SEC S-K 1300 Technical Report Summary
Mississippi Lignite Mining Company – Red Hills Mine
Ackerman, Mississippi

Effective Date: December 31, 2024

Report Date: March 5, 2025

Report Prepared by:

Mississippi Lignite Mining Company

1000 McIntire Road

Ackerman, MS 39735

Signed by Qualified Persons:

Jefferson King, P.E., P.S., SME-RM

Benson Chow, P.G., SME-RM

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Signature and Report Date

The effective date of this Technical Report Summary (TRS) is December 31, 2024.

QP Name	Sections Responsible For	Signature
Jefferson King, P.E., P.S., SME-RM	1.1, 1.4, 1.6, 1.7, 1.8, 1.9, 2.0, 3.0, 4.0, 5.0, 7.3, 7.4, 9.2, 10.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0, 22.2, 23.2, 24.0, 25.0	/s/ Jefferson King
Benson Chow, P.G., SME-RM	1.2, 1.3, 1.5, 1.9, 6.0, 7.1, 7.2, 8.0, 9.1, 11.0, 21.0, 22.1, 23.1, 25.0	/s/ Benson Chow

CERTIFICATE OF QUALIFIED PERSON JEFFERSON KING

(a) I am the Engineering Manager at Mississippi Lignite Mining Company's Red Hills Mine in Ackerman, MS; a position I have held since 2022.
(b) This certificate applies to the Technical Report Summary titled, "SEC S-K 1300 Technical Report Summary, Mississippi Lignite Mining Company – Red Hills Mine, Ackerman, Mississippi" with an effective date of December 31, 2024.
(c) I am a Qualified Person (QP) for the purpose of SEC S-K 1300. My qualifications as a QP are as follows:
   a. I am a graduate of Mississippi State University and graduated with a Bachelor of Science in Civil Engineering in 2003, and a Masters of Business Administration in 2005.
   b. I am a Professional Engineer (License Number 18896), a Professional Surveyor (License Number 3033) registered in the state of Mississippi, and a Registered Member of SME (ID 04195446).
   c. My relevant experience is over 19 years for the purpose of the Technical Report Summary. This includes 13 years of mining operations experience, which have all been in the coal industry, and 6 years of consulting experience outside of the mining industry.
   d. As the Engineering Manager for Mississippi Lignite Mining Company's Red Hills Mine, I conduct personal inspections of each mining area described in this Technical Report Summary on a regular basis.
   e. I am responsible for the sections listed in the signature table on page 9 of this Technical Report Summary.
   f. I have read the SEC S-K 1300 Technical Report Summary requirements. The part of the Technical Report Summary for which I am responsible has been prepared in compliance with this requirement.
   g. At the effective date of the Technical Report Summary, to the best of my knowledge, information, and belief, the parts of the Technical Report Summary for which I am responsible, contains all scientific and technical information that is required to be disclosed to make the Technical Report Summary not misleading.

CERTIFICATE OF QUALIFIED PERSON BENSON CHOW

(d) I am the Principal Geologist at NACCO Natural Resources, Plano, TX; a position I held since 2013. I have been employed by NACCO Natural Resources since 1999.

(e) This certificate applies to the Technical Report Summary titled, "SEC S-K 1300 Technical Report Summary, Mississippi Lignite Mining Company – Red Hills Mine, Ackerman, Mississippi" with an effective date of December 31, 2024.

(f) I am a Qualified Person (QP) for the purpose of SEC S-K 1300. My qualifications as a QP are as follows:

a. I am a graduate of Mississippi State University with a Bachelor of Science in Geosciences and I graduated in 1998.
b. I am a Registered Professional Geologist of the state of Mississippi (License Number 0715) and a Registered Member of SME, ID 4317057.
c. My relevant experience of over 25 years, for the purpose of the Technical Report Summary, includes 8 years of mining operations experience and 17 years of corporate project development experience in various technical roles, of which have been in coal and industrial minerals.
d. As the Principal Geologist for NACCO Natural Resources, I conducted personal inspections of each mining area described in this Technical Report Summary.
e. I am responsible for the sections listed in the signature table on page 9 of this Technical Report Summary.
f. I have read SEC S-K 1300 Technical Report Summary requirements. The part of the Technical Report Summary for which I am responsible has been prepared in compliance with this requirement.
g. At the effective date of the Technical Report Summary, to the best of my knowledge, information, and belief, the parts of the Technical Report Summary for which I am responsible, contains all scientific and technical information that is required to be disclosed to make the Technical Report Summary not misleading.

1. Executive Summary

This Technical Report Summary (TRS) was prepared for the Mississippi Lignite Mining Company (MLMC) to report Mineral Resources and Mineral Reserves for the Red Hill Mine in Choctaw County, Mississippi.

1.1. Property Description and Ownership

NACCO Industries, Inc.® (NACCO) and its wholly owned subsidiary, NACCO Natural Resources Corporation® (NACCO Natural Resources and with NACCO collectively, the Company, we, our or us), bring natural resources to life by delivering aggregates, minerals, reliable fuels and environmental solutions through our robust portfolio of businesses. We operate under three business segments: Coal Mining, North American Mining® and Minerals Management. The Coal Mining segment operates surface coal mines for power generation companies. Coal is surface mined in North Dakota and Mississippi. Each mine is fully integrated with our customer's operations.

The Red Hills Mine, an active lignite surface mine in Mississippi, is operated by our wholly owned subsidiary Mississippi Lignite Mining Company (MLMC). The Red Hills Mine typically supplies 2.6 to 3.2 million tons of lignite per year to the adjacent Red Hills Power Plant (RHPP). Actual production is dictated by customer MMBtu demand. MLMC provides the lignite for the RHPP under a contract that runs until April 1, 2032. Mining dimensions are discussed in Sections 13.1 and 13.3 of this TRS.

MLMC is the exclusive supplier of lignite to the RHPP in Choctaw County, Mississippi under a lignite sales agreement (LSA) with Choctaw Generation Limited Partnership (CGLP) that runs until April 1, 2032. CGLP leases the RHPP from a Southern Company subsidiary pursuant to a leveraged lease arrangement. The RHPP supplies electricity to the Tennessee Valley Authority (TVA) under a long-term Power Purchase Agreement (PPA). TVA's power portfolio includes coal, nuclear, hydroelectric, natural gas and renewables. The decision regarding which power plants to dispatch is determined by TVA. Reduction in dispatch of the Red Hills Power Plant will result in reduced earnings at MLMC.

MLMC sells coal to CGLP at a contractually agreed-upon price which adjusts monthly, primarily based on changes in the level of established indices which reflect general U.S. inflation rates. MLMC is responsible for all operating costs, capital requirements and final mine reclamation. Profitability at MLMC is affected by customer demand for coal and changes in the indices that determine sales price and actual costs incurred. Additional discussion of material contracts is provided in Section 16.

The Life of Mine (LOM) plan used in this TRS report covers the period from January 1, 2025 through April 1, 2032 as the LOM plan assumes the RHPP will not continue to operate after the expiration of the current LSA with CGLP and the expiration of the existing PPA between TVA and CGLP in April 2032.

The Red Hills Mine is located approximately 7 miles northwest of Ackerman, Mississippi in Choctaw County, which is approximately 120 miles northeast of Jackson, Mississippi. The entrance to the mine is by means of a paved road located approximately 1 mile west of MS Highway 9 with its location at approximately 33° 22' 26.3"N and 89° 13' 23.5"W.

MLMC owns in fee approximately 8,090 acres of surface interest and 5,150 acres of coal interest. MLMC holds leases granting the right to mine approximately 5,423 acres of coal interests and the right to utilize approximately 4,890 acres of surface interests. MLMC holds subleases under which it has the right to mine approximately 1,683 acres of coal interest. Most of the leases held by MLMC have terms extending 50 years, and can be further extended by the continuation of mining operations.

1.2. Geology and Mineralization

The Red Hills Mine is in the Wilcox Group of Mississippi which is the most prolific lignite-bearing stratum in the state of Mississippi. The formations within the Wilcox Group and the underlying Midway Group consist of sands, silts, clay, and lignite which were deposited during Paleogene time, approximately 66 to 23 million years ago. Deposition occurred in a cyclical manner representing a transition from a transgressive sequence of valley fill, marginal marine strata to predominantly regressive, nonmarine, deltaic strata.

During each depositional geologic sequence, organic material was repeatedly buried by sediment in an ideal, oxygen-free environment. This ideal environment was attributed to the humid, subtropical conditions and high water-table of wetlands present during Paleogene time which prevented plant matter from decaying prior to burial. The oxygen-free environment combined with heat and pressure from continual deposition of overlying sediments allowed for the formation of peat and further mineralization of lignite over time by undergoing a process known as humification and biochemical gelification.

The average thickness of the Wilcox section containing the mineable lignite seams at the Red Hills Mine and surrounding area is approximately 140 feet. Mineable lignite seams may be as thin as 1-foot and typically do not exceed 5-feet in thickness. Currently, five primary lignite seams are targeted for mining.

The local structural geology for the Red Hills Mine follows the regional structure with a northwest-southeast strike dipping to the southwest. The lignite seams are gently undulating due to differential compaction of the underlying sediments.

1.3. Status of Exploration

Exploration programs described in this TRS have considered the stratigraphic nature of the mineralization for the determination of hole spacing, drilling and sampling method, and quality analyses in order to geologically map and evaluate the structural and quality characteristics of the lignite deposit. The Red Hills Mine lignite deposit is evaluated on a seam-by-seam basis. Drilling exploration data including geologic lithologies, qualities, and hole locations have been compiled in an electronic, geologic database.

From 1975 through 1980 drilling campaigns were completed under the sole direction of Phillips Coal Company (Phillips). Since 1997, independent drilling and geophysical logging contractors have operated under the guidance and direction of MLMC.

Over 1,500 drill holes including pilot holes, coal core holes, overburden holes, geotechnical holes, and monitoring wells have been drilled within the Red Hills Mine lignite deposit. Drilling campaigns conducted at the mine have comprised largely of rotary wash drilling methods. Drill holes were geophysically logged for natural gamma, density, caliper, and resistivity responses to obtain data related to the subsurface structure. Coal core samples collected for quality analyses were sent to independent commercial laboratories for testing.

1.4. Development and Operations

The Red Hills Mine is a multiple lignite seam surface mining operation which typically supplies 2.6 to 3.2 million tons of lignite per year to the adjacent RHPP. Actual annual production is dictated by customer demand. The RHPP supplies electricity to TVA under a long-term PPA. MLMC's customer's demand for coal is driven by the decision of which power plants to dispatch as determined by TVA. An increase in the number of days TVA dispatches the RHPP would increase demand. A decrease in the number of days TVA dispatches the RHPP would reduce demand.

The lignite at the Red Hills Mine surface mining operation is uncovered using dragline, dozer push, and conventional truck and shovel mining methods due to the proximity of the lignite to the surface and the physical characteristics of the deposit. Lignite is mined using a surface miner or a hydraulic backhoe to load a fleet of end dump haul trucks and is directly shipped to the RHPP or the lignite stockpile. The overall average ROM quality of the mined lignite seams meets the required power plant quality specifications. Therefore, no mineral processing is performed by MLMC.

The Red Hills Mine began operations in Mine Area 1 and has transitioned to Mine Area 3. Both Mine Areas are located in the MS-005 permit area. Initial development of the Red Hills Mine began in 1998, with full production and commercial deliveries commencing in 2002. Boxcut construction for Mine Area 3 began in 2021 where mining will continue until April 1, 2032. The Red Hills Mine has, or is currently constructing, all supporting infrastructure for mining operations within the permitted areas.

The Red Hills Mine employs a staff and workforce of approximately 200 employees with fluctuations in employment levels for changes in demand at the RHPP or special projects such as the final reclamation work taking place in Mine Area 1.

1.5. Mineral Resource Estimate

The Mineral Resources in this TRS have been estimated by applying a series of geologic and physical limits as well as high-level mining and economic constraints. The mining and economic constraints were limited to a level sufficient to support reasonable prospect for economic extraction of the estimated Mineral Resources. The potential for economic extraction is justified by the terms of the existing LSA with the RHPP that runs through April 2032.

The QP based the Mineral Resource estimates for the Red Hills Mine on a stratigraphic geologic model generated from the verified drilling exploration data. For a lignite seam to be considered a Mineral Resource by the QP, the seam must have a minimum of ten coal core samples for quality estimation, a maximum ash cutoff of 30% and a minimum calorific value cutoff of 4,000 BTU/lb, both on an as-received moisture basis, and a minimum thickness of 1 foot. Mineral Resources were then further defined for each identified lignite seam by applying projected pit shells based on physical constraints, including but not limited to lease and fee coal boundaries, and a maximum cumulative stripping ratio of 18:1 based on an assumed lignite sales price of $34.02 per ton.

Mineral Resources were divided into three categories of Measured, Indicated, or Inferred and were ranked by increasing level of confidence. The Mineral Resource categorization applied by the QP included the consideration of the type and amount of data per drill hole and the variography of quality and structural continuity among holes with the C Seam present and cored. Measured Mineral Resources are defined as tonnages which meet the general resource requirements and fall within an area where the distance from a core hole is less than or equal to 2,667 feet. Indicated Mineral Resources are defined as tonnages which meet the general resource requirements and fall within an area where the distance from a core hole is greater than 2,667 feet and less than or equal to 5,333 feet. Inferred Mineral Resources are defined as tonnages which meet the general resource requirements and fall within an area where the distance from a core hole is greater the 5,333 feet and less than or equal to 8,000 feet.

Mineral Resources as of December 31, 2024 are shown in Table 1.1, and are reported as in-situ tons such that no adjustments were made to account for mining recovery or losses. Mineral Resources are reported exclusive of in-situ Mineral Reserves.

Table 1.1 Mineral Resource Estimates as of December 31, 2024

Red Hills Mine	Resource Classification	Tonnage (Kt)	Quality (As-Received)			
			Calorific Value (Btu/lb)	Moisture (%wt)	Ash (%wt)	Sulfur (%wt)
Mine Area 2	Measured	4,400	5,200	44.6	13.0	0.6
	Indicated	400	5,180	44.1	13.6	0.6
	Measured + Indicated	4,700	5,200	44.5	13.0	0.6
	Inferred	0	0	0	0	0
Mine Area 3	Measured	0	0	0	0	0
	Indicated	0	0	0	0	0
	Measured + Indicated	0	0	0	0	0
	Inferred	100	5,200	45.5	12.0	0.5
Total Resources	Measured	4,400	5,200	44.6	13.0	0.6
	Indicated	400	5,180	44.1	13.6	0.6
	Measured + Indicated	4,700	5,200	44.5	13.0	0.6
	Inferred	100	5,200	45.5	12.0	0.5

Notes:

1. Mineral Resource Estimate has been prepared by a qualified person employed by NACCO NR as of December 31, 2024
2. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability and there is no certainty that all or any part of such Mineral Resources will be converted into Mineral Reserves.
3. Mineral Resources are in-situ and exclusive of 22.9 million tons (Mt) of Mineral Reserves.
4. Mineral Resources are reported using an economic cutoff of $34.02 per ton coal.
5. Resources are presented with a minimum 1 foot seam thickness, a maximum as-received moisture basis ash content of 30%, and a minimum calorific value of 4,000 BTU/lb on an as-received moisture basis.
6. Resources are estimated using Vulcan Software.
7. Tonnages and qualities have been rounded to an accuracy level deemed appropriate by the QP. Summation errors due to rounding may exist.

In the opinion of the QP it is important to note that additional exploration may positively or negatively affect Mineral Resource estimates. Additionally, Mineral Resource estimates may be materially affected by a change in the assumptions including general mining costs and land control. New regulations may also impose additional economic factors, delays to future permit renewals, or restrictions to physical estimation boundaries.

At the time of this TRS, the QP is not aware of any specific factors that would materially affect the Mineral Resource estimates presented herein.

1.6. Mineral Reserve Estimate

The Mineral Reserves in this TRS were determined to be the economically mineable portion of the Measured and Indicated Mineral Resources after the consideration of modifying factors related to the mining process, which convert Measured Resources to Proven Mineral Reserves and Indicated Resources to Probable Mineral Reserves. Inferred Mineral Resources were not considered for Mineral Reserves.

Parameters for mining dilution, minimum mining thickness, and minimum parting thickness were applied by the QP to the geologic model to create the Mineral Reserve model. Mining pits were projected based on current mining equipment operating parameters and a maximum cumulative stripping ratio of 14:1, over the entire area evaluated, based on an estimated average price per ton of $34.41. Mining pits were then sectioned into 500-foot blocks; adjusting endwall blocks as necessary. Blocks were reviewed by the QP to ensure quality thresholds were met. Recovery rates were applied to the lignite tonnages by seam and then the blocks were sequenced based on a projected total delivered heat requirement measured in million British Thermal Units (MMBTU) through the LOM plan to determine the Measured and Indicated Resources that would be converted to Proven and Probable Mineral Reserves. The details of the LOM plan are shown in Table 1.2.

Table 1.2 LOM Production Schedule

	2025	2026	2027	2028
Delivered Coal (000 tons)	2,800	2,700	2,700	2,800
Delivered MMBTU (000)	27,700	27,700	27,700	27,700
Calorific Value, Btu/lb	5,010	5,040	5,050	5,020
Total Overburden Material (000 CY)	33,900	35,200	36,200	31,600

	2029	2030	2031	2032	Total
Delivered Coal (000 tons)	2,800	2,800	2,700	700	**20,000**
Delivered MMBTU (000)	27,700	27,700	27,700	6,900	**200,800**
Calorific Value, Btu/lb	5,020	5,040	5,100	5,140	**5,000**
Total Overburden Material (000 CY)	34,700	36,400	39,600	8,100	**255,700**

This disclosure of Mineral Reserves is based upon the QP's opinion that the LOM plan and cost estimates have been completed to a Pre-feasibility (PFS) level of accuracy, as defined in 17 Code of Federal Regulations (CFR) Part 229.1300, which includes and supports the QP's determination of Mineral Reserves.

The Red Hills Mine Mineral Reserve, as of December 31, 2024, is shown in Table 1.3.

Table 1.3 Mineral Reserve Estimate as of December 31, 2024

Red Hills Mine	Reserve Classification	Tonnage (Kt)	Quality: Calorific Value (Btu/lb)	Quality: Moisture (%wt)	Quality: Ash (%wt)	Quality: Sulfur (%wt)
Mine Area 3	Proven	17,300	5,090	43.3	14.9	0.6
	Probable	4,700	5,080	43.1	15.1	0.6
	Total	22,000	5,080	43.3	14.9	0.6
Stockpile & Silos	Proven	900	5,090	43.5	15	0.5
Total Reserves Stockpile & Silos	Proven	18,200	5,090	43.3	14.9	0.6
	Probable	4,700	5,080	43.1	15.1	0.6
	Total	22,900	5,090	43.3	14.9	0.6

Notes:

1. Mineral Reserve Estimate have been prepared by a qualified person employed by MLMC as of December 31, 2024.
2. Mineral Reserves use an economic cutoff of a maximum cumulative stripping ratio of 14:1. There are some instances where the stripping ratio for a single year could exceed 14:1, but the average for the entire area evaluated is less than 14:1.
3. Historical coal recovery rates at Red Hills Mine have been applied to generate the Mineral Reserve tonnages.
4. Mineral Reserves are estimated using Vulcan Software.
5. Tonnages and qualities have been rounded to an accuracy level deemed appropriate by the QP. Summation errors due to rounding may exist.

The QP's opinion on risks that could potentially affect the Mineral Reserve estimates include changes in customer demand for any reason, including, but not limited to, dispatch of power generated by other energy sources ahead of coal, fluctuations in demand due to unanticipated weather conditions, regulations or comparable policies which could potentially promote planned and unplanned outages at the RHPP, economic conditions, including an economic slowdown that would affect manufacturing and a corresponding decline in the use of electricity, governmental regulations and/or inflationary adjustments. All of which could potentially have a material adverse effect on MLMC's financial condition.

At the time of this TRS, the QP is not aware of any specific factors that would materially affect the Mineral Reserve estimates.

1.7. Economic Assessment

The primary driver in determining the economic viability of the Red Hills Mine was the expected annual operating performance of the RHPP, which was forecasted using two main inputs: the annual projection notice (nomination for MMBtu requirements) received from the RHPP and a comparison to historical prior years actual delivered lignite fuel. The typical annual MMBtu requirement used in the Red Hills LOM Economic Model was approximately 27.7 MMBtu. This resulted in a production schedule of approximately 2.7 million tons (Mt) of dedicated lignite per year each year until LSA contract expiration in April 2032.

LOM operating costs for a plan delivering approximately 27.7 MMBtu per year to the RHPP total approximately $645 million (M). Operating costs included major cost categories for mine development, burden removal, severing of lignite, reclamation, maintenance and handling of stockpiled lignite and delivery to the adjacent RHPP along with the necessary maintenance required to keep all equipment operating safely and efficiently.

Capital costs to fulfill the LSA for a plan delivering approximately 27.7 MMBtu per year to the RHPP are expected to total approximately $31 M. Capital Costs included categories for equipment expenditures, mine development, mitigation, and land acquisitions.

The base price for the dedicated lignite is defined in the LSA and consists of eight indexed components in addition to a power cost component, a pass-through component, a royalty component and a fixed component. The base price in the LOM is evaluated on an annual basis and is determined based on the actual performance of the 8 indexed components specified in the LSA. Over the LOM plan, the average price per ton for lignite delivered and sold is $34.41 providing revenues totaling approximately $685 M. The Red Hills Mine began commercial deliveries in 2001. The sales price over the last three years has averaged approximately $31 as shown in Table 1.4. The forecasted coal price for the LOM is also shown in Table 1.4.

Table 1.4 Historical and Forecasted Coal Price

Historical	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024**	Total*
Tons Sold (000 ton)	3,200	2,600	3,200	3,000	2,400	3,000	2,600	2,500	3,000	3,200	2,900	1,900	33,500
Coal Price $/Ton	20.61	21.61	22.61	23.61	24.61	25.61	26.61	27.61	27.20	29.66	29.14	35.60	30.88

Forecasted	2025	2026	2027	2028	2029	2030	2031	2032	Total
Tons Sold (000 ton)	2,800	2,700	2,700	2,800	2,800	2,800	2,700	700	20,000
Coal Price $/Ton	31.30	34.46	32.86	33.02	34.65	35.99	36.71	41.90	34.41

*Average Coal price $/ton is from 2022-2024.
**During 2024, a mechanical issue impacted one of two boilers at the Red Hills Power Plant. While this issue has been resolved, it resulted in a reduction in customer deliveries in 2024.

During 2023, MLMC received notice from its customer related to a mechanical issue that began on December 15, 2023 and impacted one of two boilers at the Red Hills Power Plant. While this issue has been resolved, it resulted in a reduction in customer demand in 2024. Total deliveries in 2024 were 1.9 million tons. The Company recognized income of $13.6 million in 2024 related to business interruption insurance recoveries that partially offset losses as a result of the boiler outage.

The projected annual cash flow forecast based on the lignite production schedule over the remaining LOM results in a total after-tax cash flow projection of $88 M resulting in a net present value of $58 M after tax at a 10% discount rate.

The Economic Assessment used what could be considered a conservative assumption in light of historical trends, current conditions and expected future developments for delivered fuel to the RHPP of approximately 27.7 MMBtu annually. Therefore, the QP is of the opinion that any downside risks to the economic viability of the project relate primarily to the risk that RHPP takes less than the LOM plan MMBtus, but notes that there is a minimum take provision included in the LSA. Other downside risks considered were the effects of an increase in diesel prices and labor.

The Income Statement and Annual Cash Flows based on the lignite production schedule for the LOM plan, along with the Net Present Value are detailed in Table 1.5. A Discount Rate of 10% was used, as this was consistent with the Red Hills Mine's weighted average cost of capital. The calculation of Net Present Value and Internal Rate of Return are nuanced due to the ongoing nature of this mining operation. As modeled, the cash flows for the period 2025 through 2045 indicate the project is cash flow positive over the remaining life of the project.

In the opinion of the QP, the income statement and cash flow projection based on the LOM plan assumptions as shown in Table 1.5 are reasonable in light of current conditions and expected future developments. As modeled, the future cash flow projection is estimated to be approximately $88 M and the net present value is estimated to be approximately $58 M after tax.

Note that the net present value estimated for this report does not consider previous cash inflows and outflows and is only estimated from 2025 through the remainder of the LOM and therefore does not consider any historical cash flows already realized.

Table 1.5 Summary of Income Statement and Cash Flow for LOM plan delivering approximately 27.7 MMBtu

Income Statement ($M unless noted)	2025	2026	2027	2028	2029
Tons Sold (in thousands)	2,800	2,700	2,700	2,800	2,800
Revenue/Ton	$ 31.30	$ 34.46	$ 32.86	$ 33.02	$ 34.65
Total Revenue	$ 86,582	$ 94,726	$ 90,210	$ 91,124	$ 95,713
Expenses					
Labor, Material Fuel	$ 48,124	$ 47,530	$ 48,433	$ 48,626	$ 50,948
Royalties & Production Taxes	$ 2,685	$ 3,639	$ 4,142	$ 4,009	$ 4,344
Other Expenses	$ 35,598	$ 30,176	$ 29,014	$ 34,386	$ 35,125
Income Taxes	$ (21)	$ (1,606)	$ (1,035)	$ (493)	$ (636)
Net Income	**$ 154**	**$ 11,775**	**$ 7,586**	**$ 3,612**	**$ 4,661**
EBITDA	**$ 11,811**	**$ 26,382**	**$ 21,966**	**$ 17,540**	**$ 19,087**
Capital Expenditures	$ (12,778)	$ (6,653)	$ (1,902)	$ (2,636)	$ (3,671)
Investing Activities	$ 8,485	$ (132)	$ 1,645	$ 4,861	$ 1,060
Financing Activities	$ (4,691)	$ (5,531)	$ (4,678)	$ (4,437)	$ (4,114)
Mine Closing	$ (6,925)	$ (6,739)	$ (1,684)	$ (426)	$ (250)
Income Taxes	$ (21)	$ (1,606)	$ (1,035)	$ (493)	$ (636)
Increase (decrease) in Cash	**$ (4,118)**	**$ 5,722**	**$ 14,313**	**$ 14,410**	**$ 11,477**

Income Statement ($M unless noted)	2030	2031	2032	2033-2045	Total
Tons Sold (in thousands)	2,800	2,700	700	-	20,000
Revenue/Ton	$ 35.99	$ 36.71	$ 41.90	$ -	$ 34.40
Total Revenue	$ 99,062	$ 99,712	$ 28,255	$ -	$ 685,385
Expenses					
Labor, Material Fuel	$ 53,086	$ 55,959	$ 13,824	$ -	$ 366,529
Royalties & Production Taxes	$ 3,525	$ 3,402	$ 623	$ -	$ 26,368
Other Expenses	$ 38,913	$ 27,792	$ 15,638	$ 10,072	$ 256,714
Income Taxes	$ (425)	$ (1,507)	$ 220	$ 1,209	$ (4,293)
Net Income	**$ 3,113**	**$ 11,052**	**$ (1,610)**	**$ (8,863)**	**$ 31,481**
EBITDA	**$ 15,649**	**$ 23,890**	**$ 4,108**	**$ (752)**	**$ 139,681**
Capital Expenditures	$ (1,165)	$ (1,105)	$ (1,016)	$ -	$ (30,925)
Investing Activities	$ 12,156	$ 1,761	$ 19,363	$ 8,918	$ 58,118
Financing Activities	$ (3,682)	$ (3,580)	$ (2,211)	$ (2,684)	$ (35,607)
Mine Closing	$ (119)	$ (123)	$ (13,070)	$ (9,246)	$ (38,583)
Income Taxes	$ (425)	$ (1,507)	$ 220	$ 1,209	$ (4,293)
Increase (decrease) in Cash	**$ 22,414**	**$ 19,336**	**$ 7,393**	**$ (2,557)**	**$ 88,391**

Net Present Value (10%)	**$57,624**
Internal Rate of Return	**235.0%**

1.8. Permitting Requirements

The Red Hills Mine operates under the state of Mississippi Surface Coal Mining and Reclamation Permit MS-005, issued by the Mississippi Department of Environmental Quality (MDEQ) under delegated authority of the United States Department of the Interior, Office of Surface Mining Reclamation Enforcement (OSMRE) Surface Mining Control and Reclamation Act (SMCRA). In addition to the mining permit, MLMC has secured 45 other permit and agreements, including a National Pollutant Discharge Elimination System (NPDES) permit and an Individual Permit issued by the United States Army Corp of Engineers (USCOE). All permits have been secured and continue to be renewed in a timely fashion.

