean Air Act and Clean Water Act laws and regulations are administered by the WVDEP. The WVDEP, Division of Air Quality (DAQ) is responsible for permit issuance and compliance monitoring for all activities which have the potential to impact air quality. The WVDEP, Division of Water and Waste Management is responsible for permit issuance and compliance monitoring for all activities which have potential to impact water quality.

In conjunction with the PADEP coal mining permit, the Clean Air Act and Clean Water Act laws and regulations are administered by the PADEP. The PADEP, Bureau of Air Quality (BAQ) is responsible for permit issuance and compliance monitoring for all activities which have the potential to impact air quality. The PADEP, Bureau of Clean Water is responsible for permit issuance and compliance monitoring for all activities which have potential to impact water quality.

All applicable permits for underground mining, coal preparation and related facilities, and other incidental activities have been obtained and remain in good standing. A listing of all current state mining permits is provided in Table 17-1. Mining permits generally require that the permittee post a performance bond in an amount established by the agency to provide assurance that any disturbance or liability created by the mining operations is properly restored to an approved post-mining land use and that all regulations and requirements of the permit are satisfied before the bond is returned to the permittee.

Table 17-1. Current State Permits

Regulatory Agency	Permit No.	Permitted Area (Acres)	Permitted Underground Area (Acres)	Bond
WVDEP	U-2008-05	204.1	11,830.16	YES
WVDEP	O-1009-87	84.01	---	YES
WVDEP	O-2016-08	554.95	---	YES
WVDEP	U-0181-83	34.24	---	YES
PADEP	63091301	134.55	9,062.10	YES
WVDEP	NPDES: WV1002686	---	--	---
WVDEP	NPDES: WV1009834	---	---	---
WVDEP	Air: R13-2790C	---	---	---

17.4 PLANS, NEGOTIATIONS OR AGREEMENTS

New permits and certain permit amendments/revisions require public notification. The public is made aware of pending permits through an advertisement in the local newspaper. Additionally, a copy of the application is retained at the county's public library or online through the State's public access forum for the public review. A 30-day comment period follows the last advertisement date to allow the public to submit comments to the regulatory authority.

In certain instances, additional opportunities are provided to the public for comment. These instances include operations within 100 feet of a public road, operations within 300 feet of a dwelling, and operations within 300 feet of a public building, school, church, or community building. In those instances, approval must be granted by the regulatory authority as well as individuals or groups who own or provide oversight for a particular facility.

17.5 MINE CLOSURE

A detailed plan for reclamation activities upon completion of mining required at the properties has been prepared. Reclamation costs have been estimated based on internal project costs as well as publicly available heavy construction databases. Reclamation costs at the end of the year 2022 totaled approximately $17.2 million.

17.6 LOCAL PROCUREMENT & HIRING

There are no commitments for local procurement or hiring. However, efforts are made to source supplies and materials from regional vendors. The workforce is likewise located in the regional area.

17.7 OPINION OF THE QUALIFIED PERSON ON DATA ADEQUACY

The approved permits and certifications are adequate for continued operation of the facility. Waste disposal facilities are in place for current mining operations, with plans to expand the disposal facilities in order to provide life of reserve storage. Water control structures are in place and function as required by regulatory agencies. In the QP's opinion, the estimated reclamation liability is adequate to estimate mine closure and reclamation costs at the property.

18.0 CAPITAL AND OPERATING COSTS

RESPEC reviewed capital and operating costs required for the coal mining operations at the TRM. Historic capital and operating expenditures were supplied to RESPEC by Tunnel Ridge. The site is an operating coal mine; therefore, the capital and operating cost estimates were prepared with consideration of recent operating performance. The cost estimates are accurate to within +/-25%. RESPEC considers these cost estimates to be reasonable. All costs in this section are expressed in real US dollars.

18.1 CAPITAL COSTS

Capital costs were estimated with the costs classified as routine operating necessity (sustaining capital), capital required for major infrastructure additions or replacement, and expansion. As discussed in Item 12.3, the reserve for TRM is 120.0M tons. The current production schedule estimates approximately 120.0M tons will be mined by 2038. The estimated capital costs for the reserve tons are provided in Figure 18-1.

18.2 OPERATING COSTS

Operating cost inputs for the life of reserve economic analysis such as labor, benefits, consumables, maintenance, royalties, taxes, transportation, and general and administrative expenses were based on recent operating data. A summary of the estimated operating costs, including depreciation expense (the Mining and Processing Cost) for the life of the reserve are provided in Figure18-2.