MLMC currently has all permits in place for the Red Hills Mine to operate and adhere to a mine plan projected through April 1, 2032. Barring any regulatory changes out of MLMC's control, the QP does not anticipate hurdles for approval of future renewal applications.

1.9. Qualified Person's Conclusions and Recommendations

In the QP's opinion, the geological data, sampling, modeling, and estimate are carried out in a manner that both represents the data well and mitigates the likelihood of material misrepresentations for the statements of Mineral Resources. Additional drilling and sampling should be performed in Mine Area 3 to better define upper seams qualities while expanding and upgrading mineral resources and reserves. Continue representative splits sampling and testing from coal cores samples to be tested by an independent laboratory different from the testing laboratory.

In the QP's opinion, the operational and mine planning data, LOM Plan, and estimation are carried out in a manner that both represents the data and operational experience and methodology well and mitigates the likelihood of material misrepresentations for the statements of Mineral Reserves. Current additional work that is budgeted in the discounted cash flows (DCF) that the Red Hills Mine will complete include:

- Continue with the exploration drilling program;
- Monitor pit pore pressures in future pit area identified of potential concern;
- Continue to evaluate used equipment to reduce capital costs;
- Continue the current practice of reconciliation of actual to budget lignite recoveries, qualities, and costs;
- Update the LOM plan and economic analyses accordingly.

2. Introduction

This Technical Report Summary (TRS) was prepared for the Mississippi Lignite Mining Company (MLMC), a wholly-owned subsidiary of NACCO Natural Resources Corporation (NACCO NR) which is a wholly-owned subsidiary of NACCO Industries, Inc. (NACCO).

The purpose for which this TRS was prepared is to report Mineral Resources and Mineral Reserves for the Red Hill Mine located in Choctaw County, Mississippi.

The sources of information and data contained in the technical report or used in its preparations were supplied by MLMC and include data used to produce geologic models, Annual and Life of Mine (LOM) plans, production data, environmental support documents, independent technical studies, resource and reserve estimates, cost estimates, and economic analyses. A large portion of the technical information is summarized from active Surface Mining Control and Reclamation Act (SMCRA) permits addressing Title 11 of the Miss. Admin. Code Pt.8, Ch-2, Mississippi Commission on Environmental Quality Regulations Governing Surface Coal Mining, hereby known as the mine permit requirements. Additional references to specific studies and documents are provided in Section 24.0 of this TRS.

Benson Chow, Mineral Resource QP, is a Registered Professional Geologist in the state of Mississippi, License Number 0175 and a Registered Member of the Society for Mining, Metallurgy & Exploration (SME), ID 4317057 and is in good standing with both organizations. He has been involved with the exploration, geology, and mining operations at Red Hills Mine since 1999 and his most recent site visit was on May 7 through 13, 2024. The purpose of this visit was to complete a site visit of the active mining area and to oversee the 2024 drilling campaign. During the visits the QP completed the following task:

- Inspected the active pit areas for Mine Area 1 west, middle and east end of the pit.
- Observed the extraction of the D Seam coal using the Wirtgen in Mine Area 1. Visited the boxcut in Mine Area 3. Performed survey verification of several previously drilled exploration drill holes.
- Verified drill hole collar locations and elevations from the 2011, 2015, and 2021 drilling programs.
- Inspected the active pit area for Mine Area 3
- Oversaw the 2024 drilling campaign

Jefferson King, is serving as the Mineral Reserve QP, a licensed Professional Engineer (License Number 18896), and Land Surveyor (License Number 3033) in the State of Mississippi, and Registered Member of the Society for Mining, Metallurgy & Exploration (SME), ID 04195446. He has had direct involvement with production, technical projects, development of the LOM plan and financial analysis since 2013. He has held various roles in the Engineering department at Red Hills and is currently serving as the Engineering Manager. In the role of Engineering Manager, he has direct involvement with daily production operations and oversight and management of technical projects, and is directly involved in the development of the LOM finances at the Red Hills Mine.

Unless otherwise stated, the terms of reference for this TRS include:

- US English spelling;
- Imperial units of measurement;
- Lignite qualities are presented in weight percent (wt%) and lignite tonnages are present in short tons (2000 lbs);
- Coordinate System is presented in imperial units using the North American Datum 1983 (NAD83);
- Nominal US Dollars as of 2024.

This is the third TRS filed to the United States Securities and Exchange Commission (SEC) for MLMC. The previous TRS was dated March 10, 2023 and titled: "SEC S-K 1300 Technical Report Summary, Mississippi Lignite Mining Company – Red Hills Mine, Ackerman, Mississippi."

Key Acronyms and definitions for this TRS include:

AOP	Annual Operating Plan
AR	As-Received Basis
ARO	Asset Retirement Obligation
ASTM	American Society for Testing and Materials
BCY	Bank Cubic Yard
BMPs	Best Management Practices
BOX	Base of Oxidation
BUD	Beneficial (Ash) Use Determination
Cardno GLS	Cardno Geophysical Logging Services
Century GLS	Century Geophysical Logging Services
CGLP	Choctaw Generation Limited Partnership
COC	Chain of Custody
CRIRSCO	Committee for Mineral Reserves International Reporting Standards
DMRs	Discharge Monitoring Reports
DTM	Digital Terrain Model
EIS	Environmental Impact Statement
FoS	Factor of Safety
GEA	Geotechnical Engineering Associates
gpm	Gallons per Minute
GSE	Great Southern Engineering
HDPE	High Density Polyethylene
Lbs	Pounds
LOM	Life of Mine
LSA	Lignite Sales Agreement
M	Million (dollars)
MA1	Mine Area 1
MA3	Mine Area 3
MDA&H	Mississippi Department of Archives and History
MDEQ	Mississippi Department of Environmental Quality
MDOT	Mississippi Department of Transportation
MLMC	The Mississippi Lignite Mining Company
MMbtu	Metric Million British Thermal Units
MS-002 permit	Surface Mining Control and Reclamation Act (SMCRA) permit MS-002, Renewal 3
MS-004 permit	Surface Mining Control and Reclamation Act (SMCRA) permit MS-004
mg/L	Milligrams per Liter
msl	Mean Sea Level
Mt	Million Tons
MSU	Mississippi State University
MS	Mississippi
MVTL	Minnesota Valley Testing Laboratories, Inc.
NACCO	NACCO Industries, Inc.
NACCO NR	NACCO Natural Resources Corporation
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service

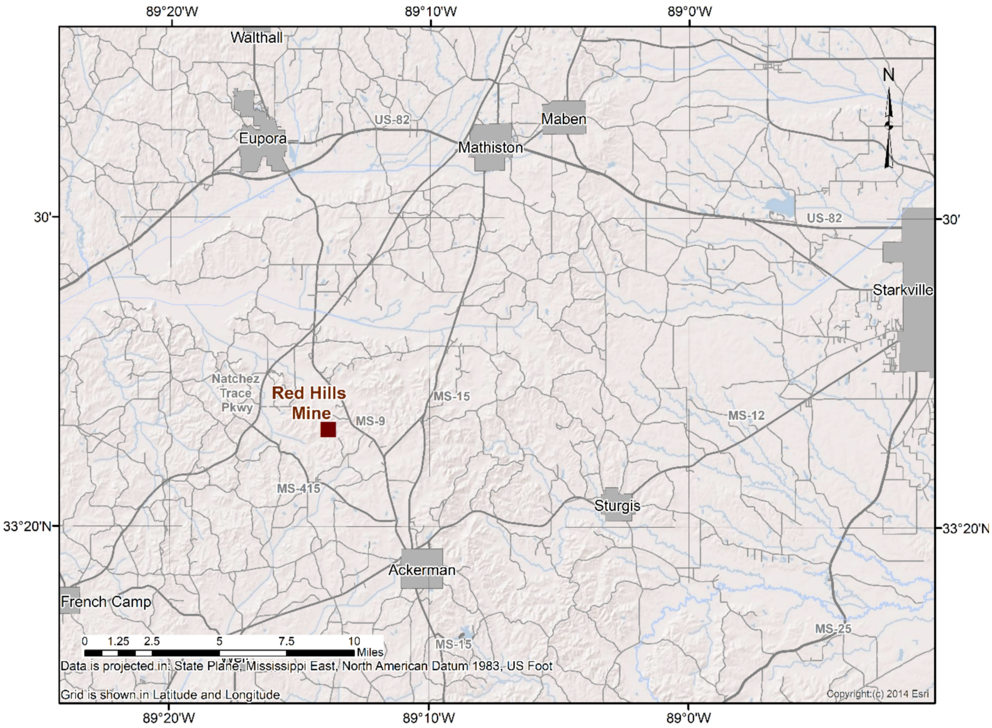
OSMRE	United States Department of the Interior, Office of Surface Mining Reclamation Enforcement
Phillips	Phillips Coal Company
Prox	Proximate
PPA	Power Purchase Agreement
QAR PTP	Proficiency Testing Program by Quality Assurance Resources, LLC
QA/QC	Quality Assurance/Quality Control
QP(s)	Qualified Person(s)
RHPP	Red Hills Power Plant
ROM	Run of Mine
R-O-W	Right of Way
SEC	United States Security and Exchange Commission
SG	Specific Gravity
S-K 1300	SEC's Subpart S-K 1300 (17 CFR Part 229.1300)
SMCRA	Surface Mining Control and Reclamation Act
SPGM	Suitable Plant Growth Material
SPT	Standard Penetration Testing
SWPPP	Storm Water Pollution and Prevention Plan
TDS	Total Dissolved Solids
TRS	Technical Report Summary
TSS	Total Suspended Solids
TVA	the Tennessee Valley Authority
USCOE	United States Corps of Engineers
USCS	Unified Soil Classification System
USGS	United States Geological Survey
WOTUS	Waters of the United States

3. Property Description

3.1. Property Location

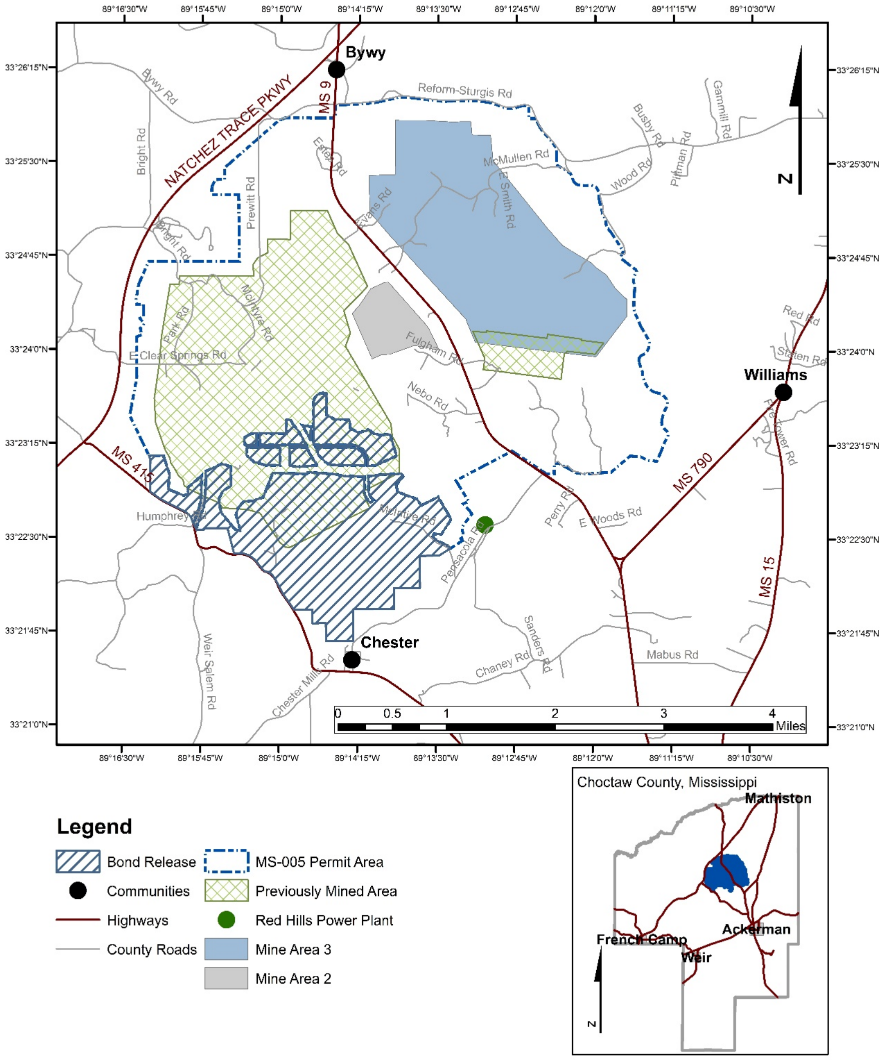
The Red Hills Mine is an operating lignite surface mine located approximately 7 miles northwest of Ackerman, Mississippi, in Choctaw County, which is approximately 120 miles northeast of Jackson, Mississippi (Figure 3.1).

Figure 3.1 Regional Location Map



The entrance to the mine is by means of a paved road that is located approximately 1 mile west of MS Highway 9 and can be found at 33° 22’ 26.3” N and 89° 13’ 23.5” W. The general location of the Red Hills Mine is shown in Figure 3.2. The RHPP is adjacent to the Red Hills Mine.

Figure 3.2 Location of the Red Hills Mine



3.2. Property Area

The Red Hills Mine is encompassed by one permit area, MS-005 as indicated in Figure 3.2. Both mineral resource areas, Mine Area 2 and Mine Area 3, fall within the MS-005 permit area. Mine Area 3 includes Mineral Reserves. Mine Area 2 is a small, permitted auxiliary pit which may be used for tons to supplement the mine plan, but is not currently sequenced in the LOM plan, and as such only includes Mineral Resources, not Mineral Reserves. Mine Area 2 is 202 acres, and Mine Area 3 is 2,060 acres.

MLMC holds leases granting the right to mine approximately 5,423 acres of coal interests and the right to utilize approximately 4,890 acres of surface interests. In addition to leases with independent landowners, MLMC owns in fee approximately 8,090 acres of surface interest and 5,150 acres of coal interest. MLMC holds subleases under which it has the right to mine approximately 1,683 acres of coal interest.

3.3. Leases and Mineral Rights

The name or number and expiration date of each title, claim, mineral right, lease, or option under which MLMC or an affiliated NACCO company has or will have the right to hold or operate on the property is described on Table 3.1 and Table 3.2.

The leases, sub-leases and fee acquisitions were obtained by land acquisition staff employed by Phillips and the Company. Most of the leases held by MLMC have terms extending 50 years and can be further extended by the continuation of mining operations. The surface and mineral leases and associated sub-leases held by MLMC require payments specified by lease agreement to retain the property. Typically, a standard production royalty rate of $0.50 per ton of lignite mined is tied to the leases. Royalties are estimated monthly based on surveyed mined tons and are paid to the landowners on a quarterly basis. In addition to production royalties, payments related to landowner leases may also include surface damage payments and/or advanced royalties.

Table 3.1 Identification of Leases

Lease Id	Lease Type	Lease Date	Lease Expiration Date
955-900002	Coal Lease	12/31/2013	12/30/2038
955-900003	Coal Lease	12/31/2013	12/30/2038
955-900004	Coal Lease	12/31/2013	12/30/2038
955-900005	Coal Lease	12/31/2013	12/30/2038
955-900006	Coal Lease	12/31/2013	12/30/2038
955-900007	Coal Lease	12/31/2013	12/30/2038
955-900008	Coal Lease	12/31/2013	12/30/2038
955-900009	Coal Lease	12/31/2013	12/30/2038
955-900010	Coal Lease	12/31/2013	12/30/2038
955-900011	Coal Lease	12/31/2013	12/30/2038
955-900012	Coal Lease	12/31/2013	12/30/2038
955-900013	Coal Lease	12/31/2013	12/30/2038
955-900014	Coal Lease	12/31/2013	12/30/2038
955-900015	Coal Lease	12/31/2013	12/30/2038
955-900016	Coal Lease	12/31/2013	12/30/2038
955-900017	Coal Lease	12/31/2013	12/30/2038
955-900018	Coal Lease	12/31/2013	12/30/2038

955-900019	Coal Lease	12/31/2013	12/30/2038
955-900023	Coal Lease	7/10/2015	7/9/2040
955-900024	Coal Lease	7/10/2015	7/9/2040
955-900025	Coal Lease	7/10/2015	7/9/2040
955-900026	Coal Lease	7/10/2015	7/9/2040
955-900027	Coal Lease	7/10/2015	7/9/2040
955-900028	Coal Lease	7/10/2015	7/9/2040
955-900029	Coal Lease	7/10/2015	7/9/2040
955-900030	Coal Lease	10/26/2015	10/25/2040
955-900031	Coal Lease	10/26/2015	10/25/2040
955-900032	Coal Lease	5/6/2016	5/5/2041
955-900033	Coal Lease	10/1/2017	9/30/2042
955-900038	Coal Lease	6/1/2019	5/31/2044
955-900042	Coal Lease	8/1/2022	7/31/2047
955-900043	Coal Lease	9/1/2023	8/31/2048
955-900044	Coal Lease	9/1/2023	8/31/2048
955-900045	Coal Lease	5/15/2024	5/14/2049
955-900046	Coal Lease	6/25/2024	6/24/2049
956-929485	Coal Lease	5/9/1975	5/8/2025
956-929508	Coal Lease	5/14/1975	5/13/2025
956-929588	Coal Lease	3/5/1981	3/4/2031
956-929589	Coal Lease	6/16/1975	6/15/2025
956-929597	Coal Lease	6/24/1975	6/23/2025
956-929599	Coal Lease	5/12/1975	5/11/2025
956-929603	Coal Lease	6/26/1975	6/25/2025
956-929646	Coal Lease	6/2/1975	6/1/2025
956-929743	Coal Lease	5/14/1975	5/13/2025
956-929744	Coal Lease	6/11/1975	6/10/2025
956-929745	Coal Lease	6/11/1975	6/10/2025
956-929748	Coal Lease	5/22/1978	5/21/2028
956-929749	Coal Lease	8/7/1975	8/6/2025
956-929750	Coal Lease	8/4/1975	8/3/2025
956-929751	Coal Lease	6/17/1975	6/16/2025
956-929755	Coal Lease	8/7/1975	8/6/2025
956-929757	Coal Lease	8/25/1975	8/24/2025
956-929759	Coal Lease	8/27/1975	8/26/2025
956-929801	Coal Lease	10/24/1974	10/23/2025
956-929802	Exploration Contract & Coal Lease	10/30/1974	10/29/2025
956-929803	Coal Lease	9/4/1975	9/3/2025
956-929835	Exploration Contract & Coal Lease	10/24/1974	10/23/2025
956-929839	Coal Lease	9/15/1975	9/14/2025
956-929841	Coal Lease	9/15/1975	9/14/2025
956-929842	Coal Lease	9/24/1975	9/23/2025

956-929910	Exploration Contract & Coal Lease	10/11/1974	10/10/2025
956-929911	Exploration Contract & Coal Lease	10/28/1974	10/27/2025
956-929955	Coal Lease	9/25/1975	9/24/2025
956-929956	Coal Lease	9/26/1975	9/25/2025
956-929957	Coal Lease	9/20/1975	9/19/2025
956-929958	Coal Lease	10/2/1975	10/1/2025
956-929959	Coal Lease	10/3/1975	10/2/2025
956-930068	Coal Lease	10/13/1975	10/12/2025
956-930187	Coal Lease	10/7/1975	10/6/2025
956-930280	Coal Lease	12/18/1975	12/17/2025
956-930367	Coal Lease	12/16/1975	12/15/2025
956-930413	Coal Lease	2/27/1976	2/26/2026
956-930414	Coal Lease	2/27/1976	2/26/2026
956-930474	Coal Lease	1/26/1976	1/25/2026
956-930480	Coal Lease	2/3/1976	2/2/2026
956-930482	Coal Lease	2/25/1976	2/24/2026
956-930483	Coal Lease	2/19/1976	2/18/2026
956-930488	Coal Lease	3/18/1976	3/17/2026
956-930493	Coal Lease	3/10/1976	3/9/2026
956-930494	Coal Lease	3/17/1976	12/31/2036
956-930495	Coal Lease	3/22/1976	3/21/2026
956-930497	Coal Lease	3/23/1976	3/22/2026
956-930499	Coal Lease	3/18/1976	3/17/2001*
956-930500	Coal Lease	3/8/1976	3/7/2026
956-930501	Coal Lease	3/31/1976	3/30/2026
956-930513	Coal Lease	4/21/1976	4/20/2026
956-930514	Coal Lease	4/21/1976	4/20/2026
956-930515	Coal Lease	4/13/1976	4/12/2026
956-930516	Coal Lease	5/1/1976	4/30/2026
956-930530	Coal Lease	5/4/1976	5/3/2026
956-930593	Coal Lease	3/16/1976	3/15/2026
956-931123	Coal Lease	4/11/1978	4/10/2028
956-931124	Coal Lease	4/11/1978	4/10/2028
956-931250	Coal Lease	8/14/1978	8/13/2028
956-931266	Coal Lease	1/19/1983	1/18/2008*
956-931267	Coal Lease	1/21/1983	1/20/2008*
956-931308	Coal Lease	6/25/1980	6/24/2030
956-931314	Coal Lease	7/31/1980	7/30/2030
956-931316	Coal Lease	8/12/1980	8/11/2030
956-931317	Coal Lease	9/11/1980	9/10/2030
956-931318	Coal Lease	9/18/1980	9/17/2030
956-931323	Coal Lease	10/8/1980	10/7/2030
956-931395	Coal Lease	7/29/1981	7/28/2031

956-931396	Coal Lease	8/24/1981	8/23/2031
956-931397	Coal Lease	8/24/1981	8/23/2031
956-931398	Coal Lease	2/10/1982	2/9/2032
956-931409	Coal Lease	7/31/1981	7/30/2031
956-931484	Coal Lease	5/10/1982	5/9/2032
956-931485	Coal Lease	5/10/1982	5/9/2032
956-931524	Coal Lease	10/8/1982	10/7/2032
956-931537	Coal Lease	12/13/1982	12/12/2032
956-931579	Coal Lease	5/2/1983	5/1/2008*
956-931677	Coal Lease	5/17/2000	5/16/2050
956-931705	Coal Lease	7/16/2001	7/15/2026
956-931706	Coal Lease	10/6/2005	10/5/2030
956-931708	Coal Excavation Lease	12/10/2007	12/9/2047
956-931709	Coal Lease	3/22/2010	3/21/2035
956-931710	Coal Lease	5/25/2011	5/24/2061
956-931711	Coal Lease	12/20/2012	12/19/2062
956-931712	Coal Lease	12/17/2012	12/16/2062
956-931713	Coal Lease	12/20/2012	12/19/2062
956-931714	Coal Lease	9/11/2013	9/10/2063
956-931716	Coal Lease	12/20/2013	12/19/2063
956-931718	Lignite Mining Lease	9/25/2013	9/24/2063
956-931719	Coal Lease	12/20/2013	12/19/2063
956-931723	Coal Lease	4/19/2016	4/18/2066
956-931724	Coal Lease	9/9/2016	9/8/2066
956-931728	Coal & Lignite Lease Agreement	11/14/2017	11/13/2047
956-931729	Coal Lease	11/16/2017	11/15/2067
956-931730	Lignite Mining Lease	12/18/2017	12/17/2067
956-931734	Coal Lease	9/28/2018	9/27/2043
956-931735	Coal Lease	1/23/2019	1/22/2044
956-931737	Coal Lease	3/13/2019	3/12/2069
956-931738	Coal Strip Mining Lease	10/25/2019	10/24/2034
956-931741	Protective Lease		
956-931742	Coal Lease	1/31/2021	1/30/2071
956-931743	Coal Lease	6/25/2021	6/24/2071
956-931746	Coal Lease	10/20/2023	10/19/2073

*Lease continued past expiration by annual payment.

Table 3.2 Identification of Acquisitions

Agreement Id	Agreement Type	Agreement Date	Agreement Expiration Date
957-MLC001	Warranty Deed	8/19/1998	8/18/2097
957-MLC002	Coal Warranty Deed	10/1/1997	12/31/2099
957-MLC003	Warranty Deed	9/17/1998	9/16/2097
957-MLC004	Warranty Deed	12/22/2000	12/21/2999
957-MLC005	Warranty Deed	9/20/2001	9/19/2100
957-MLC006	Warranty Deed	10/12/1998	12/31/2099
957-MLC007	Warranty Deed	10/1/2001	9/30/2100
957-MLC008	Warranty Deed	1/22/2002	1/21/2101
957-MLC009	Warranty Deed	1/22/2002	1/21/2101
957-MLC010	Warranty Deed	10/29/1996	10/28/2096
957-MLC011	Warranty Deed	6/1/1999	6/1/2099
957-MLC012	Warranty Deed	1/5/1999	1/5/2098
957-MLC013	Coal and Lignite Deed	7/8/2005	7/7/2104
957-MLC014	Special Warranty Deed	4/2/1998	4/1/2097
957-MLC015	Special Warranty Deed	8/11/1998	8/10/2097
957-MLC016	Warranty Deed	9/5/1998	12/31/2099
957-MLC017	Warranty Deed	1/24/2000	1/24/2099
957-MLC018	Warranty Deed	8/19/1998	8/19/2097
957-MLC019	Warranty Deed	1/24/2000	1/23/2099
957-MLC020	Warranty Deed	8/17/1998	8/16/2098
957-MLC021	Warranty Deed	6/30/1998	6/29/2097
957-MLC022	Warranty Deed	3/11/1998	3/10/2098
957-MLC023	Warranty Deed	2/25/2003	2/24/2102
957-MLC024	Warranty Deed	11/10/1998	11/9/2097
957-MLC025	Warranty Deed	11/24/1998	11/23/2097
957-MLC026	Warranty Deed	5/14/1999	5/13/2098
957-MLC027	Warranty Deed	4/8/1999	4/7/2098
957-MLC028	Warranty Deed	4/22/1999	4/22/2999
957-MLC029	Warranty Deed	7/7/1999	7/6/2098
957-MLC030	Warranty Deed	5/2/2003	5/1/2102
957-MLC031	Warranty Deed	5/5/2003	5/4/2102
957-MLC032	Warranty Deed	5/2/2003	5/1/2102
957-MLC033	Warranty Deed	7/8/2003	7/7/2102
957-MLC034	Warranty Deed	3/17/2004	12/31/2099
957-MLC035	Warranty Deed	7/16/2004	7/15/2103
957-MLC036	Warranty Deed	11/15/2004	12/31/2999
957-MLC037	Warranty Deed	2/18/2005	12/31/2999
957-MLC038	Warranty Deed	2/23/2005	2/22/2104
957-MLC039	Warranty Deed	4/8/2005	4/7/2104
957-MLC040	Warranty Deed	2/28/2006	2/27/2105

957-MLC041	Warranty Deed	6/28/2007	6/28/2106
957-MLC042	Warranty Deed	7/26/2006	7/25/2105
957-MLC043	Warranty Deed	10/28/2006	10/27/2105
957-MLC044	Warranty Deed	10/28/2006	10/27/2105
957-MLC045	Warranty Deed	10/27/2006	10/26/2105
957-MLC046	Warranty Deed	8/1/2007	7/31/2106
957-MLC047	Warranty Deed	11/20/2007	11/19/2106
957-MLC048	Special Warranty Deed	11/7/2007	11/6/2106
957-MLC049	Warranty Deed	11/26/2007	11/25/2106
957-MLC050	Warranty Deed	6/13/2008	12/31/2099
957-MLC051	Warranty Deed	9/4/2008	12/31/2099
957-MLC052	Warranty Deed	4/23/2009	12/31/2999
957-MLC053	Warranty Deed	12/21/2010	12/31/2999
957-MLC054	Warranty Deed	5/25/2011	12/31/2999
957-MLC055	Special Warranty Deed	6/27/2011	12/31/2999
957-MLC056	Special Warranty Deed	7/3/2011	12/31/2999
957-MLC057	Special Warranty Deed	7/8/2011	12/31/2999
957-MLC058	Warranty Deed	10/13/2011	12/31/2999
957-MLC059	Warranty Deed	10/13/2011	12/31/2999
957-MLC060	Warranty Deed	12/30/2011	12/31/2999
957-MLC061	Warranty Deed	7/17/2012	12/31/2099
957-MLC062	Warranty Deed	7/13/2012	12/31/2099
957-MLC063	Warranty Deed	7/13/2012	12/31/2099
957-MLC064	Warranty Deed	9/20/2012	12/31/2099
957-MLC065	Warranty Deed	12/6/2012	12/31/2999
957-MLC066	Warranty Deed	12/6/2012	12/31/2099
957-MLC067	Warranty Deed	12/3/2012	12/31/2099
957-MLC068	Warranty Deed	4/3/2013	12/31/2099
957-MLC069	Warranty Deed	12/20/2012	12/31/2099
957-MLC070	Warranty Deed	12/17/2012	12/31/2099
957-MLC071	Warranty Deed	12/14/2012	12/31/2099
957-MLC072	Warranty Deed	12/14/2012	12/31/2099
957-MLC073	Warranty Deed	12/20/2012	12/31/2099
957-MLC074	Warranty Deed	12/20/2012	12/31/2099
957-MLC075	Warranty Deed	10/5/2012	12/31/2099
957-MLC076	Warranty Deed	4/3/2013	12/31/2099
957-MLC077	Warranty Deed	5/3/2013	12/31/2099
957-MLC078	Warranty Deed	6/13/2013	12/31/2999
957-MLC079	Warranty Deed	6/14/2013	12/31/2099
957-MLC080	Warranty Deed	9/11/2013	12/31/2099
957-MLC081	Special Warranty Deed	12/31/2013	12/31/2999
957-MLC082	Special Warranty Deed	12/31/2013	12/31/2099
957-MLC084	Warranty Deed	12/20/2013	12/31/2099

957-MLC085	Quit Claim Deed	7/10/2015	12/31/2099
957-MLC086	Quit Claim Deed	7/10/2015	12/31/2999
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957-MLC088	Warranty Deed	12/20/2013	12/31/2999
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957-MLC094	Quit Claim Deed	7/10/2015	12/31/2099
957-MLC095	Quit Claim Deed	7/10/2015	12/31/2099
957-MLC096	Quit Claim Deed	10/26/2015	12/31/2099
957-MLC097	Quit Claim Deed	10/26/2015	12/31/2099
957-MLC098	Quit Claim Deed	10/26/2015	12/31/2099
957-MLC099	Quit Claim Deed	5/6/2016	12/31/2099
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957-MLC101	Quit Claim Deed	9/1/2016	12/31/2099
957-MLC102	Quit Claim Deed	9/1/2016	12/31/2099
957-MLC103	Quit Claim Deed	6/1/2017	12/31/2099
957-MLC105	Quit Claim Deed	5/15/2024	12/31/2099
957-MLC109	Quit Claim Deed	10/1/2017	12/31/2099
957-MLC111	Quit Claim Deed	6/1/2019	12/31/2099
957-MLC112	Quit Claim Deed	4/1/2020	12/31/2099
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609-RML062	Warranty Deed	12/31/2013	12/31/2099
609-RML063	Warranty Deed	12/31/2013	12/31/2099
609-RML064	Warranty Deed	12/31/2013	12/31/2099
609-RML065	Warranty Deed	12/31/2013	12/31/2999
609-RML066	Warranty Deed	12/31/2013	12/31/2099
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609-RML069	Warranty Deed	12/31/2013	12/31/2099
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609-RML077	Warranty Deed	12/31/2013	12/31/2099
609-RML078	Warranty Deed	12/31/2013	12/31/2999
609-RML079	Warranty Deed	12/31/2013	12/31/2099

609-RML080	Warranty Deed	12/31/2013	12/31/2099
609-RML081	Special Warranty Deed	9/10/2013	12/31/2999
609-RML082	Warranty Deed	9/10/2013	12/31/2099
609-RML084	Warranty Deed	7/10/2015	12/31/2099
609-RML085	Warranty Deed	12/20/2013	12/31/2099
609-RML086	Warranty Deed	12/20/2013	12/31/2999
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609-RML089	Warranty Deed	12/20/2013	12/31/2099
609-RML091	Warranty Deed	2/21/2014	12/31/2099
609-RML092	Warranty Deed	7/21/2014	12/31/2099
609-RML094	Warranty Deed	10/16/2014	12/31/2099
609-RML095	Warranty Deed	2/19/2015	12/31/2099
609-RML096	Quit Claim Deed	6/8/2015	12/31/2099
609-RML097	Warranty Deed	6/25/2015	12/31/2099
609-RML098	Warranty Deed	6/25/2015	12/31/2099
609-RML099	Warranty Deed	8/12/2015	12/31/2099
609-RML100	Warranty Deed	4/8/2016	12/31/2099
609-RML101	Warranty Deed	4/8/2016	12/31/2099
609-RML102	Warranty Deed	5/8/2016	12/31/2099
609-RML103	Warranty Deed	9/9/2016	12/31/2099
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609-RML109	Warranty Deed	8/23/2017	12/31/2099
609-RML110	Warranty Deed	8/28/2017	12/31/2099
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609-RML113	Warranty Deed	1/26/2018	12/31/2099
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609-RML126	Warranty Deed	6/15/2021	12/31/2099
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609-RML128	Warranty Deed	11/18/2021	12/31/2099
609-RML129	Warranty Deed	12/23/2021	12/31/2099
609-RML130	Warranty Deed	02/07/20222	12/31/2099
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609-RML144	Warranty Deed	09/27/2022	12/31/2099
609-RML145	Warranty Deed	09/28/2022	12/31/2099
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609-RML147	Warranty Deed	09/29/2022	12/31/2099
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609-RML149	Warranty Deed	09/30/2022	12/31/2099
609-RML150	Warranty Deed	09/30/2022	12/31/2099
609-RML151	Warranty Deed	09/30/2022	12/31/2099
609-RML152	Warranty Deed	09/30/2022	12/31/2099
609-RML153	Warranty Deed	10/01/2022	12/31/2099
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609-RML156	Warranty Deed	10/01/2022	12/31/2099
609-RML157	Warranty Deed	10/01/2022	12/31/2099
609-RML158	Warranty Deed	10/01/2022	12/31/2099
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609-RML168	Warranty Deed	3/17/2023	12/31/2099

609-RML169	Warranty Deed	5/24/2023	12/31/2099
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609-RML171	Warranty Deed	10/31/2023	12/31/2099
609-RML172	Warranty Deed	12/26/2023	12/31/2099
609-RML173	Warranty Deed	3/14/2024	12/31/2099

3.4. Significant Encumbrances to the Property

The Red Hills Mine currently has no significant encumbrances to the property. No mining permit violations have been issued at the Red Hills Mine in the past ten years. One NOV was issued in April 2020 for a water quality exceedance that was determined to not be the fault of Red Hills Mine and no further action was required. A second NOV was issued in June, 2022 for a water sampling violation. Both NOVs were not related to the mining permit. Permitting requirements are discussed in Section 17.0 of this TRS.

3.5. Significant Factors and Risks

MLMC has not identified any significant risks that may affect the right or ability to perform work on the property. However, if a lease were to expire and MLMC had not yet noticed this property for disturbance by mining activities, the landowner may choose not to release this property for mining.

3.6. Registrant Royalties and Interests

Discussed in Section 3.3 of this TRS.

4. Accessibility, Climate, Local Resources, Infrastructure, and Physiography

4.1. Physiography, Topography and Vegetation

The Red Hills Mine, located in Choctaw County, Mississippi, is part of the "red hills phase" of the North Central Hills physiographic province. The region is characterized by dissected upland hills and relatively wide flats in the major stream drainages. The maximum relief of the Red Hills Mine is approximately 280 feet (msl), with the elevation ranging from 360 feet (msl) in the Big Bywy drainage in the north to nearly 640 feet (msl) in the Tertiary upland ridge tops in the southeastern area of the Red Hills Mine.

The Soil Survey of Choctaw County indicate the land-use of the county is approximately 73-percent commercial forestland. Vegetative baseline studies of the permitted areas further indicate the prominent vegetation of the Red Hills Mine to be forested pine plantations along with managed pine habitats which include prepared clearcuts and areas with young, planted pine. Other vegetative designations include deciduous forest, grassland, cropland, and residential lawns.

4.2. Accessibility

Local access to the Red Hills Mine is by way of Highway 9 between Ackerman, Mississippi and Eupora, Mississippi which connects to Pensacola Road that leads to the Red Hills Mine paved access road. Pensacola Road connects with Highway 9 approximately 5 miles north of Ackerman, MS. The mine road is approximately 1 mile west from Highway 9 along Pensacola Road.

Travel to the Red Hills Mine by air is possible using the Jackson-Medgar Wiley Evers International Airport in Jackson, Mississippi, approximately 104 miles south of the mine, and then using ground transportation, traveling via Highway 25, Highway 15, and Highway 9. Alternatively, the Golden Triangle Regional Airport is a smaller airport approximately 50 miles from the Red Hills Mine by means of Highway 82 west, Highway 15 south, and Highway 9 north.

The Red Hills Mine is in close proximately to river ports of the Tennessee-Tombigbee Waterway and the Mississippi River. The Lowndes County Port is approximately 60 miles east of the mine. The Port of Greenville is approximately 135 miles west of the mine, and the Port of Vicksburg, approximately 150 miles southwest of the mine. All ports are connected by major state and federal highways.

In additional to transportation via roadways, air and waterways, the Kansas City Southern (KCS) railroad has a depot located approximately 5 miles south of the mine in Ackerman and is accessible by Highway 9 and Highway 15.

4.3. Climate

The climate of the Red Hills Mine varies seasonally with a warm, humid summer and a generally mild, humid winter. The Red Hills Mine operates through all seasons. Heavy precipitation events may temporarily slow production. Nearby Ackerman, Mississippi has the following climate (Climate in Ackerman, Mississippi, 2024):

- 56 inches of rain annually, on average
- One inch of snow per year
- 96 days per year with some sort of precipitation
- 217 sunny days per year
- Temperatures: July High: 90°F; January Low: 31°F

4.4. Local Resources and Infrastructure

The towns of Ackerman, Eupora, Starkville, Louisville, Kosciusko, and numerous smaller communities are within a 40-mile radius of the Red Hills Mine and provide a vast employment base. Furthermore, Mississippi State University (MSU) is located approximately 30 miles east of the mine in Starkville. MLMC has a history of partnership with MSU as well as the local community colleges for science, technology, engineering, and mathematics (STEM) research and skilled trades training.

The Red Hills Mine sources power for mine office facilities and operations from 4-County Electric Power Association, and water for the mine office facilities from the Reform Water Association. Fuel for equipment is supplied by a local vendor. Most supplies to operate the mine are within the region. The Red Hills Mine has, or is currently constructing, all supporting infrastructure for mining operations through the LOM plan. See Section 15.0 of the TRS for further detail pertaining to the mine specific infrastructure.

5. History of the Property

The Red Hills Mine began operations in the MS-002 permit area in Mine Area 1 and is currently mining in Mine Area 3 within the MS-005 permit area. Initial development of the Red Hills Mine began in 1998, with full production and commercial deliveries commencing in 2002. Boxcut construction for Mine Area 3 began in 2021 where mining will continue through April 2032. The Red Hills Mine has, or is currently constructing, all supporting infrastructure for mining operations within the permitted areas.

Excluding the partial year of 2001 and 2024 (due to plant issues), the average tons sold from 2002-2024 was 3.1 million tons/year. Table 5.1 shows the historical production for Red Hills Mine.

Table 5.1 Historical Production

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Tons Sold (000 ton)	500	2,900	3,700	3,600	3,600	3,600	3,400	3,000	3,700	3,600	2,700	3,100

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Tons Sold (000 ton)	3,200	2,600	3,200	3,000	2,400	3,000	2,600	2,500	3,000	3,200	2,900	1,900

5.1. Previous Operations

There are no previous mining operations on the Red Hills Mine property.

5.2. Exploration and Development History Prior to MLMC

Original exploration of the Red Hills Mine area was conducted by Phillips from 1975 to 1980. Phillips contracted independent drilling services to drill and geophysically log over 800 boreholes. The data collected from the Phillips' drilling exploration was the basis of the Red Hills Project, which included the Red Hills Mine and the RHPP.

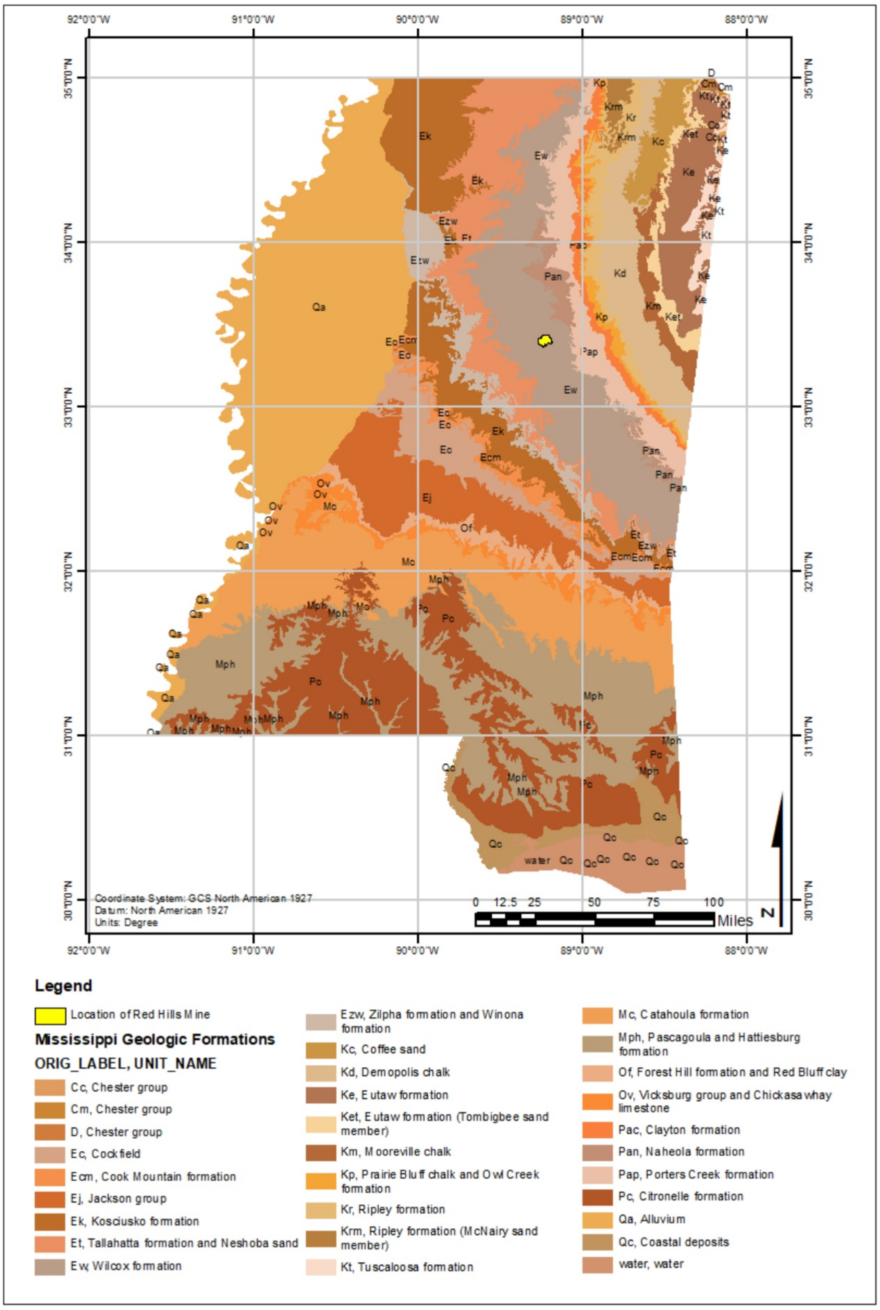
6. Geological Setting, Mineralization and Deposit

6.1. Geology

6.1.1. Regional Geology

The Red Hills Mine is in the Wilcox Group of Mississippi (Figure 6.1) which is the most prolific lignite-bearing stratum in the state of Mississippi. The Wilcox Group and underlying Midway Group were deposited during Paleogene time; 66 to 23 million years ago. The most prominent characteristics of the Wilcox Group formations are the cyclical deposition and lateral persistence of the lithologic units, especially the lignite seams. The stratigraphy of the Wilcox Group is depicted on Figure 6.2. The section from the Gravel Creek Member through the Tuscahoma Formation represents a transition from a transgressive sequence of valley fill, marginal marine strata (lower Gravel Creek) to predominantly regressive, nonmarine, deltaic strata (upper Gravel Creek through the Tuscahoma).

Figure 6.1 Geologic Formations of Mississippi (Dicken, Nicholson, Horton, Foose, & Mueller, 2005)



During each depositional geologic sequence, organic material was repeatedly buried by sediment in an ideal, oxygen-free environment. This ideal environment was attributed to the humid, subtropical conditions and high water-table of wetlands present during Paleogene time which prevented plant matter from decaying prior to burial. The oxygen-free environment combined with heat and pressure from continual deposition of overlying sediments allowed for the formation of peat and further mineralization of lignite over time by undergoing a process known as humification and biochemical gelification.

The regional structural geology is fairly consistent. The regional strike is northwest-southeast. The strata are nearly flat lying, dipping to the southwest at only 25 to 35 feet per mile. No evidence of any significant faulting has been observed in the region.

6.1.2. Local and Property Geology

The average thickness of the Wilcox section containing the mineable lignite seams at the Red Hills Mine and surrounding area is approximately 140 feet (Figure 6.2). Vertical repetition of the geological characteristics results in a straightforward depositional setting facilitating comprehensive analysis of the geological, as well as the geochemical, geotechnical, and geohydrological baseline conditions of the Red Hills Mine.

Following the regional geology, trends in lignite seam sulfur content at the Red Hills Mine support a geologic transition from marine to nonmarine environments. Increased sulfur values are generally associated with marine influences. The C-seam marks a transition from higher sulfur below to lower sulfur contents above.

The local structural geology for the Red Hills Mine also follows the regional structure with a northwest-southeast strike dipping to the southwest. The lignite seams are gently undulating due to differential compaction of the underlying sediments. Small, localized faults have been encountered within the lignite seams while mining through Mine Area 1, and are anticipated to be encountered in Mine Area 3. These faults have been discontinuous and the seam displacement has typically been less than 10 feet. The faults have not materially affected mining or production at the Red Hills Mine.

Since mining began, no unique or especially significant geological features, formations, or paleontological resources have been identified at the Red Hills Mine. No known workings of active, inactive, or abandoned underground mines have been identified. Additionally, no fatal flaws related to geological conditions have been identified.

6.2. Mineral Deposit Type

The Red Hills Mine is solely focused on mining lignite from the project area. Details on the geological units encountered at the Red Hills Mine are described below and shown in Figure 6.1:

6.2.1. Gravel Creek Member

The top of the Gravel Creek Member of the Nanafalia Formation (Wilcox Group) lies just below the C-seam and includes a thin sand layer directly beneath the C-seam. The C-seam is currently the lowest lignite seam stratigraphically mined. However, upon further exploration, the B-seam may be mined in the future, particularly in areas with low laying terrain within Mine Area 3.

A basal sand unit, of up to 100 feet in thickness or more, characterizes the Gravel Creek Member. From the limited drill hole data that extends through this member, it appears that these sand units can be fairly widespread, but also may be completely absent. On the geophysical logs and limited cuttings data, the sand unit typically appears to be fairly massive and poorly- to well-sorted, fine- to medium-grained sand. These sand units, along with the sands in the underlying Coal Bluff Formation (Midway Group) are often referred to as the Lower Wilcox aquifer.

Above this basal sand are interbedded silt, clay, sand and lignite (A-seam). Due to the relative depth, anticipated lower quality, and closer proximity to the basal sands, the A-seam is not currently considered a resource targeted for mining.

6.2.2. Grampian Hills Member

Five of the six lignite seams recovered at Red Hills Mine are contained in the Grampian Hills Member of the Nanafalia Formation (Wilcox Group). The formation conformably overlies the Gravel Creek Member and consists of interbedded and interlaminated clays, silts, sands, and lignite. Overall, the section is relatively sand poor.

The clays and silts are typically finely interlaminated. Munsell color varies from dark gray (N 4/ to N 5/) to greenish gray (10BG 5/1). Immediately below the lignite seams, the color is dark grayish brown (10YR 4/2) due to the presence of carbonaceous fragments. These carbonaceous layers often contain lignitized plant roots establishing an autochthonous origin for the peats that formed the lignite seams.

The sands are light gray (2.5Y 7/1) to gray (N 5/) or greenish gray (5GY 5/1). The pale greenish-gray color of many of the sands and silts is a distinctive feature of this unit. Typically, the sands are very-fine-grained, and commonly interbedded with silts and clays. One exception is the tabular sand bed between the D-seam and C-seam. The sand units between the D-seam and G-seam are typically silty, infrequent, lenticular, and probably represent narrow sand channels in the crevasse splay sequences that were penecontemporaneous with peat accumulation. Sand and silty sands compact much less than silts and clays. This phenomenon is probably the chief cause of the gentle structural undulations found in the lignite seams.

Cemented horizons, commonly referred to as “hard streaks”, are also associated with the sand units. These indurated zones are most abundant within the sand channels and the silty, sandy natural levee deposits flanking the channels. The thickness of these hard streaks ranges from less than one foot to about two feet. These zones are cemented with calcite, silica, iron oxide, or siderite, and are suggestive of periods of sub-areal oxidizing conditions during deposition. Modern analogies in the natural levee deposits of the Mississippi Delta have been noted.

The color of the lignite seams ranges from black (N 2.5/) to very dark gray (10Y 3/1). Occasional layers of carbonaceous clay or zones of clay clasts increase the ash content of the lignite. The minimum thickness for recovery is one foot. The maximum thickness of the lignite seams is about eight feet.

6.2.3. Tuscahoma Formation

The Tuscahoma Formation (Wilcox Group) conformably overlies the Grampian Hills Member of the Nanafalia Formation. The basal portion of this formation is the uppermost stratum to be disturbed by mining. The base of the Tuscahoma is marked by a predominantly sandy, often coarse-grained unit with a variable thickness of 10 feet to 110 feet. The variability is due to the occurrence of contemporaneously bedded clay, silt, and lignite. Laterally, these sands grade into finer grained overbank deposits including lignite seams. The overbank facies of the Tuscahoma are essentially identical to the descriptions for the Grampian Hills Member described above.

The H-seam, which is the uppermost seam that will be consistently recovered, lies at the base of the Tuscahoma. Because of its relatively high stratigraphic position, the H-seam is restricted to the upland areas above approximately 450 feet in elevation within the Red Hills Mine. Other lignite seams lying above the H-seam, including the H2-seam and the I-seam, may be encountered on occasion and are mined when seam thickness and quality are sufficient.

6.3. Stratigraphic Column

A typical stratigraphic column is shown on Figure 6.2 while a planer view of two cross sections is included on Figure 6.3. Geologic cross section E-W2 and geologic cross section C-C' are included as Figure 6.4 and Figure 6.5, respectively. The cross-sections were constructed primarily based on the drill hole geophysical logs supplemented with lithology descriptions from the drill cuttings, as well as the data from the core holes. The stratigraphic framework of the geologic cross sections follows the detailed surface mapping and subsurface investigations completed by the MDEQ, Office of Geology.

Figure 6.2 Stratigraphic Column of the Red Hills Mine

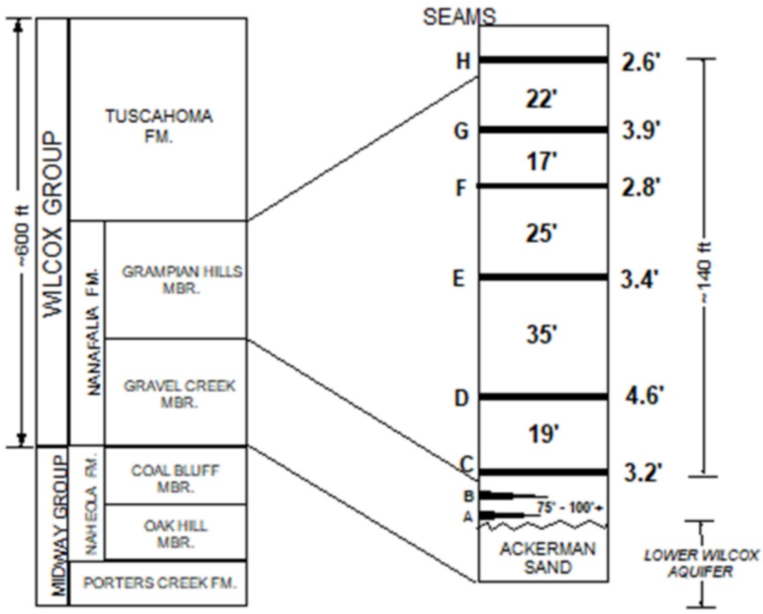


Figure 6.3 Geologic Cross Sections planer reference

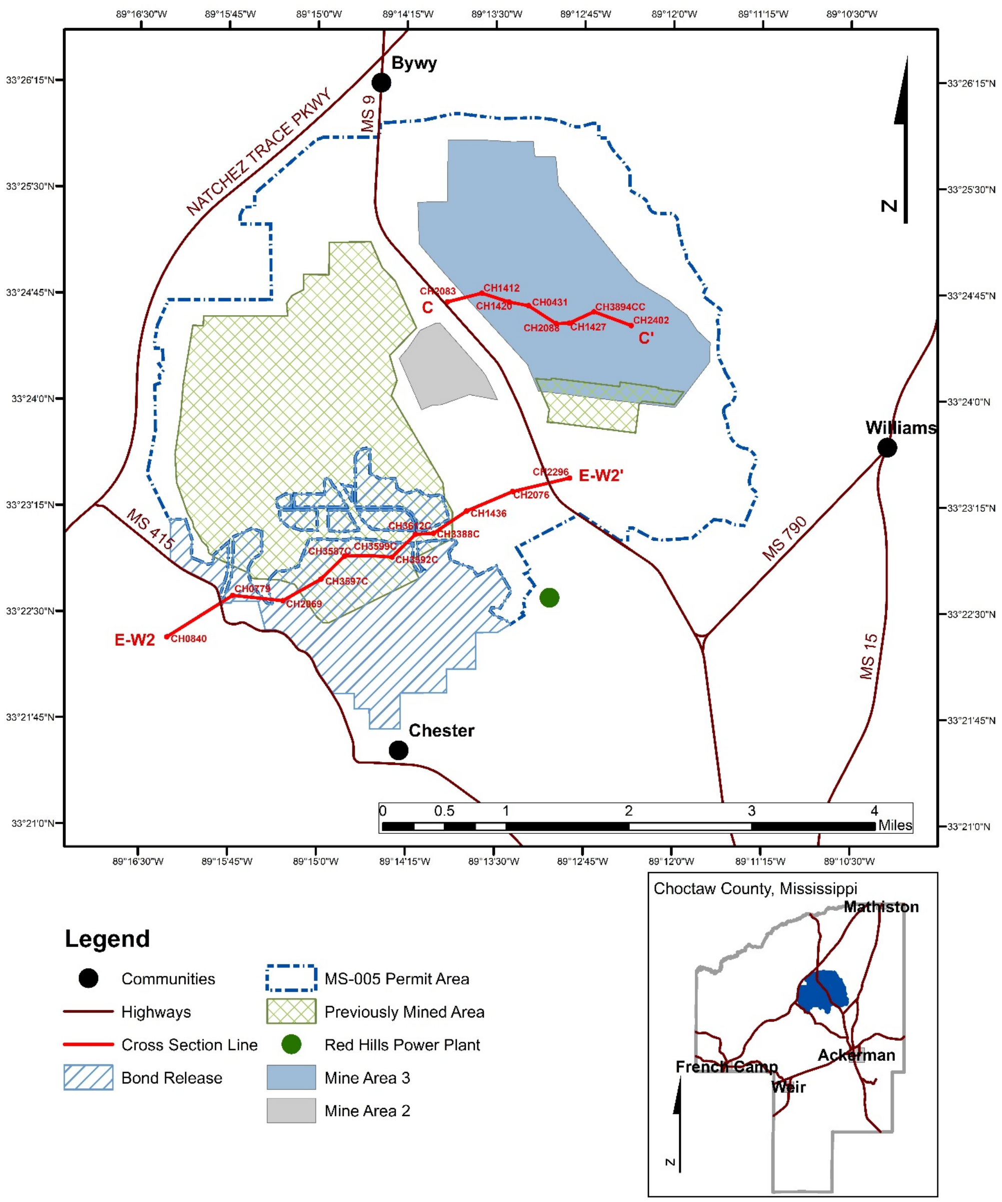


Figure 6.4 Geologic Cross Section E-W2 (Excerpted from SMCRA permit MS-005, Appendix 2509-6)