Table 18-1. Capital Cost Estimate

Life of Reserve Estimate 2023-2038 (US$ 000's)																
Category	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**
Routine Operating Necessity	68,530	58,316	47,102	59,368	63,061	35,233	30,574	48,350	27,871	38,671	40,611	36,121	62,009	72,749	56,412	54,438
Major Infrastructure Investment	13,160	23,584	4,095	-	-	-	-	-	6,859	-	-	-	-	-	-	-

Table 18-2. Operating Cost Estimate

Life of Reserve Estimate 2023-2038 (US$ 000's)																
Category	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**
Cash Operating Costs	269,767	249,796	230,058	222,789	225,065	222,673	222,328	234,364	219,794	217,996	232,629	234,371	240,204	215,399	223,724	215,128
Royalties	16,110	15,994	26,027	30,584	34,156	34,406	36,087	36,842	37,621	36,668	37,246	37,325	21,325	14,721	20,959	17,259
Depreciation	59,383	66,955	63,445	62,972	66,813	65,001	64,314	47,100	48,866	51,785	49,335	44,411	52,522	63,875	59,755	54,309
Mining and Processing Costs	345,260	332,746	319,529	316,345	326,033	322,079	322,729	318,306	306,281	306,449	319,210	316,106	314,051	293,995	304,438	286,696

19.0 ECONOMIC ANALYSIS

RESPEC completed an economic analysis based on the cash flow developed from the production plan and capital and operating costs previously discussed. The average per ton sold revenue estimate used for the life of reserve economic evaluation was $71.62.

19.1 KEY PARAMETERS AND ASSUMPTIONS

The economic analysis has been based on production, revenue, capital, and operating costs estimates. The coal operation is not subject to federal and state income taxes as it is held by a partnership for tax purposes and not taxed as a corporation.

Table 19-1 provides an annual cash flow of the life of reserve economic analysis for TRM.

Table 19 1. Cash Flow Summary

Life of Reserve Estimate 2023-2038 (US$ 000's)																
Category	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**
Revenues	526,590	504,742	510,342	534,656	559,031	540,816	555,276	566,994	579,096	564,360	594,407	600,963	527,770	475,263	511,843	444,805
Cash Operating Costs	(269,767)	(249,796)	(230,058)	(222,789)	(225,065)	(222,673)	(222,328)	(234,364)	(219,794)	(217,996)	(232,629)	(234,371)	(240,204)	(215,399)	(223,724)	(215,128)
Royalties	(16,110)	(15,994)	(26,027)	(30,584)	(34,156)	(34,406)	(36,087)	(36,842)	(37,621)	(36,668)	(37,246)	(37,325)	(21,325)	(14,721)	(20,959)	(17,259)
Capital Expenditures	(81,690)	(81,901)	(51,197)	(59,368)	(63,061)	(35,233)	(30,574)	(48,350)	(34,730)	(38,671)	(40,611)	(36,121)	(62,009)	(72,749)	(56,412)	(54,438)
Working Capital Changes	(9,994)	(1,528)	(3,176)	(1,910)	(2,451)	(2,180)	(3,787)	(1,699)	(5,079)	(655)	(3,110)	(1,705)	18,291	16,066	(3,380)	7,239
Cash Flow	149,029	155,523	199,885	220,005	234,298	246,324	262,500	245,738	281,872	270,369	280,812	291,441	222,523	188,459	207,368	165,219

19.2 ECONOMIC VIABILITY

The economic viability of the operation is reliable based on various factors. This is an on-going operation and has already established the economic benefits outweigh the economic costs. The economic analysis utilized the same parameters and assumptions used in past financial models. Therefore, it is reasonable to expect similar benefits and costs. Since this is an on-going operation with no major up front capital expenditures, there is no calculation of NPV, internal rate of return or payback period of capital.

We have tested the economic viability of the life of reserve economic analysis by conducting sensitivity analysis with respect to the revenue and operating and capital cost. In the independent sensitivity analysis, the revenue was reduced by 15% and the operating and capital cost was increased by 20%. This analysis shows the TRM reserves remain economically viable in both scenarios. The summary of the sensitivity analysis is shown in Table 19.1.