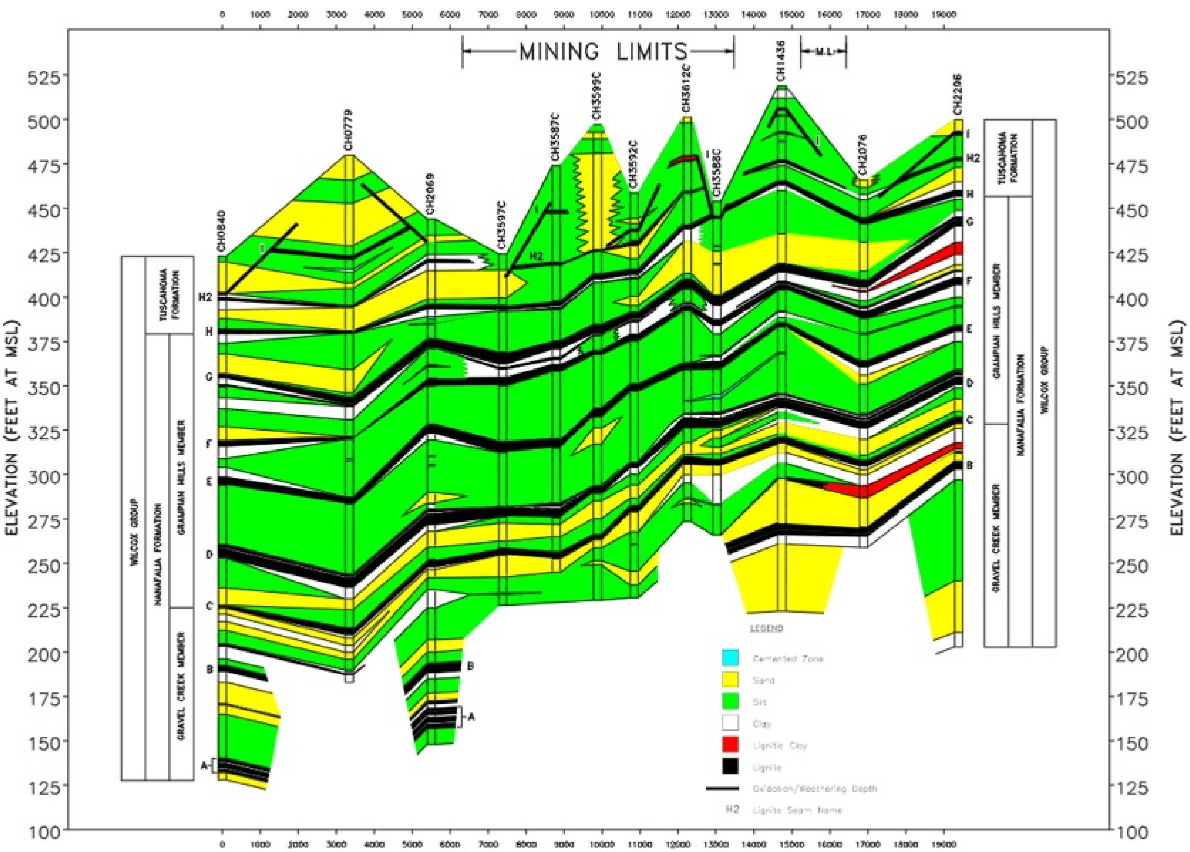
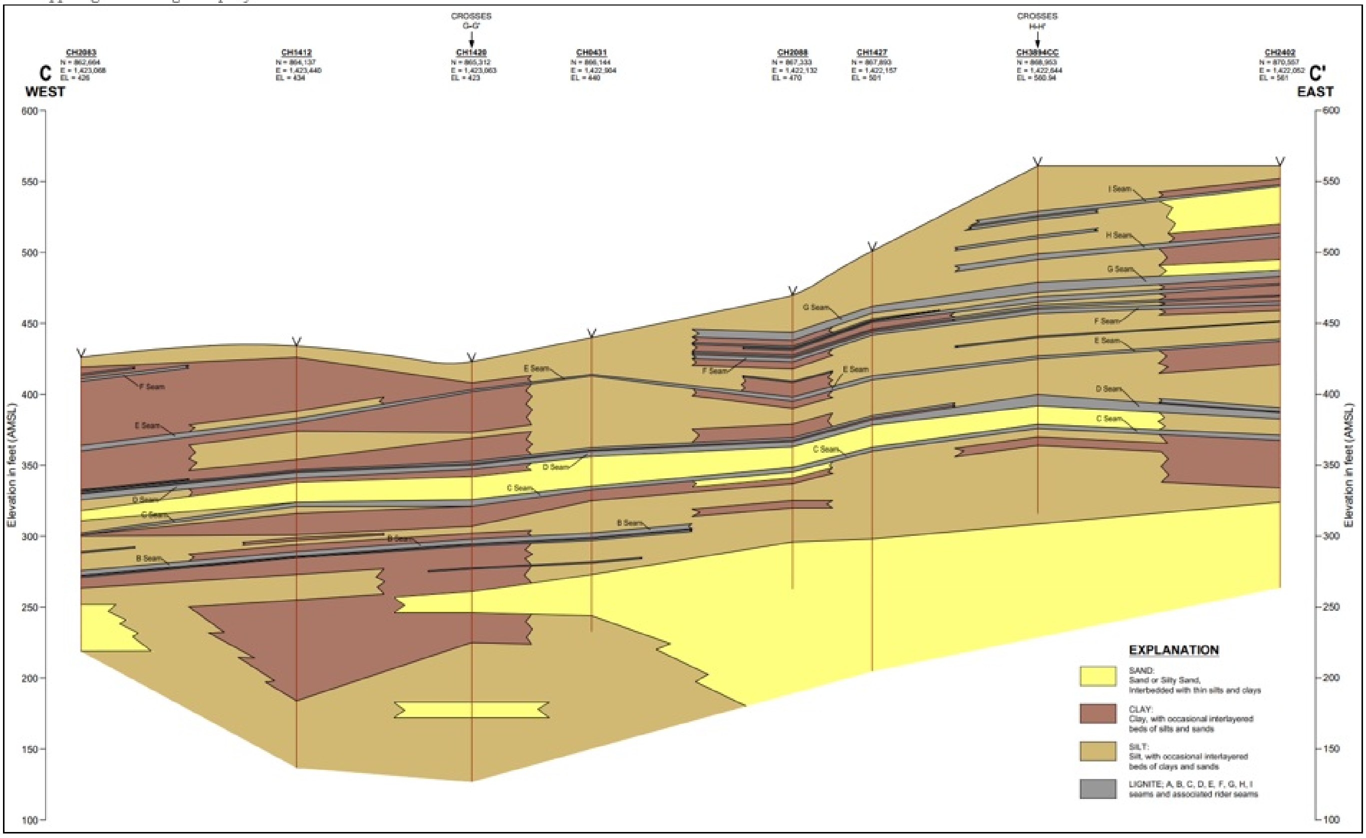


Figure 6.5 Geologic Cross Sections C-C' (Excerpted from SMCRA permit MS-005, Appendix 2509-6)



7. Exploration

7.1. Exploration

No exploration work other than drilling and associated geophysical logging has been conducted at the Red Hills Mine. Geophysical logging is discussed with drilling in Section 7.2 of this TRS.

7.2. Drilling Exploration

Data collected during drilling exploration programs at the Red Hills Mine is the sole information available for modeling the lignite deposit for the determination of Mineral Resources. Coal core drilling following the U.S. Geological Survey's (USGS) guidance for sampling coal for chemical analysis is the exclusive method used by Red Hills Mine for modeling quality of the lignite deposit. The Red Hills Mine lignite deposit is evaluated on a seam by seam basis. Drilling exploration data including geologic lithologies, qualities, and hole locations have been compiled electronically in Excel files. Cross sections produced from drill hole data are shown in Section 6.3 of this TRS. The information below summarizes the various drilling programs.

7.2.1. Drilling Type and Extent

Drilling exploration programs conducted at the Red Hills Mine have comprised largely of rotary wash drilling methods. Historically, MLMC has contracted independent drilling services and geophysical logging services to operate under the guidance and direction of MLMC. Drill holes completed at the Red Hills Mine are vertical in orientation and have been broken into four categories which are described below. A drill hole location map for the Red Hills Mine is presented in Figure 7.1.

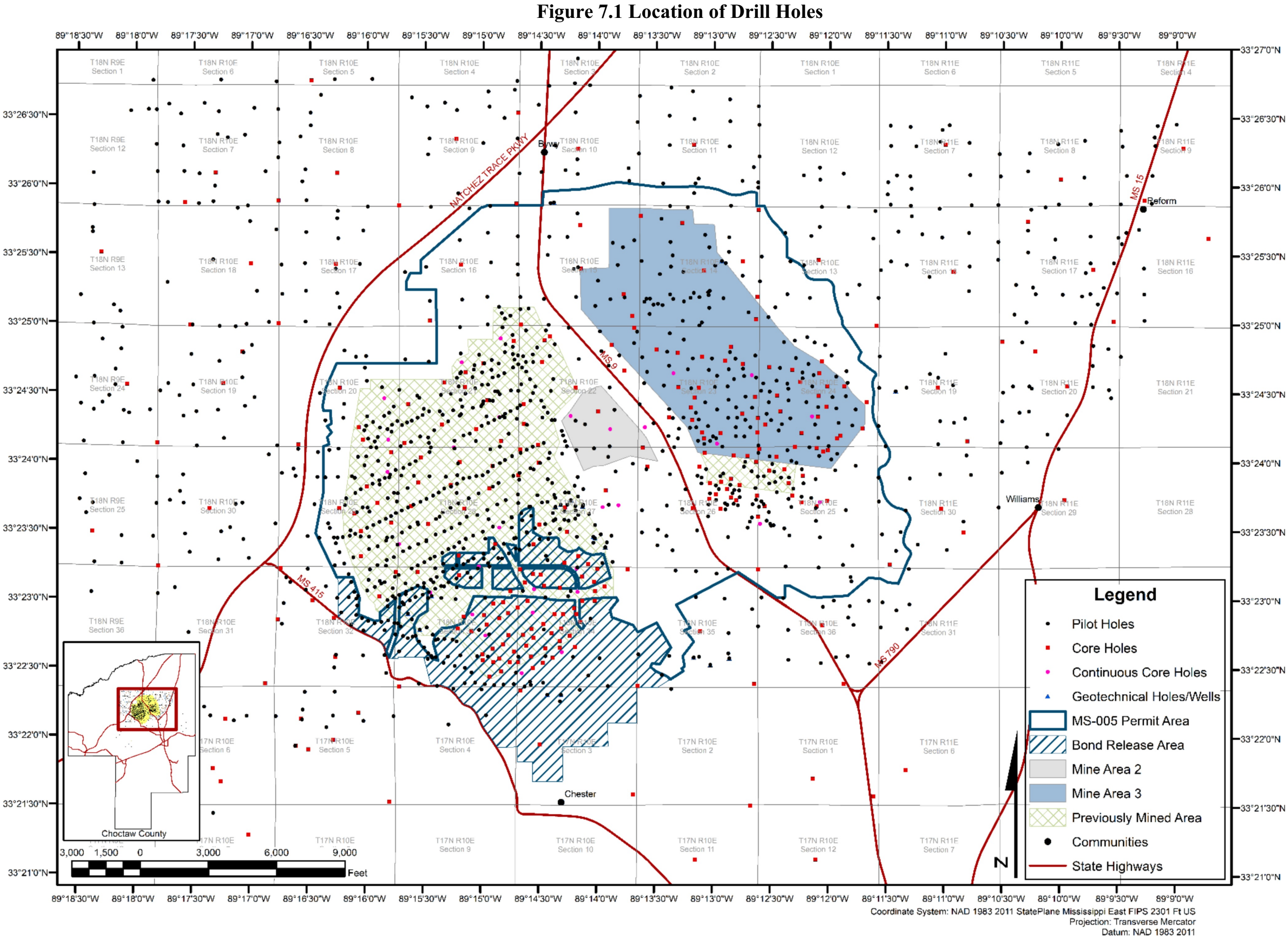
Exploratory drill holes, also referred to as pilot holes, typically range in size from 4.0 to 4.5-inches outer hole diameter (od) and terminate at a minimum of 10-feet below the lowest targeted lignite seam as specified by the geologist. Drill hole cuttings are typically recovered by the driller, in accordance with established drilling and sampling protocols, on a 5 or 10-foot interval and are described by the geologist. All pilot holes are geophysically logged by an independent geophysical logging contractor for natural gamma, density, caliper, and resistivity responses. Related drilling data has been reviewed by the QP for inclusion in the geologic model.

Coal core holes to collect samples for quality testing are advanced next to pilot holes at specified locations in accordance with protocols described herein. Core holes are typically 6.5-inches (od) or 4.25-inches (od) with a respective sample diameter of 3-inches (od) or 2.125-inches (od). Samples are collected with a double core barrel or Shelby tube sampler. Coring intervals are determined by the geologist based on the pilot hole's geophysical log and cuttings descriptions. Core holes terminate 10-feet below the lowest targeted lignite seam. Typically, coal cores from the drilling campaigns at the Red Hills Mine are fully recovered. The minimum core recovery accepted is 90-percent (see Section 8 for discussion on sample preparation). Coal core data have been reviewed by the QP for inclusion in the geologic model.

Overburden core holes, or continuous cores, are drilled following protocols similar to the coal cores as described above. Rather than specifying specific intervals to collect coal cores for quality testing, overburden cores are advanced in continuous ten-foot core sections using a double core barrel or Shelby tube sampler from top of hole to bottom of hole such that the geologist can log and sample burdens in addition to lignite. Burden (overburden and interburden) samples are shipped to a separate independent soil laboratory for geochemical analysis. Overburden cores require 75-percent total run recovery for soil analysis, while coal core intervals require a minimum of 90-percent recovery within continuous core runs, such that parameters outlined for coal core collection previously are maintained. Data specific to the coal cores collected during these continuous core sampling programs have been reviewed by the QP for inclusion in the geological model.

The fourth, and final, category of drill holes are comprised of geotechnical holes and monitoring wells which have been geophysically logged and extend through multiple coal seams. These drill holes follow the parameters outlined for pilot holes and available data has been reviewed by the QP.

Figure 7.1 Location of Drill Holes



7.2.2. General Drilling Procedures

Details may vary with each exploration program and are discussed in the next subsection, however general procedures for drilling at Red Hills Mine include:

- Identification of land control; acquire drilling leases for properties not owned or previously leased and noticed.
- Site preparation.
- Rotary wash drilling by an independent drilling contractor; typically, cuttings are collected every 5-feet until a depth of 30-feet is reached then cuttings are collected every 10-feet to final depth.
- Geologist logs description of cuttings including depth, texture, general color.
- Independent contractor geophysically logs drill hole for natural gamma, density, caliper, and resistivity.
- Geologist reviews geophysical log.
- Hole determined complete and abandoned by independent drilling contractor in accordance with state regulatory requirements.
- Survey drill hole collar location.

To continue with a coal core hole:

- Coring intervals are determined by the geologist from pilot hole geophysical log.
- Coal core drilling by an independent drilling contractor.
- Core extracted from barrel by independent drilling contractor and placed in logging tray.
- Geologist cleans core sample of drilling mud, measures the core length and identifies the roof and floor. If an acceptable length of core is not recovered, independent drilling contractor may attempt to retrieve the remaining core from the current hole. If no success, the core run interval will be “re-cored” as an additional core hole. After sufficient attempts have been made to re-core the interval, the geologist may accept a core recovery of 90-percent.
- Geologist logs the core including depths, fractures, texture, color, and characteristics of the lignite.
- Geologist double bags and double tags sample.
- Once all intervals are cored, independent contractor geophysically logs drill hole.
- Geologist reviews geophysical log.
- Hole determined complete and abandoned by independent drilling contractor in accordance with state regulatory requirements.
- Survey drill hole collar location.

Additional drilling tasks include:

- Maintaining daily drilling report and record of collected samples.
- Proper storage of lignite core samples in secure location of the mine office and transfer to the warehouse to prepare for shipment to laboratory.

Samples are sent to laboratories independent of NACCO for analyses. Table 7.1 list testing laboratories and certifications/accreditations held used in the preparation of information contained in this TRS.

Table 7.1 Independent Testing Laboratories

Laboratory	Location	Services	Certification/Accreditation
Aquaterra Engineering, LLC.	Jackson, MS	Independent geotechnical services	Unknown
Burns Cooley Dennis, Inc.	Ridgeland, MS	Independent geotechnical services	AASHTO
Core Laboratories, Inc.	Tyler, TX	Independent analytical services	Unknown
ETC Laboratory (Waypoint Analytical)	Memphis, TN	Independent analytical services	NELAP
Geoscience Engineering, LLC.	Jackson, MS	Independent geotechnical services	Unknown
Inter-Mountain Laboratories, Inc.	College Station, TX	Independent analytical services	Unknown
Minnesota Valley Testing Laboratories, Inc.	Bismarck, ND	Independent analytical services	ISO 17025
Mississippi State Chemical Laboratory	Mississippi State, MS	Independent analytical services	ISO/IEC 17025:2017
Pritchard Engineering	Columbus, MS	Independent geotechnical services	Unknown
Soil Engineering Testing	Bloomington, MN	Independent geotechnical services	AASHTO
Standard Laboratories, Inc.	Casper, WY	Independent analytical services	ISO 17025
Terracon	Jackson, MS	Independent geotechnical services	AASHTO

7.2.3. Drilling Exploration Programs

Numerous drilling exploration programs have been conducted at the Red Hills Mine. Over 1,500 exploration holes have been drilled. 330 of those drill hole locations were sampled for coal quality testing. Table 7.2 and the text below describes the various drilling programs at Red Hills to date.

Table 7.2 Exploration Drilling Summary

Program	Year	Drilling Contractor	Geophysical Logging Contractor	Type of Drill Holes			Information from Drill Holes			Average Linear Core Recovery (%)
				Pilot Holes	Coal Core Holes	Total Drill Holes	Holes with Geophysical Log	Holes with Core Log	Holes with Lab Analysis	
1975- 1980	1975- 1980	Various Contractors [1]	Century Geophysical	715	105	**820**	817	102	103	99.50
1997- 1998	1997	Diversified Drilling Services [2,3]	Century Geophysical	20	23	**43**	43	23	23	100.00
	1998			-	16	**16**	16	16	16	100.00
2000- 2008	2000	Diversified Drilling Services [3]	Century Geophysical	-	15	**15**	15	15	12	99.50
	2003			-	22	**22**	22	22	-	99.50
	2006			83	8	**91**	91	8	8	100.00
	2007			22	-	**22**	22	-	-	-
	2008			34	-	**34**	34	-	-	-
2009- 2015	2009	Aquaterra [3,4]	Century Geophysical	43	-	**43**	43	-	-	-
	2011	Terricon [3,4]		41	16	**57**	57	16	16	100.00
	2013		Cardno GLS	11	6	**17**	17	-	6	100.00
	2014			25	6	**31**	31	6	6	100.00
	2015			20	10	**30**	30	10	10	100.00
2016	2016	Liberty Fuels	Cardno GLS	32	2	**34**	34	2	2	100.00
2017	2017	Great Southern Engineering [5] (GSE)	Cardno GLS	7	-	**7**	7	-	-	-
2018- 2024	2018	MHC X-Ploration Corporation [6]	Marshal Miller and Associates (Formerly Cardno)	47	20	**67**	67	20	20	100.00
	2019		Century Geophysical	27	21	**48**	48	21	21	100.00
	2021		Marshal Miller and Associates	48	11	**59**	59	11	11	100.00
	2022			25	10	**35**	35	10	10	100.00
	2023			16	21	**37**	37	21	21	100.00
	2024			13	18	**31**	31	18	18	100.00
Total				**1,229**	**330**	**1,559**	**1,556**	**321**	**303**	**99.78**

Notes:
1 Contracted by Phillips Coal Company; included Diversified Drilling Services
2 Pilot Holes include Geotechnical Holes
3 Core Holes include Continuous Core Holes
4 Pilot Holes include Geotechnical Holes and Monitoring Wells
5 Core data excluded from model due to uncertainty in drilling method
6 Pilot Holes include Monitoring Wells

1975 - 1980

From 1975 to 1980 Phillips conducted drilling exploration activities. Independent drilling contractors including Diversified Drilling Services and Century Geophysical Logging Services (Century GLS) completed this work using rotary wash drilling methods. Initial hole spacing in 1975 and 1976 averaged three quarters of a mile. In 1979 and 1980, the general spacing of drill holes averaged 1500-feet, however spacing still exceeded a half mile in areas.

All drill holes were geophysically logged, and field logs were maintained to describe the geology. Coal cores collected during these drilling campaigns had an average linear core recovery of 99.8% and were analyzed by Core Laboratories, Inc. in Tyler, Texas. The method used to survey these drill hole locations is unknown.

These data were the basis for the characterization of the lignite deposit to justify the Red Hills Project including the Red Hills Mine and the RHPP. Despite uncertainty in how these early drill holes were surveyed, the data collected by Phillips has remained fairly consistent when compared to current fill-in drilling and quality analyzed during active mining operations. The QP has evaluated the reliability of the drilling data provided by Phillips including review of geophysical logs, field logs, and coal quality certificates. Drill holes deemed reliable, such that at minimum lithology could be verified by a geophysical log have been used to model the lignite structure, and core holes in which the quality data could be verified by laboratory reports were used to model lignite quality. Scanned drilling files acquired from Phillips are securely stored in NACCO NR corporate office.

1997-1998

In 1997 and 1998, MLMC conducted a drilling exploration program which primarily increased the drill hole density of the first 5-year mining block in the MS-002 permit area to an average spacing of 1000-feet or less. 12 of the 59 drill holes were distributed across the northern portion of the permit area and largely consisted of continuous cores in which soil geochemistry was evaluated in addition to lignite quality. Phillips personnel oversaw drilling activities. Drilling activities consisted of rotary wash methods and was performed by Diversified Drilling Services and Century GLS. Geophysical logs, field logs, and lab results were maintained for each hole during this program. The average coal core recovery rate from 1997 through 1998 was 100%. Coal cores were analyzed by Core Laboratories, Inc. in Tyler, Texas. Collar surveys were obtained by handheld GPS units. It is unknown to what accuracy these surveys were obtained. However, the QP feels the data is appropriate for use in the geologic model after comparison of the collar elevations with the pre-mine topography.

2000-2008

From 2000 through 2008 Diversified Drilling Services and Century GLS were contracted by MLMC to drill over 180 holes using rotary wash methods. Hole types included pilots, coal cores, and continuous cores which increased the hole density, again to an average spacing of 500-feet, within the MS-002 permit area immediately ahead of active mining. Geologists from MLMC oversaw these drilling activities and logged core samples. The average coal core recovery rate from 2000 through 2008 was 99.9%. Core samples were shipped to Standard Laboratories in Casper, Wyoming for analysis. Collar surveys were originally obtained by Trimble units connected to a known base station, followed by Leica survey equipment for a brief period until Topcon Hyper V Rovers with RTK correction tied to a known GPS base were established in 2007.

Upon the QP’s review of drilling data completed from 2000 to 2008, copies of the laboratory analysis for the 22 core holes in 2003 were not available to check the quality inputs stored in the electronic, geologic database. The QP contacted Standard Laboratories for copies of the original quality reports. However, the time of record exceeded the laboratory’s holding period of seven years and copies were not available. The QP then compared the related quality of the drilling database to the associated month end reconciliation reports and found that modeled tonnages in the area of the 2003 drilling were representative of the actual mined tonnage as shipped to the RHPP. As such, it is the QP’s opinion that the quality values documented in the electronic, geologic database for these 22 holes are representative of the deposit.

2009-2015

From 2009 through 2015, MLMC contracted Aquaterra Engineering, LLC (Aquaterra), a Terracon Company, which fully transitioned to Terracon in 2011 to perform drilling exploration work. Century GLS and Cardno Geophysical Logging Services (Cardno GLS) were contracted by MLMC to geophysically log the drill holes. Approximately 180 holes were drilled including pilots, coal cores, continuous cores, and monitoring wells. The majority of drilling was once again focused in the MS-002 permit area ahead of mining operations to achieve an average drill hole density of 1000-feet or less. However, in 2015, MLMC also began fill-in drilling within Mine Area 3 where the next mine area was projected to be in full operation in 2023. The extent of work for Mine Area 3 included 6 continuous core holes and 3 monitoring well locations. Geologists from MLMC oversaw these drilling activities and logged core samples which were shipped to Standard Laboratories in Casper, Wyoming for analysis. The average coal core recovery rate from 2009 through 2015 was 100%. Collar surveys were obtained by Topcon Hyper V Rovers with RTK correction tied to a known GPS base.

2016

In 2016, Liberty Fuels, another subsidiary of the Company, conducted drilling services for MLMC under a mutual cost reimbursement agreement. Cardno GLS was contracted to geophysically log the drill holes. 34 holes were drilled using rotary wash methods within Mine Areas 1 and 3. Two core holes were drilled successfully during this program targeting the F-seam and C-seam quality in Mine Area 3. Due to poor core recovery on multiple attempts, no other seams were sampled for quality during this program. Geologists from MLMC oversaw these drilling activities and logged core samples which were shipped to Standard Laboratories in Casper, Wyoming for analysis. The coal core recovery of the sampled F- and C-seams in 2016 was 100%. Collar surveys were obtained by Topcon Hyper V Rovers with RTK correction tied to a known GPS base.

2017

In 2017, MLMC contracted Great Southern Engineering (GSE) to collect lignite cores for quality assessment using sonic drilling methods, but due to uncertainty in the representative quality from excessive heating and fracturing of the coal cores during the sample collection process, the QP determined these coal core data would be excluded from the geologic model. 7 pilot holes in advance of these coal cores were conducted by Geotechnical Engineering Associates (GEA) using rotary wash methods. Century GLS geophysically logged these holes. Collar surveys were obtained by Topcon Hyper V Rovers with RTK correction tied to a known GPS base. Information related to the pilot holes in advance of these coal core holes, including geophysical logs and cuttings descriptions were evaluated by the QP and included in the geologic model to further define the structure of the lignite deposit.

2018-2024

From 2018 to 2024, MLMC contracted MHC X-Ploration Corporation, Century GLS, and Marshall Miller and Associates (previously Cardno GLS) to drill and geophysically log approximately 277 pilot holes, coal core holes, and a monitoring well. The holes were drilled using rotary wash methods and were located in the MS-005 permit area. These holes increased the drill hole density in the resource area. The drilling activities included the mine area east of Highway 9 as well as additional exploration outside the currently permitted areas. Geologists from MLMC oversaw these drilling activities and logged core samples which were shipped to Standard Laboratories in Casper, Wyoming for analysis. The average coal core recovery rate from 2018 through 2024 was 100%. Collar surveys were obtained by Topcon Hyper V Rovers with RTK correction tied to a known GPS base. While discussed and displayed in figures, 2024 drilling was not included for resource and reserve calculation since the drilling was infill production and results were not material to global mineral resources estimates.

7.2.4. Qualified Person Opinion – Drilling Exploration

The drilling campaigns completed from 2015 through 2024 in conjunction with the original exploration conducted by Phillips chiefly influence the Red Hills Mine Mineral Resource estimations discussed in Section 11.

As described in the above drilling programs, MLMC does plan exploration activities to attain an average 500-foot drilling density for the four-year projection ahead of active mining operations. Every effort is made to locate holes as closely as possible to maintain this average spacing but due to terrain/site conditions, permit restrictions, or site access the distance between holes may deviate from the 500-foot target. This drilling density is optimal for day-to-day operations to capture the gentle undulation of the lignite seams. Identifying these slight differences in roof elevations is key to optimizing lignite recovery efforts, particularly on the thinner seams.

However, as a whole, it should be noted for the purpose of Mineral Resource estimations and LOM projections, the QP has determined a high level of confidence in the resource classification distances. This confidence comes from the continuity of the lignite seams including both lithologic and quality characteristics, as well as the ability to compare modeled seam projections to active and historical mining operations. Slight structural changes are defined in the tighter drill hole spacing, but these localized structural anomalies tend to not effect quality nor materially affect the structure. Further justification of drill hole distances specific to Mineral Resource Classifications is discussed in Section 11.

Physical constraints such as stream buffers and unnavigable terrain may affect the consistency in drill hole spacing. Additionally, drilling exploration for later years does not always land within fully permitted areas which may limit the extent of disturbance allowed.

7.3. Hydrogeologic Characterization

7.3.1. Surface Water

Beginning in 1996, surface water monitoring sites were established and monitored by Mississippi State University (MSU) under the direction of MLMC within the various streams and tributaries surrounding and intersecting the Red Hills Mine. Baseline flow rates collected by MSU were compared to selected USGS stations within the vicinity of the study area watershed and were analyzed to characterize general runoff conditions. Surface water flow measurements were performed at the monitoring stations using the velocity-area method. As recommended by the USGS, if the depth of flow was greater than two feet, a two-point method of measuring average velocity was used.

To further characterize study area watersheds, rainfall-runoff simulations were performed for storm events with a duration of 24 hours and different return periods. These simulations were performed using the U. S. Army Corps of Engineers HEC-1 flood hydrograph model. Necessary HEC-1 model input includes watershed area, specified rainfall loss and runoff methods, and a design precipitation event. The Soil Conservation Service (SCS) method, now the Natural Resources Conservation Service (NRCS), for abstractions utilizing a curve number (CN), was chosen as the loss rate method, and a SCS/NRCS idealized unit hydrograph was used to model watershed runoff response, as study area watersheds are generally small. Modeled precipitation events were obtained from the U. S. Weather Bureau's Technical Paper No. 40.

Based on baseline flow data, the average runoff for the Red Hills Mine was determined to be approximately 1.25 cfs/square mile of drainage area.

Surface water samples from each monitoring site were collected and analyzed for physical and chemical parameters including pH, conductivity, total dissolved solids (TDS), sulfate, chloride, total suspended solids (TSS), iron, manganese, nitrates, dissolved trace metals, coliforms, acidity, alkalinity, and various organic pollutants. All of the monitoring sites exhibited waters with very similar water quality and with very small seasonal variations. Averages of general water quality results from baseline data include a pH of 6.9 s.u., conductivity of 55 umohos/cm, TDS of 54 mg/l, and TSS of 8 mg/l. Laboratory analytical analysis for samples taken from the monitoring sites for baseline water quality was conducted by Inter-Mountain Laboratories, Inc. Surface water samples were analyzed by EPA approved methods current at the time of sample collection.

7.3.2. Groundwater

In 1996 and 1997 MLMC contracted R.W. Harden & Associates to conduct hydrogeologic studies focusing on groundwater. Work conducted included construction of test wells, sampling of groundwater chemistry, measurement of potentiometric surfaces, and testing of the aquifers.

The primary water bearing strata at the Red Hills Mine is within the Wilcox group, which is composed primarily of fine-grained deposits of interbedded clay, sandy clay and silt. Sand thicknesses were acquired from geophysical log data gathered during the early Phillip's exploration drilling programs and test well installation for initial characterization of aquifers within the Red Hills Mine.

Approximately 43 test wells were installed as part of the initial studies (Figure 7.2). Water levels were measured quarterly in all test wells constructed to determine potentiometric surface of various sand units. Aquifer testing, including pump tests and slug tests, was conducted in 15 of the test wells to study the more permeable horizons in the overburden and underburden of the mine. The testing indicated transmissivities ranging from 0.2 to 16,600 gallons per day per foot and provided a range of hydraulic conductivities ranging from 0.004 to 31 feet per day. Horizons with higher hydraulic conductivity were generally associated with the coarser sand units in the underburden. Aquifer test results in overburden sands generally show lower transmissivities because only thin sand layers are present and are typically of finer and siltier texture.

Laboratory hydraulic conductivity tests were conducted on clay samples taken from boreholes drilled in the permit area. Results from eight permeability tests indicated, as is typical of Wilcox clay units, that hydraulic conductivities of these clays were low, ranging from 1 x 10-7 to 9.4 x 10-9 centimeters per second, and thus, clay units acted as confining layers to the stratigraphically lower Wilcox sand units. Results of these tests indicated little or no vertical hydraulic communication between sand units separated by clay strata. The layers of clay, predominant in the overburden and underburden materials, act effectively as confining layers. This was confirmed by the results of the laboratory hydraulic conductivity tests indicating low values for these clays.

Natural groundwater movement rates, in both water-table and artesian areas, are very slow and range from a few feet to 50 feet per year in the more permeable sand zones. Vertical hydraulic communication between sand zones is known to be small when separated by low hydraulic conductivity clays. This was demonstrated by the amount of rejected recharge during aquifer testing, indicating little seepage into adjoining beds downdip, and pumping-test data, indicating essentially no influence on drawdown between overlying and underlying sand zones.

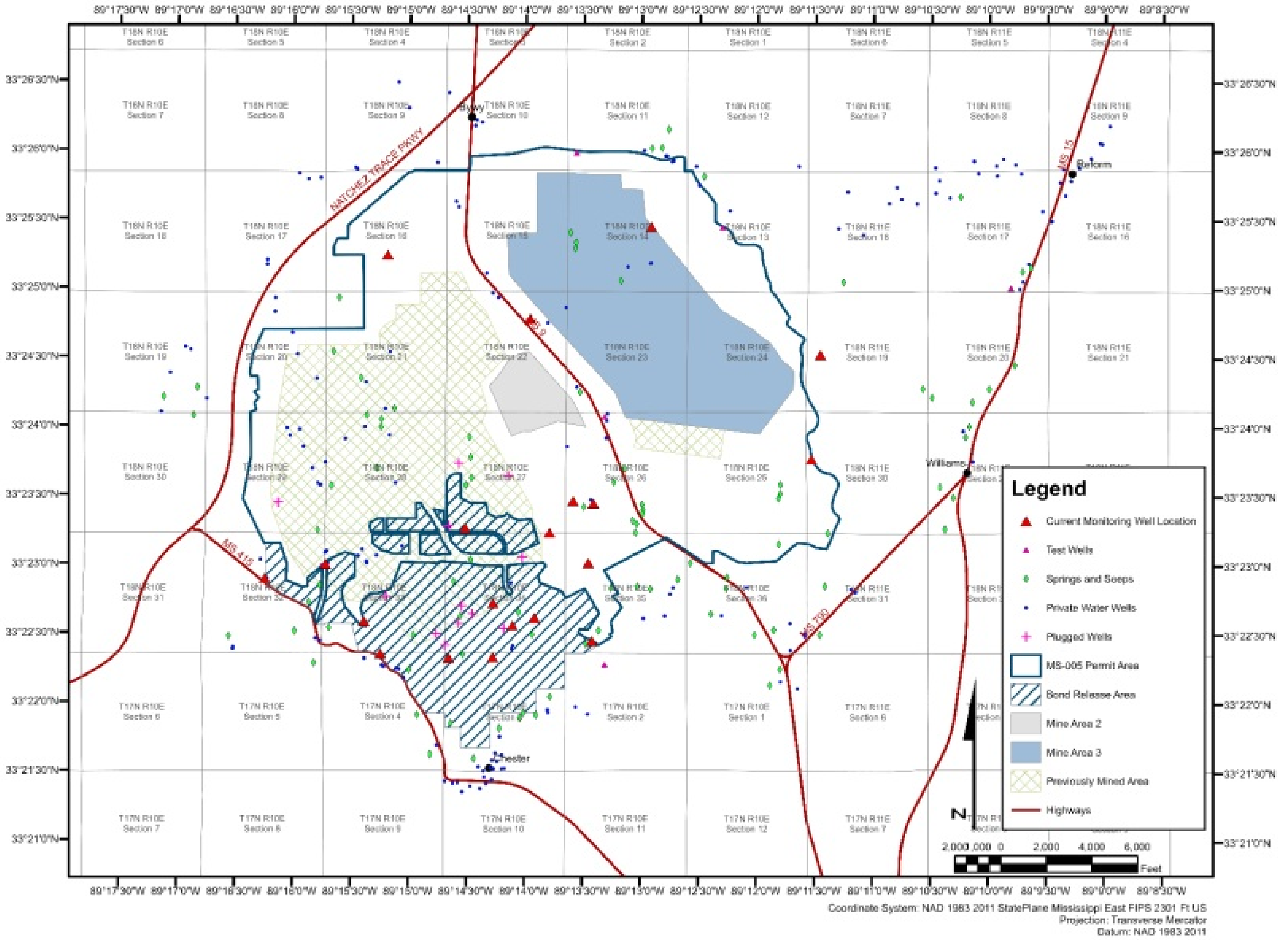
Twelve months of water well, monitoring well and spring groundwater quality data was collected by MSU from 21 test wells in 1997 for alkalinity, hardness, total suspended solids (TSS), major cations/anions and select metals. Water samples collected for analyses were analyzed by an independent laboratory, ETC Laboratory, in Memphis, TN. Groundwater samples were analyzed by EPA approved methods current at the time of sample collection. Groundwater quality results from the Wilcox sands is fresh with average total dissolved solids concentrations less than 300 milligrams per liter (mg/L) and minor to moderate iron and manganese concentrations thought to be naturally occurring.

No formal QA/QC document was available for the initial baseline data. However, use of duplicate samples and blanks were noted by the QP upon review of laboratory reports, chain of custody (COC) forms, and field notes related to the data collected by MSU and R.W. Harden & Associates.

7.3.3. Qualified Person Opinion – Hydrogeologic Characterization

The hydrogeology of the Red Hills Mine has been well studied. MLMC has continued to gain an understanding of the water bearing units during mining, established groundwater and surface water monitoring programs, fill-in drilling, and installation of new monitoring wells. In the QP's opinion, these additional observations and collected data from the past 20 years of mining align with the results of the original surface water quantity measurements, aquifer tests, hydraulic conductivity tests, and water quality results.

Figure 7.2 Groundwater Map



7.4. Geotechnical Studies

7.4.1. Early Geotechnical Studies

Geotechnical soil drilling has been carried out at the property during several investigations. The most notable studies concerning baseline geotechnical properties are described below.

In 1997, Burns Cooley Dennis, Inc. conducted a study to establish ground conditions and geotechnical properties for the various formations in the Red Hills project area. Three geotechnical boreholes to a maximum depth of 70 feet were completed using a 6-inch diameter short-flight earth auger to a depth of 10-feet followed by rotary wash methods to final depth. Each boring was sampled to a depth of 60-feet, drilled an additional 10-feet then geophysically logged by Century GLS. All soils encountered during drilling were classified with respect to material composition and consistency or density by a geotechnical/geological engineer.

Following the previous investigation in 1997, Geoscience Engineering, LLC. completed four cored holes (including an initial pilot hole) drilled to depths ranging from 170 to 360 feet at a 6-inch diameter. The pilot holes and core holes were advanced using rotary wash methods. Soil Samples were collected using a double core barrel.

In 2004, Aquaterra Engineering, LLC. completed eight soil borings using rotary wash methods to a maximum depth of 200 feet. Each soil boring was advanced with a 4-inch diameter drill bit. The soil sampling program included the collection of both disturbed and undisturbed soil samples. The samples were collected at various depths. Relatively undisturbed samples were obtained by pushing a 3-inch diameter, Shelby tube sampler to collect soil samples for geotechnical laboratory testing. Locations of geotechnical borings are shown on Figure 7.3.

The typical geotechnical borehole log included the following geotechnical descriptions and records of the samples collected during investigation:

- Lithology: Descriptions of the lithology (typically sandy silts, silts and clayey silts) are recorded for each stratigraphic interval in conjunction with a soil type in accordance with the Unified Soil Classification System (USCS). The soil types encountered by Burns Cooley Dennis, Inc., 1997 at the boring locations include clayey sands (SC), silty sands (SM), slightly silty sands (SP-SM), silty and sandy clays (CL), clays (CH) and lignite.
- Consistency/Relative Density: Aquaterra Engineering, LLC., 2004 determined the relative strength estimates of the sample by hand penetrometer readings. In the more granular conditions at this site and at locations where the very dry nature of the surface soils prevented undisturbed sampling, Standard Penetration Testing (SPT) was performed.
- Sample Type and Laboratory Data: The soil borings included various samples collected during the geotechnical investigations. The Aquaterra Engineering investigation (2004) collected piston (Shelby tube) samples (2.0 to 2.5 feet in length) at nominal 10-foot intervals. The piston samples are considered to be relatively “undisturbed” samples and suitable for laboratory testing such as the various strength tests. The index properties determined were the moisture content, Atterberg limits, and grain size determination. The laboratory investigation by burns Colley Dennis, Inc., 1997, included unconfined compression tests, consolidated and unconsolidated undrained triaxial compression tests, water content determination, shear strengths, mechanical sieve analysis, proctor compaction tests, and chemical/corrosion testing. The laboratory investigation by Geoscience Engineering, LLC., 1997 determined the undrained shear strength, unconfined compression test, drained shear strength, moisture content, Atterberg limits, consolidation, and grain size analysis of site materials.

The geotechnical reports available for the QP's review did not document QA/QC protocols and procedures followed by the independent contractor at time of testing and sample collection, however the laboratory standards were indicated. The typical laboratory tests performed in the three investigations described above were performed in accordance with the relevant American Society for Testing and Materials (ASTM) standards at independent certified laboratories and include the following:

Soil Index properties:

- Moisture content determination – ASTM D 2216, ASTM D 4959
- Atterberg limit determination – ASTM D 4318
- Consolidation tests – ASTM D 2435
- Grain size determination – ASTM D 422 and ASTM D 1140

Soil Strength properties:

- Direct shear strength tests – ASTM D 3080
- Consolidated shear strength tests – ASTM D 3080
- Unconfined compression tests – ASTM D 2166
- Unconsolidated undrained triaxial tests – ASTM D 2850
- Consolidated undrained triaxial compression tests – ASTM D 4767

In the QP's opinion the laboratory testing methods completed to determine the geotechnical soil parameters are appropriate for the purpose of detailed pit design outlined in Section 13.5 of this TRS.

Further detail concerning pit design and ground control parameters related to geotechnical studies and additional geotechnical studies related to pore water pressures and effects on pit stability are discussed in Section 13.0 Mining Methods.

7.4.2. Buffer Block Study

In 2011, the Company conducted an additional geotechnical study to determine the design parameters for a buffer block left between future mine area boxcuts directly adjacent to previously mined pits at the Red Hills Mine. The Company contracted Terracon, an independent geotechnical company, to drill, sample, and conduct laboratory testing for 8 soil borings within the area of interest (Figure 7.3). Century Geophysical, an independent contractor, geophysically logged the bore holes.

The soil sampling program included the collection of both disturbed and undisturbed soil samples. Relatively undisturbed samples were obtained by pushing a three-inch diameter, Shelby tube sampler a distance of two feet into the soil in general accordance with ASTM D1587.

After the Shelby tube was removed from the boring, the sample was carefully extruded in the field and visually classified. Relative strength estimates of the sample were obtained by penetrometer readings. Disturbed portions of the sample were discarded and the undisturbed sample was placed in a protective container for transportation to the laboratory. An additional portion of the sample was placed in a plastic jar to minimize moisture loss during transport to the laboratory and to aid in visual classification of the sample.

In more granular conditions, the standard penetration test (SPT) was performed. In this case, representative disturbed samples were obtained in cohesionless soils by driving a 2-inch OD split-spoon sampler a distance of 18 inches into the soil with blows from a 140-pound hammer falling a distance of 30-inches (ASTM D 1586).

Representative samples removed from the split spoon sampler and placed in plastic jars to minimize moisture loss provided a sample for laboratory testing.

At selected boring locations, auger samples were also collected to allow collection of soils for classification purposes only. In this case, the sample was retrieved directly from the auger being used to advance the boring. The auger sample was placed in a plastic jar to minimize moisture loss during transport to the laboratory.

The soil samples were delivered to the Terracon laboratory for testing. Laboratory test assignments were made by the Company. Laboratory testing was accomplished to determine index and strength properties of the soils encountered. These procedures are listed below.

- Index properties: Moisture content (ASTM D2216), Atterberg Limits (ASTM D4318), Grain Size Determination (ASTM D422 and D1140), and Standard Effort Compaction Test (ASTM D 698)
- Strength Tests: Unconfined Compression (ASTM D2166), Consolidated Undrained Triaxial Compression (ASTM D4767), Unconsolidated Undrained Triaxial Compression (ASTM D2850), Direct Shear Test (ASTM D3080)
- Permeability Tests (ASTM D5084 and ASTM 2434)

All soils were visually classified and in accordance with criteria stipulated by Unified Soil Classification System (USCS).

During the soil boring advancement and sampling operation, observations for free groundwater was not made because the rotary wash technique was used for the entire boring advancement. Therefore, groundwater levels were not determined. However, ground water information from existing monitoring wells and on-site ground water management programs was available.

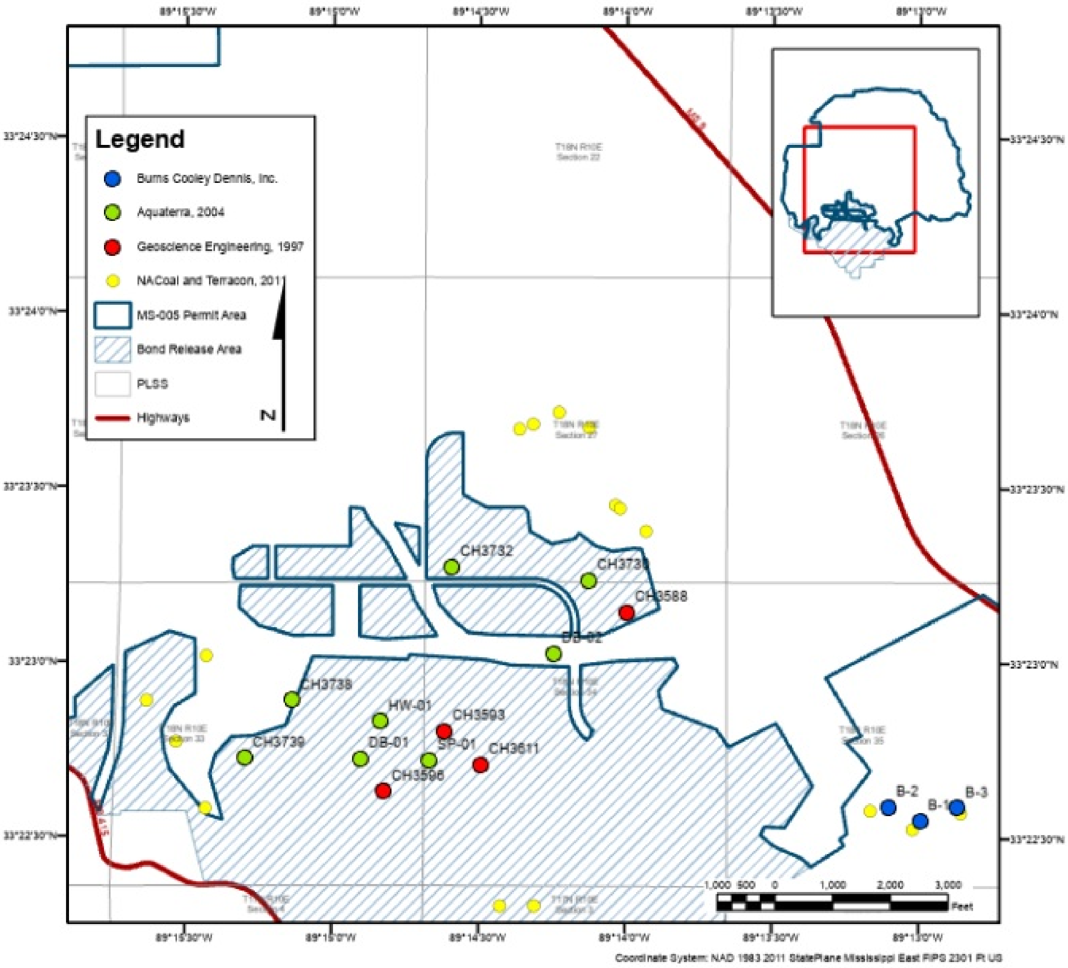
Using the results of the laboratory tests and field observations, the Company conducted a slope stability analysis using the computer program Slope W and a method called Morgenstern-Price to obtain likely factors of safety for opening up a boxcut adjacent to a previously mined pit. Three scenarios for block widths between mine areas were analyzed including a 500-foot block, 250-foot block, and 100-foot block. All scenarios initially assumed 41-degree slopes on either side of the buffer block. All three scenarios resulted in a recommendation that the low wall of a new boxcut adjacent to a previously mined area should be no steeper than 30-degrees to prevent instability and increase the factor of safety near the low wall slope to 1.3.

In the QP's opinion the drilling, sampling, testing, and analysis completed were appropriate to establish low wall pit parameters for opening up a box cut for a new mine area adjacent to a previously mined pit. In the current LOM plan, this parameter only applies to the Mine Area 2 boxcut.

7.4.3. Qualified Person Opinion – Geotechnical Studies

Subsurface conditions and geologic units encountered have remained fairly consistent since mining commenced in 2000. Overburden core holes in which individual sections of burden were collected and tested for physical and geochemical properties, as described previously under drilling exploration, have been evenly distributed throughout the permitted mine areas and continually serve as an indicator for soils to be encountered ahead of mining. Furthermore, the geologic structural data acquired from geophysical logs during drilling campaigns indicate consistent depths between burdens and lignite seams among other subsurface characteristics. Special situations, such as deep pore water pressures described in Section 13.0 of this TRS, have led to additional geotechnical studies specific to the issue encountered while mining. However, the general pit parameters defined by the above studies have not warranted a need for further studies from the continued information obtained from drilling exploration and active mining operations. The QP understands that additional geotechnical studies may be required on an as needed basis to address special conditions that may be encountered in future mining. These conditions will be monitored and addressed as needed as mining progresses.

Figure 7.3 Location of Geotechnical Borings



8.

8. Sample Preparation, Analysis, and Security

8.1. Sample Collection and Shipment

The Red Hills Mine lignite deposit is evaluated on a seam-by-seam basis. As a regular practice in the coal industry, lignite cores are bagged and sent to the independent coal testing laboratory. The procedures at the Red Hills Mine for current and historical sample collection are summarized below.

Core runs are specified by the geologist by referencing the geophysical log of the pilot hole. As coal seams rarely exceed 6 feet in thickness, a single 10-foot core run can typically capture a full lignite seam. Once a specified core run is brought to the surface, the geologist observes the drillers extract the lignite sample from the double barrel core to ensure the integrity of the sample is maintained, and to verify the top and the bottom of the coal core run. The core sample is transferred from the core barrel to a core cradle (i.e. halved pvc pipe) and is carried to the geologist's work station. The geologist washes excess drilling mud from the core sample with water, verifies the roof and floor of the lignite core is present and checks the expected coal seam thickness referenced from the pilot hole's geophysical log to determine coal core recovery. If full core recovery cannot be verified, the driller may attempt to retrieve the remainder of the lignite core run from the current hole. If no successful attempt is made to recover the remaining lignite, the driller must re-core the lost interval in a new adjacent core hole to achieve a minimum of 90-percent recovery.

Upon verifying recovery of the core run, logs the lignite run. A typical log describes:

- "to" and "from" depths of burdens and lignite;
- joints and fractures at specified depths;
- characteristics of burden above and below the lignite core;
- roof and floor of lignite seam (i.e. sharp or gradational);
- presence of pyrite or petrified wood;
- observations of clay or sands imbedded in the lignite core;
- and any other prominent characteristics.

After the geologist describes the core run, the entire lignite section is double bagged and double tagged. Tags include the date, mine identifier, hole ID, seam ID, and "to" and "from" intervals. Double bagging preserves the moisture of the sample, and double tagging safeguards the identification of the sample from the field through transportation to the independent laboratory. Historically, Red Hills Mine has not photographed coal cores prior to bagging samples, but starting with the 2022 drilling campaign, photographs of core samples are performed as a regular QA/QC practice in logging core samples.

Lignite cores may be split into multiple samples for the following reasons:

- Prominent roof, floors, or partings within a continuous seam;
- Identification of composition concentrations (i.e. to determine if sulfur trends toward top, middle or bottom of seam).

Total core runs are shipped for analysis following industry standards, thus split samples in the context of a retained sample are not stored at the Red Hills Mine. Lignite tends to be a high moisture coal which oxidizes rapidly and does not have a long shelf life once removed from the ground. If core split samples were retained, they would not be representative of in-situ coal properties over time.

After samples are bagged, they are stored in a dry, shaded area until the geologist returns to the mine office. Core samples are then securely stored in the office until transferred by the geologist to specified pallet boxes in the warehouse to be shipped to the independent laboratory. The warehouse is climate controlled, such that the samples are not kept in a hot environment that could adversely affect the quality results. Furthermore, the Red Hills Mine office and warehouse is secured with user specified fob access and camera surveillance.

Prior to shipping the samples, the geologist reviews each sample against the field records and the chain-of-custody (COC). The date, mine identifier, hole ID, seam ID, and "to" and "from" intervals are verified. In addition to the COC included in the physical shipping container, a copy is emailed to the laboratory manager to notify that a shipment is in route. Copies of the COC forms for coal cores shipped from 2015 through 2021 were available for the QP to review. Coal core samples are shipped to the independent laboratory via insured freight with tracking information.

8.2. Sample Preparation and Analysis

Minimum analyses of coal cores include short proximate (ash, calorific value (BTU/lb), sulfur, moisture) and specific gravity. These parameters are the primary quality inputs used to model the Red Hills Mine lignite deposit. Additional analyses of coal cores may include mineral analysis of ash, trace elements, ash fusion, and forms of sulfur. Historically, full proximate, ultimate analysis, and grindability have been requested on a specialized basis. However, these parameters are not modeled or currently relevant for consideration in Mineral Resource estimations.

As mentioned in Section 7, coal cores collected by Phillips in the early years of exploration were sent to Core Laboratories, Inc., an independent laboratory in Tyler, Texas. QA/QC information related to these samples was not provided to MLMC by Phillips when data was acquired in 2000. However, the QP was able to review laboratory certificates to verify quality data related to these core holes.

Since 2000, Red Hills Mine has sent lignite core samples to Standard Laboratories, Inc. (Standard), an independent laboratory in Casper, Wyoming for analyses. Standard is a certified ANAB Accredited and ISO 17025 accredited laboratory for coal including typical lignite coals.

The Mineral Resources QP toured the Standard Laboratories facility in Casper, Wyoming on June 24, 2021. The QP reviewed procedures for chain of custody, QA/QC, and observed laboratory processes and found the operation to be clean, well-managed, and professionally operated. No concerns were noted.

Short proximate parameters, as used to define Mineral Resources and Reserves, are tested at the Casper laboratory location. Other tests at the Casper location include, but are not limited to, mineral analysis of ash and ash fusion. Lignite core samples requesting trace mineral analysis and forms of sulfur analyses are completed by the Freeburg, IL Standard laboratories location from sample splits prepared at the Casper location.

The laboratory ASTM standards used at the Casper location are listed in Table 8.1. A modification to ASTM D3302/D3302M-18 Total Moisture is completed at Standard. Due to lignite having a higher moisture content and faster oxidation rate than higher rank coals, the temperature limit for air-drying was modified to reduce the drying time. Minimal to no evidence of bias was noted in any of the parameters (TM, Dry Ash, AR BTU/lb, MAF Btu) in any of the modified drying times and temperature combinations.