Table 19-2. Sensitivity Analysis

Life of Reserve Estimate 2023-2038 (US$ 000's)				
Category	**Annual Minimum**	**Annual Maximum**	**Annual Average**	**Total**
Revenue Reduced15% - Cash Flow	72,452	206,894	149,987	2,399,793
Operating & Capital Costs increased 20% - Cash Flow	78,731	237,341	169,793	2,716,690

20.0 ADJACENT PROPERTIES

The initial corridor to access the TRM reserves was driven east 15,000 feet between the underground mine works of the Valley Camp Coal mines to the south and Windsor's Beech Bottom Mine to the north. From examining old works, these mines were successful room and pillar mines. The Windsor mine eventually converted to a successful longwall operation. The Bailey and Enlow Fork mines currently operate eastward.

21.0 OTHER RELEVANT DATA AND INFORMATION

All data relevant to the supporting studies and estimates of mineral resources and reserves have been included in the sections of this TRS. No additional information or explanation is necessary to make this TRS understandable and not misleading.

22.0 INTERPRETATION AND CONCLUSIONS

22.1 INTERPRETATIONS AND CONCLUSIONS

The QP has reached a conclusion concerning the TRM operation based on data and analysis summarized in this TRS that the operation is viable based on the reserves that remain, the economic benefits for Tunnel Ridge and the market needs of this product. TRM contains an estimated 120.0 million clean tons of reserves.

22.2 RISKS AND UNCERTAINTIES

It is the QP's opinion the mine operating risks are low. This is an on-going operation that has proven to be a viable and profitable business. The analysis of the reserves and resources used the same methodology the operation has used in the past. Given the reliability of past mining plans, it is a reasonable conclusion that future mining plans would continue to be reliable. Due to the operation's ability to obtain and retain permits, it is reasonably likely that future permits will be acquired in a timely fashion to facilitate future mining. However, market uncertainty associated with government regulations could result in earlier retirements of coal-fired electric generating units. This could negatively affect the demand and pricing for the Tunnel Ridge product. Please refer to ARLP Item 1A for a complete listing of risk factors that may affect this operation.

23.0 RECOMMENDATIONS

The recommendations for TRM are as follows:

- Continue acquiring mining rights in the extended mine plan to support future production
- Continued permitting efforts for the waste disposal facility and future mining.
- Continue current exploration plan

24.0 REFERENCES

Blake, B.M., JR; Cross, A.T.; Eble, C.F.; Gillespie, W.H.; and Pfefferkorn, H.W. (2002). Selected Plant Megafossils from the Carboniferous of the Appalachian Region, United States; in L.V. Hills, C.M. Henderson and E.W. Bamber eds., Carboniferous and Permian of the World; Canadian Society of Petroleum Geologists, Memoir 19, pp 259-335. https://www.wvgs.wvnet.edu/www/coal/coal_images/WVGES_CoalStratChartPennsylvanianBeds.pdf

Nalley S., LaRose, A. (2022). Annual Energy Outlook 2022 Press Release, U.S. Energy Information Administration (EIA). Accessed on January 6, 2023. Retrieved from https://www.eia.gov/outlooks/aeo/

U.S. Energy Information Administration (EIA). (2022). Coal Markets. Accessed on January 6, 2023. Retrieved from https://www.eia.gov/coal/markets/

25.0 RELIANCE ON INFORMATION PROVIDED BY THE REGISTRANT

Table 25-1 summarizes the information provided by the registrant for matters discussed in this report, as permitted under §229.1302(f) of the SEC S-K 1300 Final Rule.

Table 25-1. Summary of Information Provided by Registrant

Category	Report Item/ Portion	Disclose why the Qualified Person considers it reasonable to rely upon the registrant
Macroeconomic trends	Section 19	N/A
Marketing information	Section 16	The market trends were provided by Tunnel Ridge personnel. The QP's experience evaluating similar projects leads them to opine that the market trends are representative of the expected trends of an on-going coal mining operation in the United States
Legal matters	Section 17	The legal matters involving statutory and regulatory interpretations affecting the mine plan were provided by Tunnel Ridge personnel. The QP's experience with statutory and regulatory issues leads them to opine the mining plan meets all statutory and regulatory requirements of an on-going coal mining operation in the United States
Environmental matters	Section 17	The environmental permits and matters were provided by the Tunnel Ridge permitting group. The QP's experience with permitting and environmental issues leads them to opine the information provided is representative of what is required of an on-going coal mining operation in the United States
Local area commitments	Section 17	N/A
Governmental factors	N/A	N/A

APPENDIX A
MINE MAP

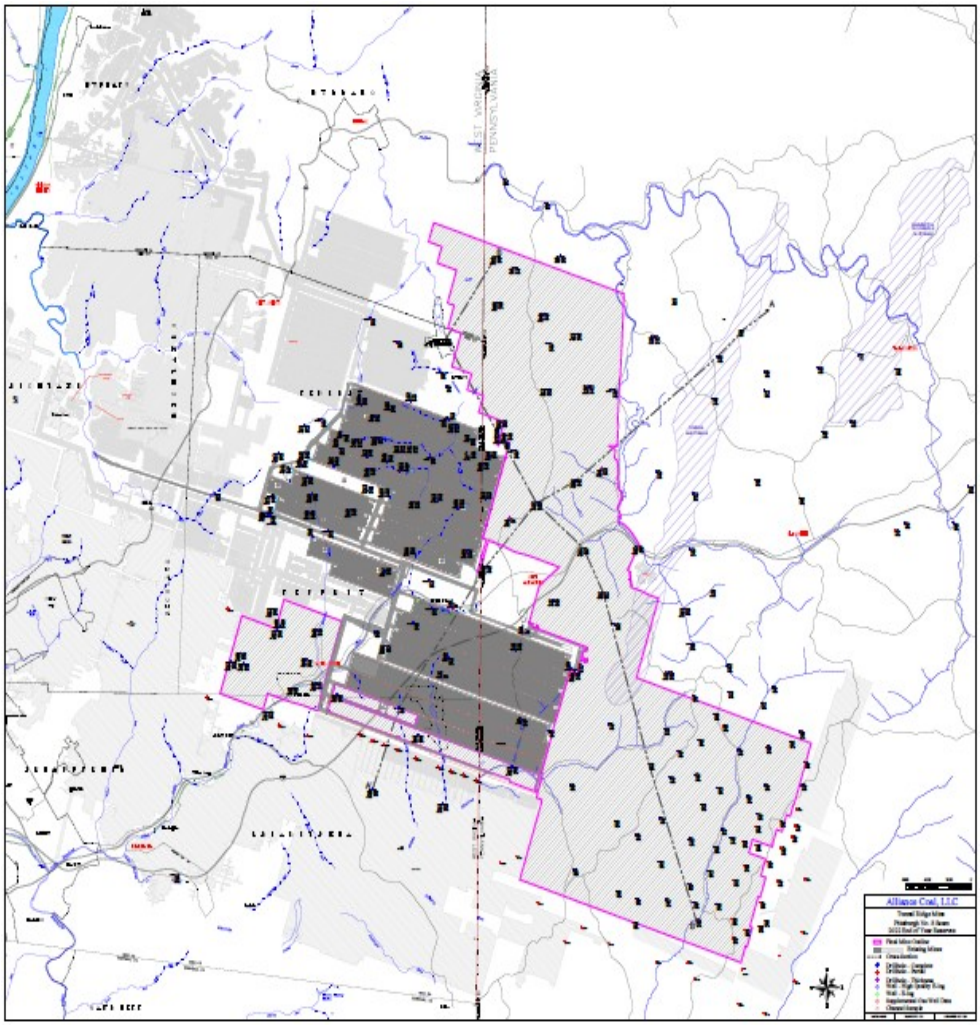

WEST VIRGINIA
PENNSYLVANIA
Alliance Coal, LLC

Exhibit 97.1

Alliance Resource Partners, L.P.
Incentive-Based Compensation Recoupment Policy
(this "**Policy**")

Adopted by the Compensation Committee of the Board of Directors of
Alliance Resource Management GP, LLC (the "**Committee**") on October 25, 2023

1. Recoupment. If Alliance Resource Partners, L.P. (the "**Company**") is required to prepare a Restatement, the Committee shall, unless determined to be Impracticable, take reasonably prompt action to recoup all Recoverable Compensation from any Covered Person. This Policy is in addition to (and not in lieu of) any right of repayment, forfeiture or off-set against any Covered Person that may be available under applicable law or otherwise (whether implemented prior to or after adoption of this Policy). The Committee may, in its sole discretion and in the exercise of its business judgment, determine whether and to what extent additional action is appropriate to address the circumstances surrounding any recovery of Recoverable Compensation tied to a Restatement and to impose such other discipline as it deems appropriate.