Table 8.1 List of ASTM standards for Standard Laboratories, Casper location

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Ash in the Analysis Sample	ASTM D 3174	Coal	Furnace
Calorific Value	ASTM D5865	Coal	Calorimeter
Carbon, Hydrogen, and Nitrogen	ASTM D5373	Coal	Elemental Analyzer
Equilibrium Moisture	ASTM D1412	Coal	Waterbath Method
Free-Swelling Index	ASTM D720	Coal	Electric Method
Fusibility of Ash	ASTM D1857	Coal	Furnace
Grindability of Coal	ASTM D409/D409M (MOD)	Coal	Grindability Machine
Loss on Ignition	ASTM 7348	Coal	Oven/Furnace
Major and Minor Elements	ASTM D6349	Coal	ICP-OES, Mixed Acid Digestion
Mercury	ASTM D6722	Coal	Direct Combustion Analysis
Moisture in the Analysis Sample	ASTM D3173	Coal	Oven
Moisture (Total)	ASTM D3302/D3302M (MOD)	Coal	Commercial Method
Preparing Samples for Analysis	ASTM D2013/D3302M (MOD)	Coal	Crusher/Pulverizer
Sulfur (Total)	ASTM D4239	Coal	Furnace
Volatile Matter	ASTM D7582	Coal	TGA
Water Soluble Alkali Content	ASTM D8010 Method A	Coal	ICP-OES

8.2.1. Receiving Dock/Sample Storage Room

The receiving dock doubles as the sample storage room and is climate controlled (ventilated and heat). Casper, WY has a moderate summer climate, with cold winters that can be mitigated with heaters. From the receiving dock and storage room there is access to the sample prep room and main laboratory.

During non-operational hours Standard is locked down with an active alarm system including door, window and motion detectors which is monitored by a local company.

Once a shipment is received, the shipment is logged and opened then the number of individual samples are logged along with the date and time. Each sample is cross referenced with the COC and is then weighed using certified balances. Paper records including Standard Laboratories logs, COC's, and any additional paperwork received in the shipment are transferred to an electronic database at this point.

Once samples are logged, they are stored in this storage room until there is available space in the prep room. It was noted there is a slight potential for moisture loss during this storage period. MLMC acknowledges this potential and, as such, double bags samples in the field to preserve as much in-situ moisture as possible.

Retained pulverized and dried 60-mesh samples are also stored in this room. These samples can be retested within 6 months for selective parameters. Due to the sample being dry and potential for oxidation moisture parameters and Btu/lb cannot be retested. Standard contacts and verifies with the client prior to disposal of retains.

8.2.2. Prep Room

The prep room is a temperature-controlled room (AC and Heat) accessible from the receiving dock. Within the prep room samples are crushed to 8-mesh size using a Holmes crusher and are then run through a Holmes riffler. Pulverizer screens and rifflers are inspected daily, before and after each batch. The distance between the riffler fin spread is regularly checked in accordance with ASTM standards. An air hose is used to clean out after each sample to mitigate contamination. It was noted that the prep room was very clean. No visible residual material was observed in the riffler.

8-mesh samples are divided into 1000 g per tray following ASTM standards using calibrated balances. Additional sample material is placed in a bag which then has the air mechanically removed and heat sealed for storage in a separate room off of the prep room. The same storage process is used for round robin samples. Similar to the retained samples, Standard verifies with the client prior to disposal of sample splits.

Prepared 1000 g trays are placed in one of three air dry units for overnight drying following the modified standards discussed previously. Drying time and temperatures are regulated on the air-dry units. Certified thermometers are used which also indicate minimum and maximum temperature values to ensure there is no exceedance of the max allowable temperature. Temperature gauges are certified annually, and additional checks are performed quarterly.

Once air-drying is complete and samples are re-weighed and logged. Dried samples are pulverized to 60-mesh and split samples are obtained with a Holmes sample riffle. Split samples are stored in pre-labeled high-density polyethylene (HDPE) bottles with foam lined caps.

8.2.3. Laboratory Testing

After the prep room process, 60-mesh split bottles are transferred to the main portion of the laboratory where they are first run through a mixing wheel for 10 minutes to ensure a homogeneous sample. All equipment maintains logs of processes and results. This portion of the laboratory is climate controlled (AC and heat).

Review of all analysis results is by the laboratory manager, or assistant laboratory manager. Review includes but is not limited to identification of outliers, and comparison of results with historical information by site, if available. The laboratory manager may request a rerun on a sample if needed.

8.3. Quality Control Procedures

There is currently no formal program in place at Red Hills Mine for the inclusion of blanks, standards, or field duplicates. However, Standard completes several internal QA/QC checks to verify samples and a pulverized duplicate reference laboratory audit was initiated for the 2024 drilling campaign.

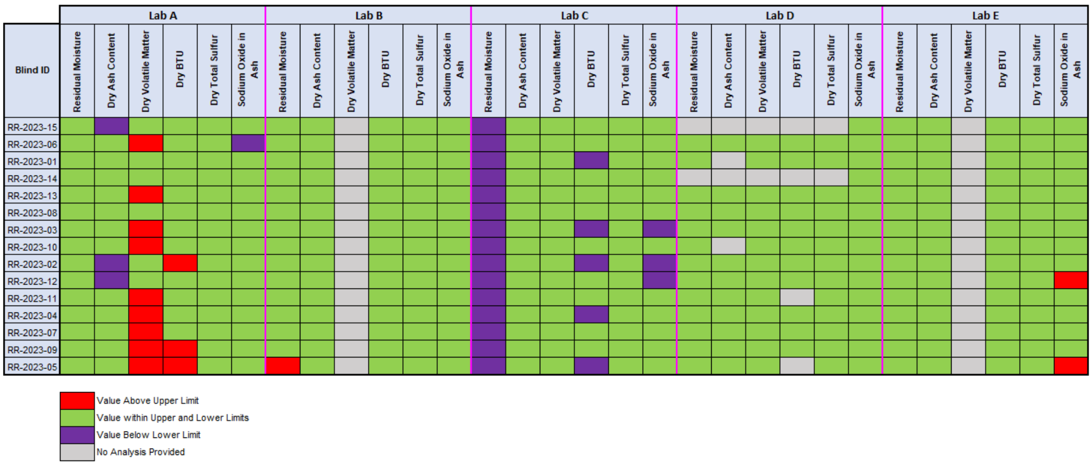
8.3.1. Laboratory Round Robin

Standard participates in a monthly round robin coal testing program including 32 other laboratories. A 4-mesh program and an 8-mesh program are included in this round robin. In addition to the monthly round robin coal program, a formal Proficiency Testing Program by Quality Assurance Resources, LLC (QAR PTP) which includes a 4-mesh program and 8-mesh program is also completed monthly. If there is an error or out of tolerance reported, an investigation is immediately completed. Upon investigation, corrective action will be taken to remediate the issue and additional training will be completed if deemed necessary. Trainings were documented. The most current QAR PTP results were posted and personally reviewed by the QP and the Company's principal geologist during the lab visit.

Along with the above programs, internally at Standard, a daily short proximate testing program was in place.

In 2023, Standard also participated in a lignite (coal) specific round robin testing program facilitated by the Company including five laboratories that were used by various Company mine locations. The round robin consisted of eleven samples of which three were sourced from Red Hills Mine and the remaining were sourced from other Company mine locations. In addition to the eleven samples, there was one duplicated created for each mine site which increased the total number of samples to fifteen samples. The fifteen samples were blind labeled RR-2023-01 through RR-2023-15. The various sampling locations provided a range of samples with variability in moisture, ash, sulfur and sodium. The labs participating in the round robin were provided dried 60-mesh splits of all fifteen samples. Total moisture was not included in this round robin with the dried 60-mesh samples. The general results are summarized in Figure 8.1. Standard is labeled "Laboratory D" and all results fell within ASTM Range. However, Lab D was not able to report 14 (19%) of the 75 values due to internal control processes that self-reported these samples as having not met the laboratory's QAQC standards. While it is not ideal to not report 19% of the samples, the remaining 81% of the samples were in compliance.

Figure 8.1 NACCO 2023 Round Robin Program Summary. (NACCO, 2023)



8.3.2. Reference Laboratory Audit

Red Hills Mine initiated a reference laboratory audit for pulverized duplicate samples for the 2024 drilling campaign. Thirty-one random samples were selected for the audit. Standard Laboratories prepared the 8 mesh reference splits and sent the splits to MVTL for testing. Analytes and ASTM testing methods are listed on Table 8.2.

Table 8.2 Reference Audit Analytes and ASTM Testing Methods

Laboratory	Total Moisture As Received Moisture Basis (wt. %)	Total Ash Dry Basis (wt. %)	Total Sulfur Dry Basis (wt. %)	Heat Content Dry Basis (BTU/lb)
Standard Laboratories	D3302 (M)	D3174	D4239	D5865
MVTL	D7582	D7582	D4239	D5865

Comparison of the ASTM Reproducibility Limit (R) results were varied with total ash and sulfur having the most samples that reported outside of the ASTM Reproducibility Limits. Results of the reference laboratory audit including ASTM Reproducibility Limits are shown in Figure 8.2 through Figure 8.5 with samples outside of ASTM Reproducibility Limits noted in the table and below.

Total moisture had one sample reporting outside of the reproducibility limit but resulted with reproducibility above 95% probability.

Heat content had two sample results outside of the reducibility limits but still had a reproducibility probability of 94%.

Total ash and total sulfur resulted with four samples outside the reproducibility limits for each analyte. Total ash cannot be directly compared between the two laboratories since the sample testing methods are not the same between the laboratories while total sulfur was tested by both laboratories using the same testing methods as shown on Table 8.2. The failures in total sulfur samples were unexpected since both laboratories reported total sulfur ranges within the reproducibility limits during the 2023 round robin testing. Both laboratories are ISO 17025 accredited and each laboratory has its own QAQC policies and procedures and participates in inter-laboratory round robin testing. A third reference laboratory will be introduced into the 2025 Reference Laboratory Audit to further investigate the total sulfur failures.

Figure 8.2 Reference Laboratory Audit Results for Total Moisture (As Received)

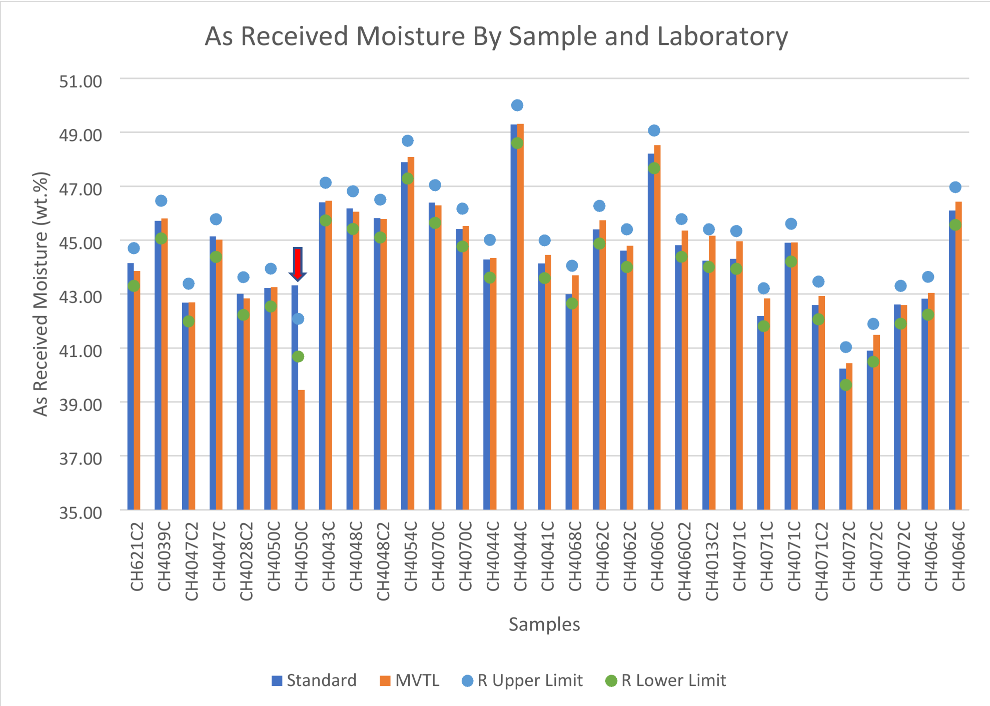


Figure 8.3 Reference Laboratory Audit Results for Ash Content (Dry)

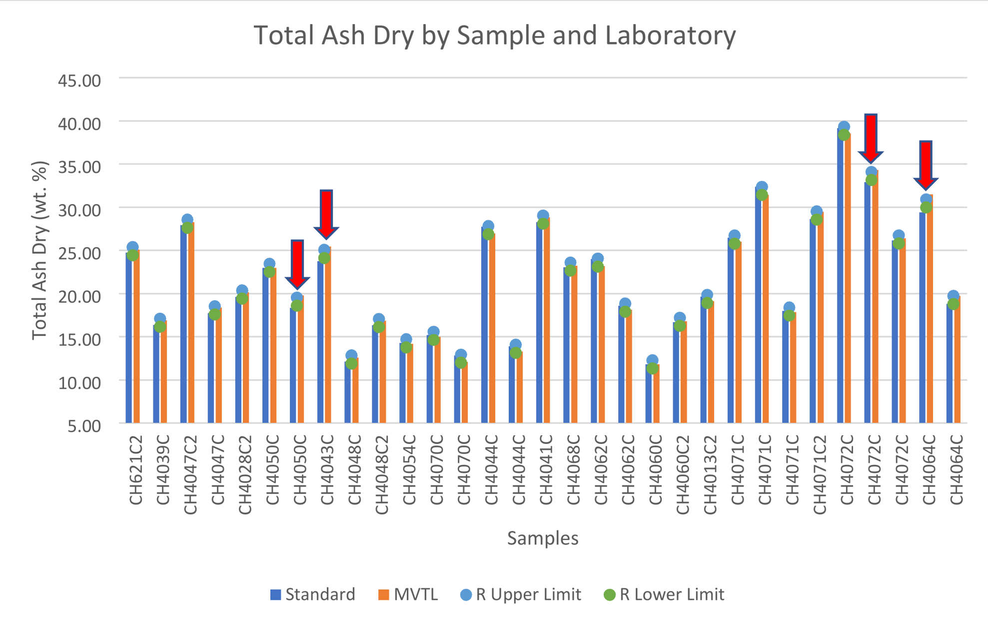


Figure 8.4 Reference Laboratory Audit Results for Total Sulfur (Dry)

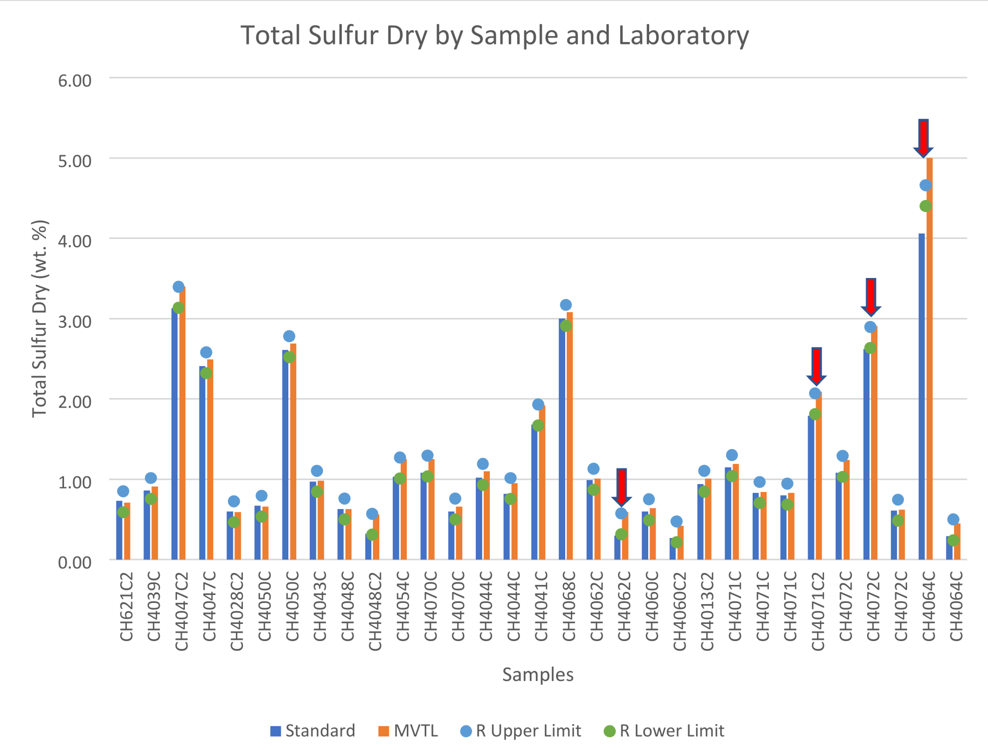
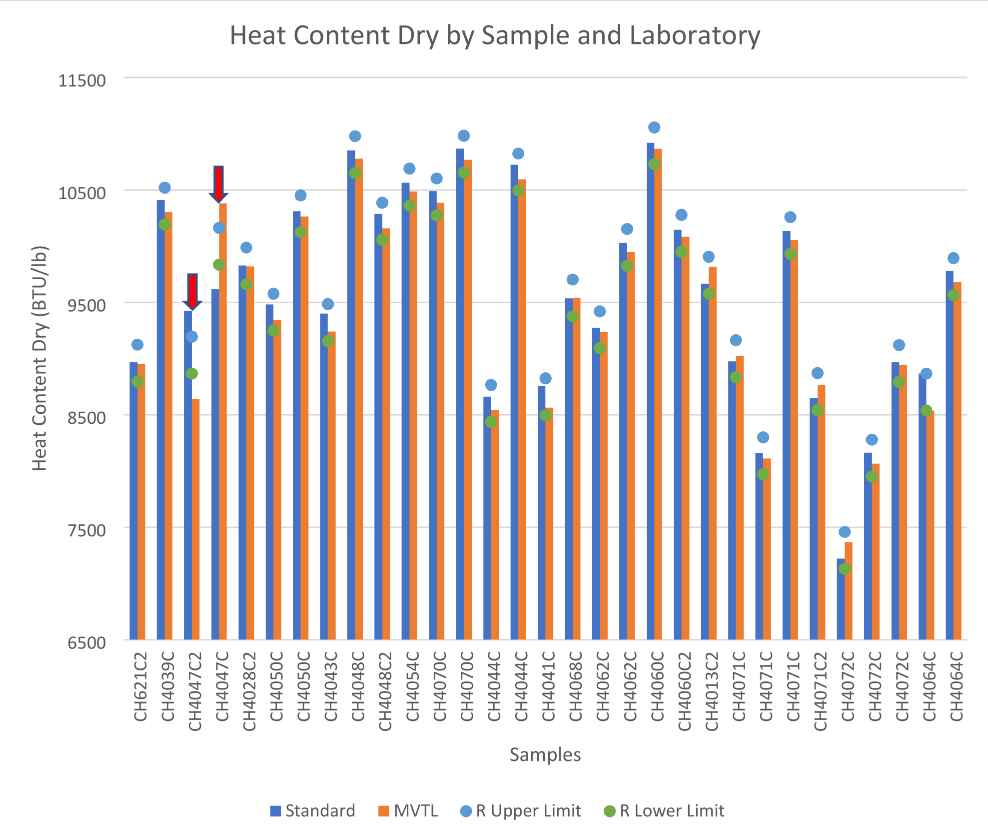


Figure 8.5 Reference Laboratory Audit Results for Heat Content (dry)



Historic laboratory results from Standard Laboratories have been consistent with expected ranges and past round robin testing results. Subsequent drilling campaigns will provide additional samples to look for trends or if these failures were isolated to this drilling campaign

8.4. QP Statement on the Adequacy of Sample Preparation, Security and Analytical Procedures

Although no formal written procedure existed until 2024 for the process to collect coal samples at the Red Hills Mine, the consistency in core collection from one drilling program to the next has been thoroughly documented. Through records review and personal observation of numerous drilling campaigns, it is the QP's opinion that historic coal core collection has remained consistent with U.S. Geological Survey's (USGS) guidance for sampling coal for chemical analysis. The process of double bagging and tagging the cores in addition to multiple checkpoints to log samples from field to shipment to the laboratory further ensures the integrity and security of each sample is maintained.

Additionally, in the QP's opinion the methodologies used by Standard Laboratories are within ASTM standards for sample preparation, process of sample splitting and reduction, general quality control, and security of samples to ensure that validity and integrity of samples is upheld. Although 19% of samples from Standard Laboratories were not able to be reported for the Laboratory Round Robin testing due to noncompliance with internal QAQC, the QP has confidence that the analytical results from Standard Laboratories have met their laboratory's QAQC and are acceptable for use in the estimation of Mineral Resources. Reproducibility failures for total sulfur for the Reference Laboratory Audit between Standard and MVTL will continue to be monitored and evaluated. Total sulfur results reported by both laboratories are within expected historic ranges reported at Red Hills Mine and do not pose a concern to the QP.

9. Data Verification

9.1. Data Verification Procedures for Mineral Resources

9.1.1. QP Site Visit

Benson Chow, Mineral Resource QP, is a Registered Professional Geologist in the state of Mississippi, License Number 0175 and a Registered Member of SME, ID 4317057 and is in good standing with both organizations. He has been involved with the exploration, geology, and mining operations at Red Hills Mine since 1999 and his most recent site visit was on May 7 through 13, 2024. The purpose of this visit was to complete a site visit of the active mining area and to oversee the 2024 drilling campaign. During the visits the QP completed the following task:

- Inspected the active pit areas for Mine Area 1 west, middle and east end of the pit.
- Observed the extraction of the D Seam coal using the Wirtgen in Mine Area 1. Visited the boxcut in Mine Area 3. Performed survey verification of several previously drilled exploration drill holes. Figure 9.1 shows Mine Areas 1 and 3 inspection and the survey verification of several exploration drill holes. Table 9.1 outlines the holes verified and the variance in northing, easting and elevation.
- Verified drill hole collar locations and elevations from the 2011, 2015, and 2021 drilling programs.
- Inspected the active pit area for Mine Area 3
- Overseen the 2024 drilling campaign

Figure 9.1 Resource QP Site Visit Photographs

West End of Mine Area 1 Pit | Middle of Mine Area 1 Pit mining D Seam | West End of Mine Area 3

Surveying hole CH3783CC | Surveying hole CH3890C | Surveying hole CH3890CC

Table 9.1 Resource QP Drill Hole Survey Verification

	Resource Model			Carlson Surveyor 2 Data Collector with Sokkia GRX3 Receiver			Difference			Comment
Hole Id	Northern	Eastern	Elevation	Northern	Eastern	Elevation	Northern	Eastern	Elevation	
CH3783CC	1420860	860986	409	1420850	860979	408	10	7	1	
CH3890C	1425269	858337	405	1425268	858337	405	0	0	0	No hole found but survey lath found
CH3890CC	1420357	864251	467	1420357	864250	466	0	1	0	
3580LW4	1427671	867643	559	1427670	867647	560	0	-4	0	Placard on well shroud labeled as 3280-LW4
CH3895CC	1420826	871604	481	1420826	871604	481	0	0	0	No hole or survey lath found

9.1.2. Verification of Drill Hole Data and Geologic (Mineral Resource) Model

The drilling database for the Red Hills Mine was organized into three Excel files related to lithology intervals, collar survey, and quality. The files encompassed the geologic modeling inputs including lithology picks, total depth of hole, base of oxidation (weathering), hole coordinates, and coal core quality data. A secondary compilation of drilling data was created to verify completeness of data related to each drill hole including the file location of geologist field logs and laboratory certificates or reports for core quality, and details of each drilling program such as contractors who performed the work and year drilled.

The drilling files were saved on the MLMC network drive which contains the geologic model and has limited access by engineering and geology at MLMC.

Once the drilling database was compiled, a series of routine data integrity checks were performed by the QP on the database to check for common errors and omissions. The QP visually inspected the database after updates were made, then conducted a second data validation check using Maptek Vulcan software. The validation checks included, but were not limited to, the following:

- Verified each hole has a unique collar location.
- Verified the total hole depth on the collar table matches the total depth on the lithology table.
- Verified the from and to depths on the lithology table and quality table increase down hole.
- Verified for overlapping intervals in the lithology table based on from and to depths.
- Verified the from and to depths on the quality table match the associated seam depths on the lithology table.

For any errors or omissions reported, the QP reviewed the geophysical logs, field logs, and quality reports related to the specified holes to reconcile the differences.

After the initial checks were performed, the QP identified any holes in close proximity to other holes such as twinned or re-drilled holes. If two drill holes fell within 50-foot of one another, the data from the two holes was reviewed. The hole with the highest confidence and most complete data was selected to be included in the model. After database checks and reconciliations were completed, the QP completed the modeling process which is detailed in Section 11.1 of this TRS.

The QP reviewed and validated the constructed geological model using various checks between drill hole data and modeled horizons. Drill hole locations were randomly selected to verify modeled values of each horizon and were found to be representative of the imported drill hole data. Additional visual inspection of the model included review of various consecutive cross sections as well as isopach maps of the modeled structure and quality. Newly modeled grids were also compared to previous models. Changes in modeled values were minor and isolated to areas where new drilling data had been included from recent exploration programs. Anomalies were reviewed against the original drill hole data, any errors in the drilling database were reconciled and the model was reconstructed.

It is the QP's opinion that the analytical results from the coal cores collected during MLMC's exploration programs are consistent with actual as-delivered quality from the active mining operations at the Red Hills Mine. This opinion was based on comparison of historical quality projected from the geologic model for the annual operating plans to actual as-delivered quality indicated by the customer's (Red Hills Power Plant) independent laboratory, Standard Laboratories, Evansville, IN. It is also the QP's opinion that the modeled structure of the lignite seams is consistent with active mining operations based on comparisons of modeled seam thickness and trends against actual surveyed seam thicknesses and trends.

The QP found the geologic model for Mineral Resource estimation was a reasonable and reliable representation of the geologic structure and quality of the lignite seams (horizons) at the Red Hills Mine.

9.1.3. Verification of the Reasonable Prospect for Economic Extraction to Support Mineral Resource Estimation

The Red Hills Mine has acquired data related to mine development and production within the local lignite deposit over an extended operational history. The QP verified the assumptions made for the estimation of Mineral Resources were well within accuracy required for an initial assessment (IA) level of study based on actual historical metrics and a contract period defined by the LSA with the RHPP. Data referenced for verification included actual month end reconciliations, production reports, and mine permit requirements. The potential for economic extraction is justified by the terms of the existing LSA with the RHPP through April 2032.

9.1.4. Limitations on Data Verification for Mineral Resources

Representatives of MLMC or the Company were not involved in the original drilling exploration programs conducted by Phillips prior to 1997. MLMC obtained the collar surveys, geophysical logs, coal core analyses, and geologist field logs for each hole from Phillips, but was unable to observe the drilling, sampling, or sample preparation related to these data. The largest uncertainty lies in the method of the collar survey of the early data drilled from 1975 to 1980. It is unknown to what degree these holes were surveyed. Collar elevations for these early drill holes were plotted against a topographic digital terrain model (DTM) contoured at 5-foot intervals and checked for discrepancies. All plotted drill hole locations fell appropriately within the respective contour interval.

MLMC, historically, has contracted Diversified Drilling Services and Century GLS, contractors used by Phillips for the early exploration, to perform in-fill drilling programs, such that MLMC has gained familiarity in these contractors' drilling and downhole mapping methods. Furthermore, comparisons of new drilling data to the older Phillips data have been completed as fill-in drilling progresses ahead of mining. These comparisons, and the level of documentation Phillips provided upon acquisition of the coal assets translates to a level of confidence in these data to use in the geologic modeling for Mineral Resource estimation. Nonetheless, there is still some uncertainty related to the Phillips drill hole data which the QP has considered in the determination Mineral Resource estimations as discussed in Section 11 of this TRS.

Additionally, as discussed previously in Section 7.2 of this TRS, the QP was also unable to verify laboratory records for the 22 coal cores collected in 2003 as included in the drilling database. The QP reached out to the independent laboratory for copies of the original quality reports. However, the time of record exceeded the laboratory's holding period of seven years and copies were not available. The QP then compared the related quality of the drilling database to the associated month end reconciliation reports and found that modeled tonnages in the area of the 2003 drilling were representative of the actual mined tonnage as shipped to the RHPP. After this comparison, the QP determined the uncertainty in the modeled 2003 quality would not materially affect the Mineral Resource estimations.