2. Method of Recoupment. Subject to applicable law, the Committee may seek to recoup Recoverable Compensation by (i) requiring a Covered Person to repay such amount to the Company; (ii) offsetting a Covered Person's other compensation; or (iii) such other means or combination of means as the Committee, in its sole discretion, determines to be appropriate. To the extent that a Covered Person fails to repay all Recoverable Compensation to the Company as determined pursuant to this Policy, the Company shall take all actions reasonable and appropriate to recover such amount, subject to applicable law. The applicable Covered Person shall be required to reimburse the Company for any and all expenses reasonably incurred (including legal fees) by the Company in recovering such amount.

3. Administration of Policy. The Committee shall have full authority to administer, amend or terminate this Policy. The Committee shall, subject to the provisions of this Policy, make such determinations and interpretations and take such actions in connection with this Policy as it deems necessary, appropriate or advisable. All determinations and interpretations made by the Committee shall be final, binding and conclusive. Notwithstanding anything in this Section 3 to the contrary, no amendment or termination of this Policy shall be effective if such amendment or termination would (after taking into account any actions taken by the Company contemporaneously with such amendment or termination) cause the Company to violate any federal securities laws, rules of the U.S. Securities and Exchange Commission (the "**SEC**") or the rules of any national securities exchange or national securities association on which the Company's securities are then listed. The Committee shall consult with the Company's audit committee, chief financial officer and chief accounting officer, as applicable, as needed in order to properly administer and interpret any provision of this Policy.

4. No Indemnification. Notwithstanding the terms of any of the Company's organizational documents, any corporate policy or any contract, the Company shall not indemnify any Covered Person against the loss of any Recoverable Compensation.

5. Disclosures and Record Keeping. The Company shall make all disclosures and filings with respect to this Policy and maintain all documents and records that are required by the applicable rules and forms of the SEC (including, without limitation, Rule 10D-1 under the Securities Exchange Act of 1934 (the "**Exchange Act**")) and any applicable exchange listing standard.

6. Governing Law. The validity, construction, and effect of this Policy and any determinations relating to this Policy shall be construed in accordance with the laws of the State of Delaware without regard to its conflicts of laws principles.

7. Successors. This Policy shall be binding and enforceable against all Covered Persons and their beneficiaries, heirs, executors, administrators or other legal representatives.

8. Definitions. In addition to terms otherwise defined in this Policy, the following terms, when used in this Policy, shall have the following meanings:

"Applicable Period" means the three completed fiscal years preceding the earlier of: (i) the date that the Committee, or the officer or officers of the Company authorized to take such action if Committee action is not required, concludes, or reasonably should have concluded, that the Company is required to prepare a Restatement; or (ii) the date a court, regulator, or other legally authorized body directs the Company to prepare a Restatement. The Applicable Period shall also include any transition period (that results from a change in the Company's fiscal year) of less than nine months within or immediately following the three completed fiscal years.

"Covered Person" means any person who receives Recoverable Compensation.

"Executive Officer" includes the Company's president, principal financial officer, principal accounting officer (or if there is no such accounting officer, the controller), any vice-president of the Company in charge of a principal business unit, division, or function (such as sales, administration, or finance), any other officer who performs a policy-making function, or any other person (including any executive officer of the Company's controlled affiliates) who performs similar policy-making functions for the Company, and such other employees who may from time to time be deemed subject to this Policy by the Committee.

"Financial Reporting Measure" means a measure that is determined and presented in accordance with the accounting principles used in preparing the Company's financial statements (including "non-GAAP" financial measures, such as those appearing in earnings releases), and any measure that is derived wholly or in part from such measure. Unit price, total unitholder return and EBITDA are Financial Reporting Measures.

"Impracticable" means, after exercising a normal due process review of all the relevant facts and circumstances and taking all steps required by Exchange Act Rule 10D-1 and any applicable exchange listing standard, the Committee determines that recovery of the Incentive-Based Compensation is impracticable because: (i) it has determined that the direct expense that the Company would pay to a third party to assist in recovering the Incentive-Based Compensation would exceed the amount to be recovered; (ii) it has concluded that the recovery of the Incentive-Based Compensation would violate home country law adopted prior to November 28, 2022; or (iii) it has determined that the recovery of Incentive-Based Compensation would cause a tax-qualified retirement plan, under which benefits are broadly available to the Company's employees, to fail to meet the requirements of 26 U.S.C. 401(a)(13) or 26 U.S.C. 411(a) and regulations thereunder.

"Incentive-Based Compensation" includes any compensation that is granted, earned, or vested based wholly or in part upon the attainment of a Financial Reporting Measure; however it does not include: (i) base salaries; (ii) discretionary cash bonuses; (iii) awards (either cash or equity) that are based upon subjective, strategic or operational standards; and (iv) equity awards that vest solely on the passage of time.

"Received" – Incentive-Based Compensation is deemed "Received" in any Company fiscal period during which the Financial Reporting Measure specified in the Incentive-Based Compensation award is

attained, even if the payment or grant of the Incentive-Based Compensation occurs after the end of that period.

"Recoverable Compensation" means all Incentive-Based Compensation (calculated on a pre-tax basis) Received after October 2, 2023 by a person: (i) after beginning service as an Executive Officer; (ii) who served as an Executive Officer at any time during the performance period for that Incentive-Based Compensation; (iii) while the Company had a class of securities listed on a national securities exchange or national securities association; and (iv) during the Applicable Period, that exceeded the amount of Incentive-Based Compensation that otherwise would have been Received had the amount been determined based on the Financial Reporting Measures, as reflected in the Restatement. With respect to Incentive-Based Compensation based on unit price or total unitholder return, when the amount of erroneously awarded compensation is not subject to mathematical recalculation directly from the information in a Restatement, the amount must be based on a reasonable estimate of the effect of the Restatement on the unit price or total unitholder return upon which the Incentive-Based Compensation was received.

"Restatement" means an accounting restatement of any of the Company's financial statements due to the Company's material noncompliance with any financial reporting requirement under U.S. securities laws, including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements (often referred to as a "Big R" restatement), or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period (often referred to as a "little r" restatement). As of the effective date of this Policy (but subject to changes that may occur in accounting principles and rules following the effective date), a Restatement does not include situations in which financial statement changes did not result from material non-compliance with financial reporting requirements, such as, but not limited to retrospective: (i) application of a change in accounting principles; (ii) revision to reportable segment information due to a change in the structure of the Company's internal organization; (iii) reclassification due to a discontinued operation; (iv) application of a change in reporting entity, such as from a reorganization of entities under common control; (v) adjustment to provision amounts in connection with a prior business combination; and (vi) revision for unit splits, unit dividends, reverse unit splits or other changes in capital structure.

Exhibit 99.1

CAWLEY, GILLESPIE & ASSOCIATES, INC.

PETROLEUM CONSULTANTS

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December 7, 2023

Mr. Kirk D. Tholen
Alliance Royalty, LLC
1717 South Boulder, Ste 400
Tulsa, OK 74119

Re: Audit Summary
Alliance Royalty, LLC Interests
Various Oil & Gas Properties in MS, MT, ND, NM, OH, OK, PA, TX and WV
As of December 31, 2023

Pursuant to the Guidelines of the Securities and Exchange Commission for Reporting Corporate Reserves and Future Net Revenue

Dear Mr. Tholen:

As requested, this letter was prepared on December 7, 2023 for *Alliance Royalty, LLC* ("Alliance") for the purpose of submitting our audit of your total proved reserves and forecasts of economics attributable to the above-captioned interests. We audited 100% of Alliance reserves, which are made up of certain Anadarko, Appalachia, Permian, TMS, and Williston Basin oil and gas properties located in the following states: Mississippi, Montana, North Dakota, New Mexico, Ohio, Oklahoma, Pennsylvania, Texas and West Virginia. This audit, effective December 31, 2023 and completed December 7, 2023, was prepared for the purpose of public disclosure by *Alliance Royalty, LLC* in filings made with the U.S. Securities and Exchange Commission ("SEC") in accordance with the disclosure requirements set forth in SEC regulations. This evaluation was prepared using constant prices and costs, and conforms to Item 1202(a)(8) of Regulation S-K and other rules of the *Securities and Exchange Commission* (SEC). A composite summary of the values prepared by Alliance by reserve category is presented below:

		Proved Developed Producing	Proved Developed Non-Prod	Proved Undeveloped	Total Proved
Net Reserves					
Oil	- Mbbl	6,675.8	813.1	1,544.3	9,033.1
Gas	- MMcf	40,331.2	2,835.7	5,453.8	48,620.8
NGL	- Mbbl	4,850.5	425.6	828.9	6,105.0
MBOE/6	- Mbbl	18,248.2	1,711.3	3,282.2	23,241.6
Future Revenue					
Oil	- M$	517,959.9	63,233.6	119,869.3	701,062.8
Gas	- M$	63,353.4	4,130.0	7,782.8	75,266.2
NGL	- M$	109,681.1	9,305.7	19,145.0	138,131.8
Severance Taxes	- M$	40,125.0	4,525.6	8,540.8	53,191.4
Ad Valorem Taxes	- M$	12,380.1	1,434.4	2,501.5	16,315.9
Operating Expenses	- M$	0.0	0.0	0.0	0.0
Future Development Costs	- M$	0.0	0.0	0.0	0.0
Abandonment Costs	- M$	0.0	0.0	0.0	0.0
Net Operating Income	- M$	638,489.6	70,709.3	135,754.8	844,953.6
Discounted @ 10% (Present Worth)	***- M$***	***310,942.0***	***42,880.9***	***82,812.1***	***436,635.0***