9.1.5. QP's Statement of Adequacy of Data for Mineral Resources

Data disclosed in this TRS used for the preparation of geologic models for the purpose of Mineral Resource estimations at the Red Hills Mine have been verified by the QP. The QP has been involved with the collection of these data during drilling exploration programs since 1999. These data include drill hole surveys, geophysical logs, coal core quality, and other relevant test data. Procedures discussed previously in this section were used by the QP to reconcile any discrepancies upon review of the available data. In addition to a substantial geologic database, historical data since the mine opened the original boxcut in 2000 was available to the QP to review to ensure appropriate mining costs were applied to estimate Mineral Resources.

It is the QP's opinion that the data provided for this TRS is sufficient for the determination of Mineral Resources at the Red Hills Mine.

9.2. Data Verification Procedures for Mineral Reserves

9.2.1. QP Site Visit

Jefferson King, is serving as the Mineral Reserve QP, a licensed Professional Engineer (License Number 18896), a Land Surveyor (License Number 3033) in the State of Mississippi, and a Registered Member of SME (ID 04195446). He has had direct involvement with production, technical projects, development of the LOM plan and financial analysis since 2013. He has held various roles in the Engineering department at Red Hills and is currently serving as the Engineering Manager. In the role of Engineering Manager, he has direct involvement with daily production operations and oversight and management of technical projects, and is directly involved in the development of the LOM finances at the Red Hills Mine.

9.2.2. Verification of Hydrogeology Data

Groundwater and surface water studies were conducted on the Red Hills Mine site, as described in Section 7.3 of this TRS, and used to develop mine plans as described in Section 13 of this TRS. The QP has reviewed the findings of these studies and believes they are thorough, complete and provide the necessary information for the start-up and ongoing operation of the Red Hills Mine. Sampling and modelling techniques used in the studies were adequate and completed in a professional manner for a PFS level assessment of the hydrology/hydrogeology. The locations of the surface water sampling sites and monitoring/test well locations are adequate for the MS-005 permit area. The Red Hills Mine has operated for over 20 years and is continuously gaining an improved understanding of how the groundwater and surface water impacts mining operations along with environmental compliance.

9.2.3. Verification of Geotechnical Data

Several geotechnical studies were initially conducted on the Red Hills Mine site as described in Section 7.4 of this TRS and subsequent studies conducted and described in Section 13.1 of this TRS. These studies have been reviewed by the QP and they provided the basis for the mine plan designs. Sampling and modelling techniques used in the studies were adequate and completed in a professional manner for a PFS level assessment of the geotechnical parameters. It is the opinion of the QP that the geotechnical studies reviewed have been consistent with conditions experienced in the field from the active mining operation and are adequate for use in the MS-005 permit area.

9.2.4. Verification of Cut-off Grade, Dilution Assumptions and Modifying Factors

The QP reviewed the cut-off grade, dilution assumptions, and all modifying factors for completeness and reasonableness and found them to be consistent with the realized results from the active mining operation.

Quality reject specifications from the LSA are the basis for determining the cut-off grades. While the cut off grades vary from the LSA reject specifications any coal that meets the cut off grades can ultimately be blended with other coal seams to meet the LSA requirements. The QP has reviewed the cut-off grades and LSA and in his opinion these have been properly established.

Dilution parameters are reasonable and have been verified by comparing projected to actual as-delivered quality data which confirms the established dilution parameters are a good representation of final results. Recovery rates have been refined over the course of operating the Red Hills Mine and are constantly being compared to actual recoveries for verification.

Modifying factors used in pit designs, as described in Section 13 of this TRS, have remained consistent since mine inception with limited changes. The modifying factors have been reviewed by the QP and consistently applied in the mine design process.

It is the opinion of the QP that the cut-off grade, dilution assumptions and modifying factors are adequate for purposes of determining Mineral Reserves.

9.2.5. Verification of Ultimate Pit Configuration

The ultimate pit configuration is defined by physical constraints including permitted boundaries and related offsets and buffers, and areas where the stripping ratio exceeds economic limits. It is the opinion of the QP that the ultimate pit configuration has been properly defined and is adequate for purposes of determining Mineral Reserves.

9.2.6. Verification of Cost Estimate, Pricing Assumptions, and Economic Analysis

The QP has reviewed annual historical values for all costs, pricing assumptions and economic analysis to be reasonable for future projections, which will continue to be refined annually as more data is collected from ongoing operations, to improve the accuracy of the projections. This information has been used to support parameters used during mine planning.

9.2.7. Workforce, Staffing and Equipment

The QP considers that reconciliations of staffing and workforce requirements, actual equipment capacities and productivities have been appropriately considered while establishing the needs of executing the mine plan. The Red Hills Mine is an active, on-going operation and the staffing, workforce, and equipment requirements are well established. Ultimately the required staffing, workforce, and equipment needs are driven by the dispatch of the RHPP.

9.2.8. Environmental Factors

The QP has worked closely with the Red Hills Mine Environmental Manager and has helped develop the site closure and reclamation plans and the related costs. Proper monitoring programs to meet mine permit requirements are in place. Field work has been observed routinely by nature of the QP’s on-site role to verify the conditions and assumptions that underscore the environmental data used in this TRS.

9.2.9. Limitations on Data Verification for Mineral Reserves

It is the opinion of the QP that there are no limitations to data verification for Mineral Reserves.

9.2.10. QP's Statement of Adequacy of Data for Mineral Reserves

The QP has verified the data disclosed, including prior technical studies used in the development of the modifying factors, cut-off grade, ultimate pit configuration, mine design, schedule, workforce and staff requirements, equipment needs, environmental factors, cost assumptions, pricing assumptions and economic analysis. The QP has been involved with the collection and use of this data since 2013 while being employed at the Red Hills Mine. Red Hills Mine has established internal policies and controls to manage the environmental, regulatory and social or community aspects for the mining operations. These are periodically reviewed by the QP and other managers at the Red Hills Mine and the Company's management for their effectiveness in a culture which follows the principle of continuous improvement. The QP is of the opinion that a reasonable level of verification has been completed and that no material issues have been left unidentified in the course of collecting and analyzing the data described in this report.

It is the QP's opinion that the data provided for this TRS is sufficient for the determination of Mineral Reserves at the Red Hills Mine.

10. Mineral Processing

It was identified early on that the Red Hills Mine and power plant project would only be viable if the fuel source could be used as a direct feed ROM fuel source. Therefore, no washability tests for processing or metallurgical tests were conducted.

11. Mineral Resource Estimates

This section contains forward-looking information related to the Mineral Resource estimates for the Red Hills Mine. The material factors that could cause actual results to differ from the conclusions, estimates, designs, forecasts or projections include geological modeling, grade interpolations, cutoff parameters, lignite price estimates, mining cost estimates, and mine design parameters.

11.1. Key Assumptions, Parameters and Methods

The QP developed the stratigraphic geologic model for Mineral Resource estimation using Maptek Vulcan software. All verified drilling data as of January 01, 2024 was considered for inclusion in the model. Key assumptions, parameters and methods to estimate Mineral Resources are discussed herein. In-fill drilling has been completed through 2024, however has not been included in the current geological model. In the opinion of the QP, the drill holes from the 2024 program are in-fill and will not materially affect the Mineral Resource estimates stated in this TRS.

11.1.1. Horizons

The structure of the Red Hills Mine deposit is determined by "to" and "from" depth picks from geophysical logs and geologist's drill hole field logs correlated to the drill hole collar survey. Depth picks represent the roof or floor of a lignite seam which define each horizon or domain.

Laboratory results for split cores are reviewed prior to inclusion in the geologic database for modeling. Quality results for all split samples to identify composition concentrations are identified as a continuous seam in the geologic database. The weighted average is computed in the modeling process, which allows for a single composite value for each lignite seam per drill hole.

Roofs, floors and parting samples that meet a minable quality and thickness (see Table 11.1) are identified as part of the associated seam and are modeled in the same manner as the split samples described previously. Roofs, floors and partings that do not meet a minable quality or thickness are included in the geologic database as a point of record, but are not modeled with a seam identifier, and thus the quality and thickness of those sample splits are not composited with the associated seam.

Table 11.1 Quality (as-received basis) and Thickness Limits

Parameter	Minimum	Maximum
Calorific Value, Btu/lb	4,000	N/A
Ash, %wt	N/A	30.0
Thickness, feet	1.0	N/A

Table 11.2 presents the stratigraphic horizons modeled. Horizons considered for Mineral Resource estimates are indicated with an asterisk. Modeled horizons were required to have a minimum of ten coal core samples in the drilling database to be considered. The QP found a minimum of 10 coal core samples provided the statistical confidence to characterize the quality of a lignite seam.

Table 11.2 Stratigraphic Horizons

HORIZON ID	SEAM NAME	AVERAGE THICKNESS
COJ	J-Seam	1.7
CI2	I2-Seam	1.1
COI	I-Seam	1.6
CI1	I1-Seam	1.1
CH2	H2-Seam	1.4
COH*	**H-Seam***	**2.5**
CH1	H1-Seam	1.2
CG2	G2-Seam	1.4
COG*	**G-Seam***	**3.0**
CG1	G1-Seam	1.2
CG3	G3-Seam	1.3
CF2	F2-Seam	1.0
COF*	**F-Seam***	**2.8**
CF1	F1-Seam	1.4
CE2	E2-Seam	0.9
COE*	**E-Seam***	**3.5**
CD6	D6-Seam	1.1
CD4	D4-Seam	1.3
CD2	D2-Seam	1.2
COD*	**D-Seam***	**3.2**
CC2	C2-Seam	0.9
COC*	**C-Seam***	**3.0**
CC1	C1-Seam	1.0
CB2	B2-Seam	1.1
COB	B-Seam	3.1
CB1	B1-Seam	1.5
CB3	B3-Seam	1.0

***** Indicates horizon with an average drill hole quality and an adequate number of core samples which meet the limits for consideration as a Mineral Resource.

11.1.2. Quality Parameters and Density Determination

The quality parameters modeled in the resource model are calorific value (Btu/lb), moisture (wt%), ash (wt%), and sulfur (wt%); typical Short Proximate analysis reported on an as-received (AR) moisture basis. The minimum and maximum quality constraints which determine feasibility to be categorized as a Mineral Resource are also listed in Table 11.1.

In addition to the quality grids, each lignite seam (horizon) has a modeled density grid. Specific Gravity (SG) analysis is regularly tested on lignite core samples. Modeled SG values by horizon are converted to a density grid in the modeling process by converting grams per cubic centimeter (g/cm^3) to tons per cubic foot ($tons/ft^3$) such that: SG * Density of Water (62.43 lb/ft^3) * 2000 lb/ton.

11.1.3. Modeling Process

After the QP verified the drilling data following procedures outlined in Section 9.1 of this TRS, the stored drill hole data encompassing geologic lithology picks, quality data, and collar surveys was imported into the modeling software.

Once the drilling data was imported, a preliminary topographic surface was created by triangulation of an electronic contour map of the pre-mining topography of the Red Hills Mine and surrounding area. A 50 by 50-foot grid surface was then applied to the triangulated surface. Surveyed drill holes were modeled using inverse distance with a grid cell of 50-feet to create a second topographic grid. Differences in the surface produced by the surveyed drill holes are added to the preliminary topographic surface to create the designed topographic surface of the area to be modeled.

The lithology and location tables were then referenced by the modeling program and the structural model was developed. The lignite horizons were correlated and modeled using 50-foot grid cells. During the modelling process, lithologic data were extrapolated from ten surrounding drill holes using an inverse distance squared calculation to infill the grids where appropriate.

The base of oxidation (BOX) depth determined from drill cuttings and continuous (overburden) cores was modeled to provide the limit for suitable plant growth material (SPGM) for operations. This limit also generalizes the base of weathering in that lignite above this depth has been partially oxidized and typically exhibits unacceptable quality characteristics. The depth of the BOX layer was modeled by the grid calculation method using 50-foot grid cells and the extrapolated depth of the BOX from drill hole to drill hole. Lignite seams were then subcropped based on the BOX and lignite seams above the BOX were removed from the model.

The structural model was validated based on geological cross sections and isopach maps of the seam roofs and floors that were created, and checked by the QP. Any errors identified in the lithologic descriptions were reconciled.

Lignite quality was then modeled for the entire deposit. As described above, quality data was first composited for each lignite seam by drill hole. As with the structural model, the quality model uses 50-foot grid cells to model quality of the deposit. Drill holes missing quality data employed an inverse distance squared calculation to assign averaged values from ten surrounding drill holes.

In-situ tonnages for the lignite seams were estimated within Maptek Vulcan by applying a formula to each horizon by the area, thickness, density, and real/extrapolated quality values (i.e. modeled parameters).

11.1.4. Justification of Modeling Methods

Historically, geologic models at the Red Hills Mine have been generated using inverse distance methods. The models have proved to be consistent with field conditions (structure and quality), which is likely attributed to the simplistic, stratigraphic geology of the region as described in Section 6.0 of this TRS. Geologic units are laterally consistent with generally graded quality. Use of inverse distance methods has proven to be robust in continuous stratigraphic deposits. The QP did not see a need for MLMC to alter geologic modeling methods.

11.1.5. Limits and Constraints on the Mineral Resource Estimates

The Mineral Resources presented in Table 11.4 were estimated by applying a series of geologic and physical limits in addition to mining and economic constraints which meet the level of accuracy required for an initial assessment (IA). The potential of economic extraction is justified by the terms of the existing LSA contract and are clearly defined through April 2032. Key constraints used by the QP to determine Mineral Resource estimates are summarized below. Details pertaining to physical constraints are discussed further within Sections 3 and 17 of this TRS. Mining and economic constraints specific to Mineral Resource estimates are discussed herein.

Geologic Constraints:

- Modeled roof and floors of each lignite seam (horizon);
- Base of oxidation (BOX);

Physical Constraints:

- Topography surface;
- Lease and fee coal boundaries;
- Surveys of mined out tonnages as of December 31, 2024;
- Offsets from unleased land tracts and occupied dwellings;
- Buffers from state and federal parks;
- Existing roads and highways, major utilities, and major surface infrastructure without prior agreements for relocation or temporary closure;
- Stream offsets for Waters of the US (WOTUS) that fall outside of mitigation permits.

Mining and Economic Constraints:

- Resource categorization parameters based on distance from point of observation and drill hole sample count criteria;
- Resource pit shells developed from general mine design parameters and reasonable unit costs used to determine the max cumulative strip ratio for the tonnage to be economical;
- Stated in-situ without any mining loss, dilution or other modifying factors applied;
- Stated exclusive of Mineral Reserves;
- Limits on quality and thickness parameters presented in Table 11.1.

11.1.6. Generation of Pit Shells for Mineral Resource Estimates

Resource pit shells were projected and confirmed to meet the supply requirements of the LSA.

The QP determined the maximum reasonable cumulative stripping ratio was 18:1 for the Red Hills Mine deposit assuming a lignite sales price based on the LSA of $34.02 per ton as of December 31, 2024. Assumptions of mining costs were based on knowledge of surface mining methods in a simple multi-seam, stratigraphic deposit.

Two pit shells were identified for Mineral Resource estimates. Mine Area 2 and Mine Area 3 pit shells fall within the MS-005 permit area.

The geologic model was used to create a stripping ratio map of the deposit. Recovery of tonnage was assumed to be 100-percent. No dilution factors were applied. The C-seam was assumed by the QP to be the lowest potentially mined lignite seam. Highwalls and endwalls were projected up from the lowest mineable seam to the topography at 40-degrees, an angle appropriate for surface mining in soft materials. Preliminary pit shells were determined by the QP based on the maximum cumulative stripping ratio, then modified for any physical constraints.

11.2. Mineral Resource Estimates

11.2.1. Basis for Mineral Resource Estimate

The basis of the Mineral Resource estimates for the Red Hills Mine deposit and the methods in which they were prepared are summarized for this item. The S-K 1300 regulations (17 CFR 229.1300) define a Mineral Resource as:

"A concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A Mineral Resource is a reasonable 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. It is not merely an inventory of all mineralization drilled or sampled."

Following definitions presented in 17 CFR 229.1300 and guidance from the Committee for Mineral Reserves International Reporting Standards (CRIRSCO), Mineral Resources are divided into three categories as listed below and are ranked by increasing level of confidence. Mineral Resources are reported as in-situ tons such that no adjustments have been made to account for mining recovery or losses.

Measured Mineral Resources are defined as a Mineral Resource for which quantity and quality are estimated on the basis of conclusive geological evidence and sampling such that the geologic certainty of the Mineral Resource is sufficient to allow the QP to apply modifying factors in detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Measured Mineral Reserves have the greatest confidence defined by the QP, and may be converted to a Proven Mineral Reserve.

Indicated Mineral Resources are defined as a Mineral Resource for which quantity and quality are estimated on the basis of adequate geological evidence and sampling such that the QP can apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. These Mineral Resources may be converted to a Probable Mineral Reserve. Indicated Mineral Resources have a moderate level of confidence determined by the QP, and could be upgraded to a Measured Mineral Resource with further exploration.

Inferred Mineral Resources are defined as a Mineral Resource for which quantity and quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and quality continuity. Inferred Mineral Resources have the lowest level of confidence determined by the QP.

The QP based the Mineral Resource estimates presented in Table 11.3 for the Red Hills Mine on a stratigraphic geologic model generated from the verified drilling exploration data presented in Section 7.2 of this TRS. The choice of stratigraphic modeling is due to the lateral persistence and continuous extent of the lignite seams.

11.2.2. Mineral Resource Statement

The categorized Mineral Resources reported in Table 11.3 are exclusive of in situ Mineral Reserves. The effective date of Mineral Resource estimates is December 31, 2024.

Table 11.3 Mineral Resource Estimates

Red Hills Mine	Resource Classification	Tonnage (Kt)	Quality (As-Received)			
			Calorific Value (Btu/lb)	Moisture (%wt)	Ash (%wt)	Sulfur (%wt)
Mine Area 2	Measured	4,400	5,200	44.6	13.0	0.6
	Indicated	400	5,180	44.1	13.6	0.6
	Measured + Indicated	4,700	5,200	44.5	13.0	0.6
	Inferred	0	0	0.0	0.0	0.0
Mine Area 3	Measured	0	0	0.0	0.0	0.0
	Indicated	0	0	0.0	0.0	0.0
	Measured + Indicated	0	0	0.0	0.0	0.0
	Inferred	100	5,200	45.5	12.3	0.5
Total Resources	Measured	4,400	5,200	44.6	13.0	0.6
	Indicated	400	5,180	44.1	13.6	0.6
	Measured + Indicated	4,700	5,200	44.5	13.0	0.6
	Inferred	100	5,200	45.5	12.0	0.5

Notes:

1. Mineral Resource Estimate has been prepared by a qualified person employed by NACCO NR as of December 31, 2024
2. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability and there is no certainty that all or any part of such Mineral Resources will be converted into Mineral Reserves.
3. Mineral Resources are in-situ and exclusive of 22.9 million tons (Mt) of Mineral Reserves.
4. Mineral Resources are reported using an economic cutoff of $34.02 per ton.
5. Resources are presented with a minimum 1 foot seam thickness, a maximum as received moisture basis ash content of 30%, and a minimum calorific value of 4000 BTU/lb on an as received moisture basis cutoffs.
6. Resources are estimated using Vulcan Software.
7. Tonnages and qualities have been rounded to an accuracy level deemed appropriate by the QP. Summation errors due to rounding may exist.

11.3. Cut-off Quality, Assumed Cost and Sales Price

Quality limits were previously discussed with Table 11.1 and in subsection Limits and Constraints on the Mineral Resource Estimates under Section 11.1 of this TRS.

Assumed cost and sales price to determine Mineral Resources was previously defined by the stripping ratio and discussed in subsection Generation of Pit Shells for Mineral Resource Estimates of Section 11.1 of this TRS.

11.4. QP's Classification of Mineral Resources

The Mineral Resource categorization applied by the QP includes the consideration of quality and thickness by seam and by drill hole and the spatial distribution of drill holes. Mineral Resources presented in this TRS were estimated and categorized as Measured, Indicated, or Inferred.

Table 11.2 identified the lignite seams for initial consideration of a Mineral Resource by the QP. The indicated seams had a minimum of ten coal core samples for quality estimation, and an average coal core sample quality which fell within the limits provided in Table 11.1. Mineral Resources were then further defined by the three identified resource pit shells.

As discussed in Section 7.2 all drill holes within the Red Hills Mine deposit obtained structural data related to the lignite seams, where a portion of these drill holes also included quality data from the collection of coal core samples. As such, the QP determined it would be appropriate that the defined distances for Mineral Resource categories were supported by the ash variography of the C Seam. C Seam is the stratigraphically deepest and most spatially consistent seam within the deposit and represents the basal seam of the LOM plan. A histogram of the ash distribution has been included as Figure 11.1 which shows a typical positive skew distribution of ash samples for C Seam. Figure 11.2 shows the variogram developed for C Seam ash which displays the continuity of the ash content within the C Seam. A range of 8,000 feet can be estimated from this C Seam ash variogram. Samples beyond the range are no longer considered to have a correlation.

Figure 11.1 C Seam Ash Histogram

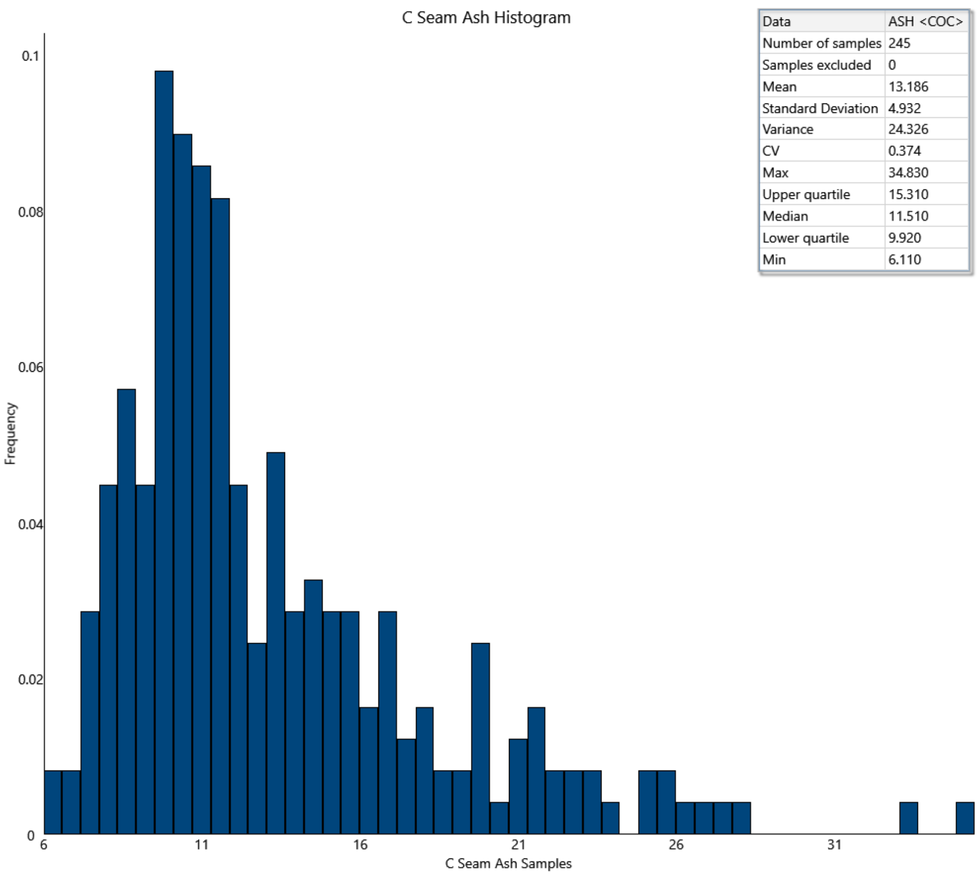
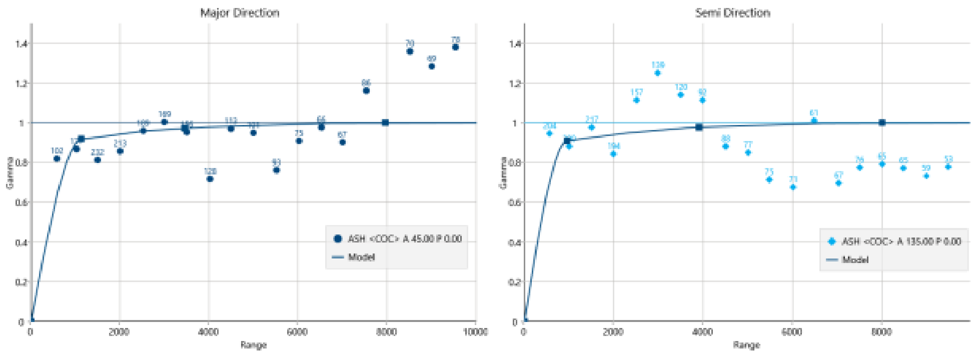
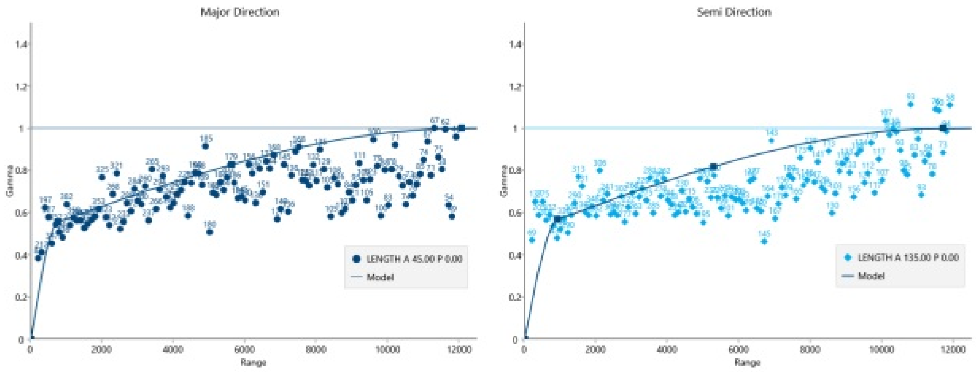


Figure 11.2 C Seam Ash Variogram



A variogram of C Seam thickness was developed to show the continuity of the structural thickness of the C Seam and has been included as Figure 11.3. A range of 12,000 feet can estimated from the C Seam thickness variogram.

Figure 11.3 C Seam Thickness Variogram



The QP has determined that a maximum classification distance of 8,000 feet is appropriate for the deposit by analyzing the variogram ranges from the C Seam ash and comparing this range with the variogram range for the C Seam thickness. The C Seam ash variogram range distance is conservative and is within the 12,000 feet range for the structural thickness continuality of the C Seam. Potential overstating of reserves is mitigated by using the C Seam ash variogram range with the shorter distance when compared with the larger C Seam thickness range.