Proved Developed ("PD") reserves are the summation of the Proved Developed Producing ("PDP") and Proved Developed Non-Producing ("PDNP") reserve estimates. Proved Developed reserves were estimated at 7,488.9 Mbbl oil, 43,166.9 MMcf gas and 5,276.1 Mbbl NGLs (or 19,959.5 MBOE/6). Of the Proved Developed reserves, 18,248.2 MBOE/6 were attributed to producing zones in existing wells and 1,711.3 MBOE/6 were attributed to zones in existing wells not producing.

Future revenue was calculated prior to deducting state production taxes and ad valorem taxes. Future net cash flow (net operating income) was calculated after deducting these taxes, future capital costs and operating expenses, but before federal income taxes. Future net cash flow has been discounted at an annual rate of ten (10) percent, in accordance with SEC guidelines, to determine its "present worth". Present worth indicates the time value of money and should not be construed to represent an estimate of the fair market value of the properties by Cawley, Gillespie & Associates, Inc. ("CG&A").

The oil reserves include oil and condensate. Oil and natural gas liquid (NGL) volumes are expressed in barrels (42 U.S. gallons). Gas volumes are expressed in thousands of standard cubic feet (Mcf) at contract temperature and pressure base. BOE (barrels of oil equivalent) is expressed as oil and NGL volumes in barrels plus gas volumes in Mcf divided by six (6) to convert to barrels.

Hydrocarbon Pricing

The base SEC oil and gas prices calculated for December 31, 2023 were $78.21 per bbl and $2.637 per MMBtu respectively. As specified by the SEC, a company must use a 12-month average price, calculated as the unweighted arithmetic average of each first-day-of-the-month price within the 12-month period prior to the end of the reporting period. The base oil/NGL price is based upon WTI-Cushing spot prices (London Stock Exchange Group) during 2023 and the base gas price is based upon Henry Hub spot prices (Platts Gas Daily) during 2023.

Adjustments to prices were applied based upon calculations derived from regional averages or provided by Alliance. Oil price differentials may include adjustments for basis differential, transportation and/or crude quality corrections. Gas price differentials include adjustments for basis differential and the BTU heating value of the gas. Gas shrinkage includes compression and processing losses, flaring and contract allocations.

After these pricing adjustments, the net realized prices over the life of the proved properties was estimated to be $77.61 per bbl for oil, $1.548 per MCF for gas and $22.63 per bbl for NGLs. All economic factors were held constant in accordance with SEC guidelines.

Expenses, Taxes and Investments

Ownership was accepted as furnished and has not been independently confirmed. CG&A performed a detailed audit of oil and gas price differentials, gas shrinkage, ad valorem taxes, severance taxes, lease operating expenses and future development costs as calculated and prepared by Alliance, and confirmed all commercial parameters appear to be reasonable and appropriate for this evaluation. Although LOE and future development costs are not paid by the mineral owner, they were applied in this evaluation to assist in proper economic limit determinations. All economic parameters, including lease operating expenses and future development costs, were held constant (not escalated) throughout the life of these properties.

Reserve Estimation Methods

The methods employed in estimating reserves are industry standards and appropriate for this analysis. Reserves for proved developed producing wells were estimated using production performance methods for the vast majority of properties. Certain new producing properties with very little production history were forecast using a combination of production performance and analogy to similar production, both of which are considered to provide a relatively high degree of accuracy. Monthly production data from the various state commission web sites and other public data outlets were used in this evaluation, with data typically updated through October 2023.

Non-producing reserve estimates, for both developed and undeveloped properties, were forecast using either volumetric or analogy methods, or a combination of both. These methods provide a relatively high degree of accuracy for predicting proved developed non-producing and undeveloped reserves for Alliance's properties, due to the mature nature of their properties targeted for development and an abundance of subsurface control data. The assumptions, data, methods and procedures used herein are appropriate for the purpose served by this report.

New drills on the Alliance acreage include planned (AFE'd) drills, wells currently drilling, and/or permitted wells. For each new drill, a reserve category of PDNP or Proved Undeveloped ("PUD") was assigned based upon the proximity to production and geologic control. Reserves for each location were assigned based on regional type curve analysis and audited based on offset analogy to production, with preference given to modern completions.

The drill schedules for each basin were determined based on spud and completion rates, well status, and well reserve category. First, known completed locations were developed in chronological order based on state filings or publicly sourced completion data. The development schedule for these locations begins before the effective date of this report to more appropriately estimate the turn-in-line rate of these locations due to production data lag. Second, spud locations with unknown completion status were scheduled based on the historical spud to completion time within each basin. Third, permitted locations, without development data, were scheduled in chronological order by filing date. The drill schedules applied for each basin were found to be reasonable and appropriate for the purposes of this report.

SEC Conformance and Regulations

The reserve classifications and the economic considerations used herein conform to the criteria of the SEC. The reserves and economics are predicated on regulatory agency classifications, rules, policies, laws, taxes and royalties currently in effect except as noted herein. The possible effects of changes in legislation or other Federal or State restrictive actions which could affect the reserves and economics have not been considered. However, we do not anticipate nor are we aware of any legislative changes or restrictive regulatory actions that may impact the recovery of reserves.

This audit includes 644 commercial proved undeveloped locations, targeting various productive reservoir in New Mexico, North Dakota, Oklahoma, and Texas. Each of these drilling locations proposed as part of Alliance's development plans conforms to the proved undeveloped standards as set forth by the SEC. In our opinion, the operators of these drills have indicated they have reasonably certain intent to complete this development plan within the next five (5) years. Furthermore, Alliance and the other operators have demonstrated through their actions that they have the proper company staffing, financial backing and prior development success to ensure this development plan will be fully executed.

General Discussion

The estimates and forecasts were based upon interpretations of data furnished by your office and available from our files. To some extent information from public records has been used to check and/or supplement these data. The basic engineering and geological data were subject to third party reservations and qualifications. Nothing has come to our attention, however, that would cause us to believe that we are not justified in relying on such data. All estimates represent our best judgment based on the data available at the time of preparation. Due to inherent uncertainties in future production rates, commodity prices and geologic conditions, it should be realized that the reserve estimates, the reserves actually recovered, the revenue derived therefrom and the actual cost incurred could be more or less than the estimated amounts.

An on-site field inspection of the properties has not been performed. The mechanical operation or condition of the wells and their related facilities have not been examined nor have the wells been tested by Cawley, Gillespie & Associates, Inc. Possible environmental liability related to the properties has not been investigated nor

considered. The cost of plugging and the salvage value of equipment at abandonment have not been included in this evaluation.

Conclusion

It should be understood that our audit and the development of our reserves forecasts do not constitute a complete reserve study of the oil and gas properties of Alliance. Furthermore, if in the course of our examination something came to our attention which brought into question the validity or sufficiency of any of such information or data, we did not rely on such information or data until we had satisfactorily resolved our questions relating thereto or independently verified such information or data.

Please be advised that, based upon the foregoing, in our opinion the above-described estimates of Alliance's Total Proved reserves and discounted cash flows are, in the aggregate and independently, reasonable within (+/-) 10%. Also, these estimates have been prepared in accordance with generally accepted petroleum engineering and evaluation principles as set forth in the Standards Pertaining to the Estimating and Auditing of Oil and Gas Reserve Information promulgated by the Society of Petroleum Engineers and as mandated by the SEC.

Cawley, Gillespie & Associates, Inc. is a Texas Registered Engineering Firm (F-693), made up of independent registered professional engineers and geologists that have provided petroleum consulting services to the oil and gas industry for over 60 years. This evaluation was supervised by W. Todd Brooker, President at Cawley, Gillespie & Associates, Inc. and a State of Texas Licensed Professional Engineer (License #83462). We do not own an interest in the properties or Alliance Royalty, LLC and are not employed on a contingent basis. We have used all methods and procedures that we consider necessary under the circumstances to prepare this report. Our work-papers and related data utilized in the preparation of these estimates are available in our office.

Yours very truly,

CAWLEY, GILLESPIE & ASSOCIATES, INC.
TEXAS REGISTERED ENGINEERING FIRM F-693

W. Todd Brooker, P. E.
President