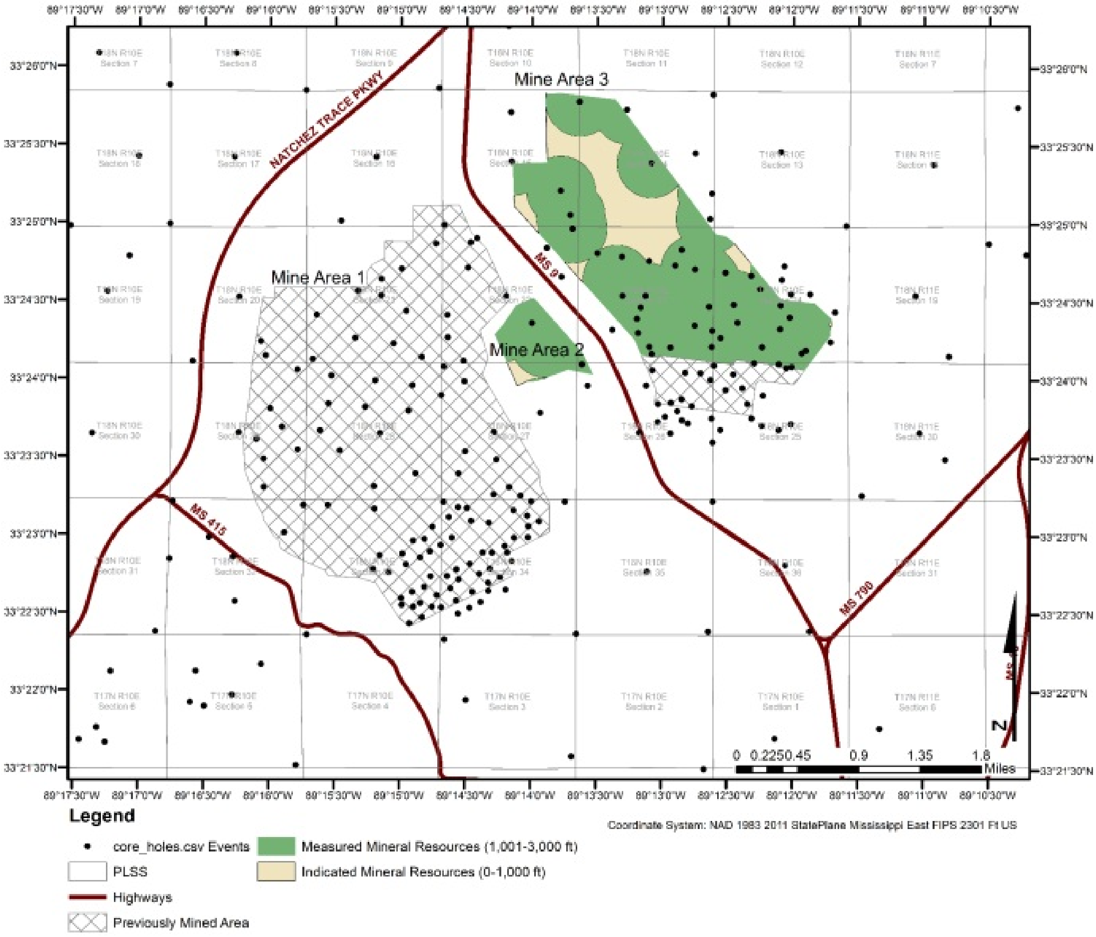
After review, the QP determined distances from core holes of 2,667 feet, 5,333 feet, and 8,000 feet are appropriate for categorization of Mineral Resources as Measured, Indicated, or Inferred, respectively (Table 11.4). These classification distances are applied to each seam by only using holes where each representative seam was sampled for quality as points of reference.

Table 11.4 Mineral Resource Categories – distances from C Seam Ash Variogram

Mineral Resource Category	Lower Distance (Ft)	Upper Distance (Ft)
Measured	0	2,667
Indicated	2,668	5,333
Inferred	5,334	8,000

As stated previously, all Mineral Resource tonnages meet the minimum of 10 samples per seam for estimation, meet the quality limits, and fall within a defined resource pit shell. The distinguishing factor between Measured, Indicated, and Inferred Resources is the distance of the resource from a core hole as described below and shown in Figure 11.4. Please note that Figure 11.4 is only for the C Seam, as an example, individual maps and influence polygons were compiled for each individual seam and those were utilized for the Mineral Resource estimate.

Figure 11.4 Red Hills Mine Mineral Resource Classification for C Seam



Measured Mineral Resources are defined as tonnages which meet the general resource requirements and fall within an area where the distance from a core hole is less than or equal to 2,667 feet. An extensive amount of fill-in drilling has occurred in areas where core holes have been drilled at a distance within 1,000-feet of each other. At this distance, much of the structural data has been tightened to a density of 500-feet or less. Most of this drilling data was collected by MLMC using known sampling methods and surveying methods. Due to the level of control and oversight during collection of this drilling data, the resulting resource estimates have a high level of confidence by the QP and a low level of uncertainty.

Indicated Mineral Resources are defined as tonnages which meet the general resource requirements and fall within an area where the distance from a core hole is greater than 2,667 feet and less than or equal to 5,333 feet. While a portion of this data still relies on some of the early exploration data collected by Phillips, much of the area has been filled-in with data collected by MLMC using known sampling methods and surveying methods. While some uncertainty still exists in this data due to the influence of the early Phillips drilling, a moderate level of confidence in this data has been applied by the QP from more recent fill-in drilling.

Inferred Mineral Resources are defined as tonnages which meet the general resource requirements and fall within an area where the distance from a core hole is greater the 5,333 feet and less than or equal to 8,000 feet. Modeled values at this distance require a large amount of interpolation from drilling data collected in the early exploration stage conducted by Phillip's from 1975 through 1980 and, as such, holds the greatest uncertainty in sample collection and survey methods. Fill-in drilling, including twinned holes would increase the confidence in these data.

11.5. Uncertainty in the Mineral Resource Estimate

The drilling methods, sampling methods, hole survey, sample storage and preparation, and data processing for the Phillips holes are unknown and cannot be verified. More recent drilling appears to agree with the results of the original Phillips drilling. Risk associated with using the Phillips data is considered minimal since the newer data validates the Phillips drilling and sampling methods, sample storage, and data testing and processing. This is considered a low risk of uncertainty for all Mineral Resource classifications.

Geological uncertainties exist in the modeled limits of the coal seams. Although there are over 1,500 holes drilled and used to model this deposit, but subcropping of seams have been encountered in the Mine Area 1 that were not identified in any exploratory drilling campaign. These areas have been small and limited in aerial extent. Measured and Indicated classifications have a low risk to its resources due to the high density of sampling. Inferred class has a moderate level of risk of uncertainty to the geologic modeling.

Resource estimation distances were derived from a statistical analysis of C Seam as-received ash content and C Seam thickness. Variograms were developed for ash and thickness and the ranges were determined for each variogram. The variogram range for ash is estimated at 8,000 feet while thickness range is estimated at 12,000. By selecting the more conservative distance for the Inferred classification the QP believes that all there is a low risk of uncertainty for all Mineral Resource classifications.

Table 11.5 shows a tabular summary of the resource classification uncertainty.

Table 11.5 Resource Classification Uncertainty Summary

Uncertainty Type	Measured Uncertainty	Indicated Uncertainty	Inferred Uncertainty
Drilling	Low	Low	Low
Sampling	Low	Low	Low
Data Processing and Handling	Low	Low	Low
Hole Survey	Low	Low	Low
Geological Modeling	Low	Low	Moderate
Geostatistical Analysis	Low	Low	Low
Mineral Resource Estimate	Low	Low	Low

11.6. QP's Opinion on Potential Influences Affecting Mineral Resource Estimates

Due to the contract provisions of the LSA, factors including contract term or likelihood of economic extraction, lignite sales price, and quality parameters/limits have far less risk of being affected than a mineral sold on the open market. Nonetheless some risks still need to be addressed.

Additional exploration may positively or negatively affect Mineral Resource estimates. Furthermore, Mineral Resource estimates may be materially affected by a change in the assumptions including general mining costs and land control. New regulations may impose additional economic factors, delays to future permit renewals, or restrictions to physical estimation boundaries.

The QP is not aware of any specific factors that would currently materially affect the prospect of economic extraction.

12. Mineral Reserve Estimates

This section contains forward-looking information related to the Mineral Reserve estimates for the Red Hills Mine. The material factors that could cause actual results to differ from the conclusions, estimates, designs, forecasts or projections include geological modeling, grade interpolations, cutoff parameters, lignite price estimates, mining cost estimates, and final pit shell limits such as more detailed exploration drilling or final pit slope angle.

12.1. Key Assumptions, Parameters, and Methods

To develop the estimate of Mineral Reserves, modifying factors were applied to Measured and Indicated Resources. Inferred Mineral Resources were not considered for Mineral Reserves. The following modifying factors were applied using key assumptions, parameters and methods to convert Mineral Resources to Proven and Probable Mineral Reserves.

12.1.1. Stripping Ratio and Pit Limits

The maximum stripping ratio for Mineral Reserves was determined from analysis of historical and future costs compared to the estimated base sales price per MMBtu as defined in the LSA through April 1, 2032 as described in Section 19 of this TRS. The cost and price per MMBtu establish the maximum allowable cumulative stripping ratio limit of 14:1, which is averaged over the LOM plan. MLMC has historically found this stripping ratio to provide the necessary economic mining cost compared to selling price. The base price for the dedicated lignite is defined in the LSA with the estimated average price per ton of $34.41 for lignite delivered and sold over the LOM plan. All costs were escalated at various rates based on the forward-looking Consumer/Producer Price Index with budgeted 2025 costs used as the base year. The maximum allowable cumulative stripping ratio establishes the pit limits within the Mineral Resource pit shells.

Stripping ratios remain relatively consistent across the MS-005 permit area with the exception of high stripping ratios along the east side of the permit area which defines the eastern boundary of mining.

12.1.2. Lignite Quality

Lignite that was unable to be blended to meet the quality specifications as outlined in the LSA (Table 11.1) was eliminated from consideration and not included in reserve estimates.

12.1.3. Modeled Mining Parameters

The geologic model used for estimation of Mineral Resources was modified to account for the minimum mining thickness of 1-foot and dilution parameters as described in Section 13.2 and Table 13.3 of this TRS. Additionally, seams with a parting thickness of less than 6-inches were composited.

12.1.4. Assumptions and Modifying Factors

The following key assumptions, parameters and modifying factors were used by the QP to estimate the recoverable Proven and Probable Reserves contained within the LOM:

- All recoverable lignite required to fulfill the contractual obligations of the LSA is contained within the LOM plan pit extents;
- Geological structure and quality model are as described in Section 11 of this TRS;
- Only Measured and Indicated Resources were included;
- Maximum cumulative stripping ratio 14:1 (averaged over LOM plan);

- Mining production rates on a cubic yard and per ton basis remain relatively consistent with historical performance;
- Mining costs on a unit basis remain relatively consistent with historical performance;
- Depth of weathering (base of oxidation) as defined by Section 11 of this TRS;
- Minimum minable lignite thickness: 1.0 feet;
- Minimum parting thickness before seams are composited: 6.0 inches;
- Maximum depth of mining: approximately 320 feet;
- The Mineral Reserves fall within the Mineral Resource pit shells which have clearly defined physical constraints;
- Mining dilution parameters defined in Table 13.3 ROM Dilution Parameters;
- Lignite density defined by seam from coal core drilling data and modified by dilution parameters and approximately 80 lb/ft^3;
- Recovery rates by seam as presented in Table 13.4;
- Quality limits as defined by the LSA and presented in Table 11.1 were applied after dilution has been accounted for, and;
- Forecasted annual power plant MMBtu requirements.

12.1.5. Method

The RHPP provides a forecast of MMBtu requirements to MLMC on an annual basis. MLMC compares this forecast to historical plant requirements to develop a workplan of MMBtu demand for the LOM. The LOM plan assumes the RHPP will not continue to operate after the expiration of the current contract with CGLP on April 1, 2032.

To develop the LOM plan, modifying factors including minimum mining thickness, minimum parting thickness, and mining dilution parameters were applied to the geologic (Mineral Resource) model within Maptek Vulcan to create the Mineral Reserve model.

MLMC engineers then project mining pits within Maptek Vulcan. Projections were directed to the topography from the lowest mineable lignite seam. The mining pit width is 170’ based on the current mining equipment operating parameters. The mining pit length varies based on mining pit limits. Highwalls are projected at 42-degrees. Endwalls are projected at 40-degrees with the allowance for a 150-foot wide bench to establish haul roads. Final pit extents were limited by a maximum cumulative stripping ratio of 14:1 (average over the LOM plan). Further justification of pit design parameters is provided in Section 13 of this TRS.

Once mining pits were projected, volumes, tonnages, and associated quality parameters were exported from Maptek Vulcan. The blocks were exported as volume for burden horizons and as tons for lignite horizons. The QP reviewed the exported quality for each lignite horizon block to ensure quality thresholds were met. Any lignite block that did not meet the minimum quality parameters was not considered a Mineral Reserve and the associated block was considered waste material (burden block). The exported data was then sequenced and the overburden blocks were then assigned to the appropriate mining fleet to perform the work. The first step in sequencing was to apply recovery rates to lignite tonnages by seam.

Once the above modifying factors were applied, the sequencing program allotted lignite tonnages and burden volumes to the four major operational fleets of truck and shovel, dozer push, dragline, and lignite load and haul by period based on the workplan MMBtu requirements. The sequencer creates an output of volumes by fleet, including rehandle volumes, and projected tonnages and qualities by period.

This output then flowed through a series of steps to estimate equipment hours based on equipment production rates for each necessary piece of equipment. Calculations also included adjustments for:

- Equipment mechanical, operational, and weather availabilities;
- Fleet capacity including limiting production factors;
- Variations in haulage routes;
- Assumptions for crew sizes and;
- New and/or retiring equipment.

The output of allotted volumes, lignite tonnages, quality, and equipment hours by period were the inputs for the Red Hills Mine financial model. These inputs flow through the financial model, which was developed and refined by MLMC based on actual performance, along with escalated inputs for cost estimates for labor, materials and supplies, fuel and other cost components to generate cost projections for the LOM plan. In addition to general operating costs, contemporaneous reclamation, royalties, mine closure, and capital projects were projected and escalated accordingly. It is the opinion of the QP that the final LOM plan and related projected MMBtu costs and forecasted pricing justify the selection of the maximum cumulative stripping ratio and supports the conversion of Measured and Indicated Mineral Resources to Mineral Reserves.

12.2. Mineral Reserve Statement

Based on the LOM plan and modifying factors discussed above, the Red Hills Mine contains the economically minable Mineral Reserves listed in Table 12.1. The Mineral Reserves include approximately 20.0 Mt of ROM lignite, with an average calorific value of 5,000 Btu/lb, moisture content of 43.3 %wt., ash content of 15.3 %wt., and sulfur content of 0.6 %wt. The point of reference for Mineral Reserves is as delivered to the stockpile and RHPP silos as of December 31, 2024.

Table 12.1 Mineral Reserve Estimates

			Quality			
Red Hills Mine	**Reserve Classification**	**Tonnage (Kt)**	**Calorific Value (Btu/lb)**	**Moisture (%wt)**	**Ash (%wt)**	**Sulfur (%wt)**
Mine Area 3	Proven	17,300	5,090	43.3	14.9	0.6
	Probable	4,700	5,080	43.1	15.1	0.6
	Total	22,000	5,080	43.3	14.9	0.6
Stockpile & Silos	Proven	900	5,090	43.5	15.0	0.5
Total Reserves	Proven	18,200	5,090	43.3	14.9	0.6
	Probable	4,700	5,080	43.1	15.1	0.6
	Total	22,900	5,090	43.3	14.9	0.6

Notes:

1. Mineral Reserve Estimate has been prepared by a qualified person employed by MLMC as of December 31, 2024.
2. Mineral Reserves use an economic cut-off of a maximum cumulative stripping ratio of 14:1. There are some instances where the stripping ratio for a single year could exceed 14:1, but the average for the entire area evaluated is less than 14:1.
3. Historical coal recovery rates at Red Hills Mine have been applied to generate the Mineral Reserve tonnages.
4. Mineral Reserves are estimated using Vulcan Software.
5. Tonnages and qualities have been rounded to an accuracy level deemed appropriate by the QP. Summation errors due to rounding may exist.

12.3. Cut-off Quality and Sales Price

Cut-off quality and price were previously discussed in Section 12.1 under subsection Stripping Ratio and Pit Limits.

12.4. Mineral Reserve Classification

This Item discloses the Mineral Reserve estimates for the Red Hills Mine based on the QP's detailed evaluation of the modifying factors as applied to indicated or measured mineral resources, which demonstrate economic viability of the Red Hills Mine property. The estimated Mineral Reserves are in accordance with the definitions of "Mineral Reserve" as described by the S-K 1300 regulations (17 CRF 229.1300) as:

"A coal reserve is the economically mineable part of a Measured or Indicated coal resource demonstrated by at least a Preliminary Feasibility Study, which includes information on mining, processing, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified."

Following definitions presented in 17 CFR 229.1300, and guidance from the Committee for Mineral Reserves International Reporting Standards (CRIRSCO), Mineral Reserves are divided into two categories as listed below and are ranked by increasing level of confidence.

Proven Mineral Reserve is the economically mineable part of a measured mineral resource and can only result from conversion of a measured mineral resource. A Proven Mineral Reserve implies a high degree of confidence in the Modifying Factors.

Probable Mineral Reserve is the economically mineable part of an indicated and, in some cases, a measured mineral resource. The confidence in the Modifying Factors applying to a Probable Mineral Reserve is lower than that applying to a Proven Mineral Reserve.

The reference point at which Mineral Reserves are defined, is the point of sale to the RHPP, which is after two 20k ton storage silos following the truck dump hopper.

This disclosure of Mineral Reserves is based upon the qualified person's opinion that the LOM plan has been completed to a PFS level of accuracy, as defined in 17 CFR Part 229.1300, which includes and supports the qualified person's determination of Mineral Reserves.

The LOM plan included annual stripping and lignite production qualities and quantities. Annual production costs were estimated based on the mine plan quantities, surface mining methods, equipment fleets in use, and unit prices that have been proven by historical production at the Red Hills Mine. The current mining methods, used at the Red Hills Mine since inception, are planned to continue until enough lignite reserve is depleted to fulfill the contractual obligations of the LSA for fuel supply to the RHPP.

12.5. Multiple Commodity Mineral Reserve

The Red Hills Mine is a single commodity Mineral Reserve.

12.6. QP's Opinion on Risk Factors that could Affect Mineral Reserve Estimates

The Red Hills Mine began commercial deliveries in 2002. Since this is a well-established operation, the deposit, mining, and environmental aspects of the Project are very well understood. The knowledge for the Red Hills Mine is based on the collective experience of personnel from MLMC's site operations and technical disciplines gained since mine inception. This knowledge is supported by years of production data and observations at the Red Hills Mine.

The LOM plan included annual stripping and lignite production qualities and quantities. Production costs were estimated based on the mine plan quantities, surface mining methods, equipment fleets in use, and unit prices that have been proven by historical production at the Red Hills Mine. The current mining methods, used at the Red Hills Mine since inception, are planned to continue until enough of the lignite reserve is depleted to fulfill the contractual obligations of the LSA for fuel supply to the RHPP.

With this said, there are some risks that could materially affect Mineral Reserve estimates. Risks include changes in customer demand for any reason, including, but not limited to, dispatch of power generated by other energy sources ahead of coal, fluctuations in demand due to unanticipated weather conditions, regulations or comparable policies which could potentially promote planned and unplanned outages at the RHPP, economic conditions, including an economic slowdown that would affect manufacturing and a corresponding decline in the use of electricity, governmental regulations and/or inflationary adjustments. All of which could potentially have a material adverse effect on MLMC's financial condition.

Other risks include unforeseen changes in the LOM plan from additional exploration, changes in land control and new regulations that could delay future permit renewals or restrictions to physical mining boundaries.

At the time of this TRS, the QP is not aware of any specific factors that would currently materially affect the prospect of economic extraction.

Uncertainty in the Mineral Resource estimates was previously discussed in in subsection Uncertainty in the Mineral Resource Estimate in Section 11.5 of this TRS.

13. Mining Methods

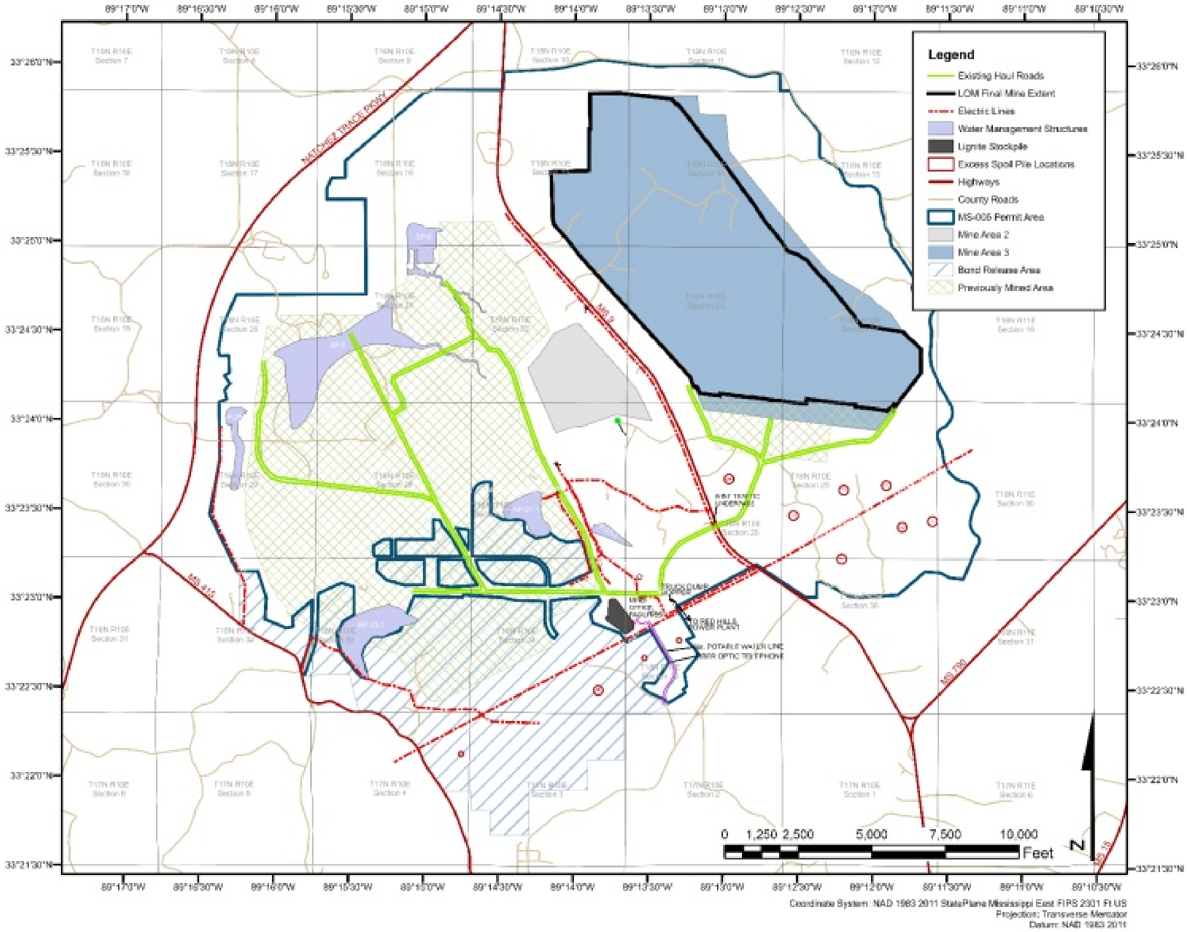
This section contains forward-looking information related to the mining methods for the Red Hills Mine. The material factors that could cause actual results to differ from the conclusions, estimates, designs, forecasts or projections include mine design parameters, production rates, equipment selection, and personnel requirements.

The Red Hills Mine began commercial deliveries in 2002. Since this is an established operation, the deposit, mining, and environmental aspects of the project are very well understood. The geological knowledge is based on the collective experience of personnel from MLMC operations, geology, engineering, environmental, and other disciplines gained during years of lignite mining at Red Hills Mine and other mining operations in the United States.

The lignite at Red Hills Mine surface mining operation is recovered using dragline, dozer push, and conventional truck and shovel mining methods due to the proximity of the lignite to the surface and the physical characteristics of the deposit. Mining operations progress in a five-step process, which includes clear and grub, overburden and interburden removal, lignite production, spoil backfill and grading, and reclamation. In the development phase, drainage and water control were established, and then the required infrastructure consisting of power, mine office and maintenance facilities, lignite stockpile facilities, and roadways were established.

The Red Hills Mine began operations in Mine Area 1 (MA1) and has transitioned to Mine Area 3 (MA3). Both MA1 and MA3 are located in the MS-005 permit area. The initial boxcut construction for MA3 began in 2021 and mining in this area will continue until April 1, 2032. Figure 13.1 presents the layout of the Red Hills Mine and identifies the total area to be affected over the mine.

Figure 13.1 Layout of the Red Hills Mine



13.1. Geotechnical and Hydrological Considerations

13.1.1. Pit Design

The initial geotechnical parameters for the design of the pit slopes was provided in the Geoscience Engineering report completed in 1997 and Aquaterra report completed in 1994 to define soil index properties and soil strength parameters as discussed previously in Section 7.4 of this TRS. The early geotechnical studies were the basis of the pit design which is fully detailed in the Red Hills Mine Ground Control Plan and summarized herein.

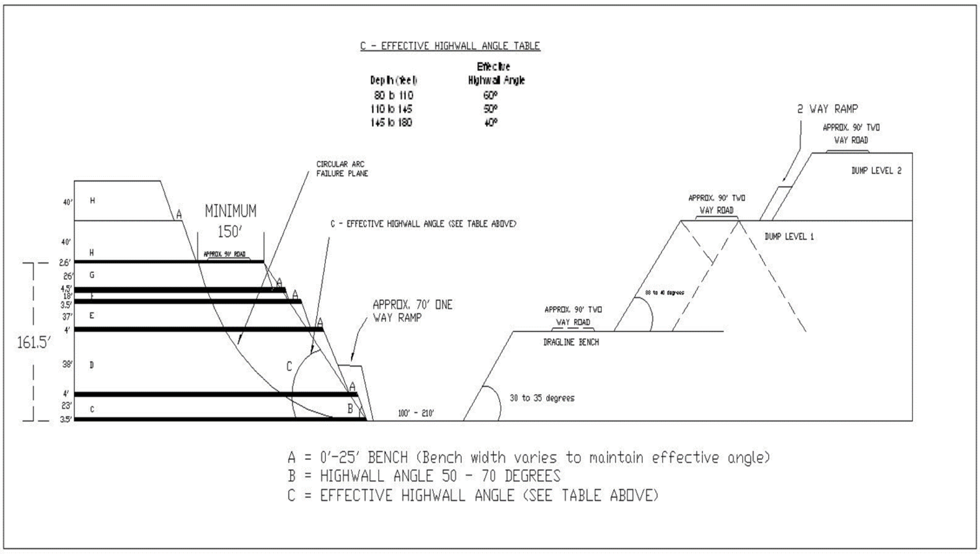
To determine highwall stability, a circular arc failure approach has been utilized. A minimum FoS of 1.2 was estimated using the Modified Bishop Method for each highwall configuration that will be encountered by the mine. Due to the depth and multiple seam nature of the lignite deposit, benching will be required to allow for continuous burden removal and lignite mining. For individual slopes less than 80 feet, the highwall angle is stable up to 70 degrees. Between 80 and 180 feet, the effective slope angle decreases with a linear relationship from 60 to 40 degrees as shown in Table 13.1.

Table 13.1 Effective highwall angle by depth

Depth (ft)	Effective Highwall Angle
80 to 110	60 degrees
110 to 145	50 degrees
145 to 180	40 degrees

For slopes greater than 180 feet, benching is required. Figure 13.2 illustrates the combination of highwall slopes and safety benches that are used to meet the effective slopes outlined above. In general, the truck and shovel operating level is located 150 to 160 feet above the pit floor and naturally creates a bench with a minimum width of 150 feet. When benches and offsets are accounted for pits may range from 100 to 210 feet in width. Initial design assumes a 170-foot pit width.

Figure 13.2 Typical Pit Configuration for plan at steady state. (Mississippi Lignite Mining Company, 2023)



Low wall or spoil side angles were based on the type of materials found throughout the mine area, an angle-of-repose of 33 degrees was recommended by geotechnical studies. MLMC's digging plan reduces the effective spoil angle to 33 degrees or less by allowing for an operating bench on the spoil side of the pit.

As a whole, Red Hills Mine pits are designed with an effective highwall angle of approximately 42 degrees, effective endwall angles of approximately 40 degrees, and effective low wall angles of 33 degrees or less.

Mining has been ongoing at the Red Hills Mine since 1998 and the design methodology for the pit slopes has been satisfactory as evidenced by each pit progression. Due to the stratigraphic nature of the Red Hills Mine geology, which is checked by regular drilling exploration programs ahead of mining, repetition of geologic units leads to consistency in applying geotechnical parameters.

The Company and MLMC engineering have made minor adjustment to the pit design since 1998. However, these adjustments are primarily for optimization, to address new equipment specifications or additional ramps to reduce haul distances. Other adjustments include additional benching in the highwall where topography is higher or the depth to the C-seam increases to establish ramps and functional road systems. This additional benching also increases the FoS of the highwall by reducing the overall effective angle in these instances. Optimization of drainage is another factor that greatly influences the pit design.

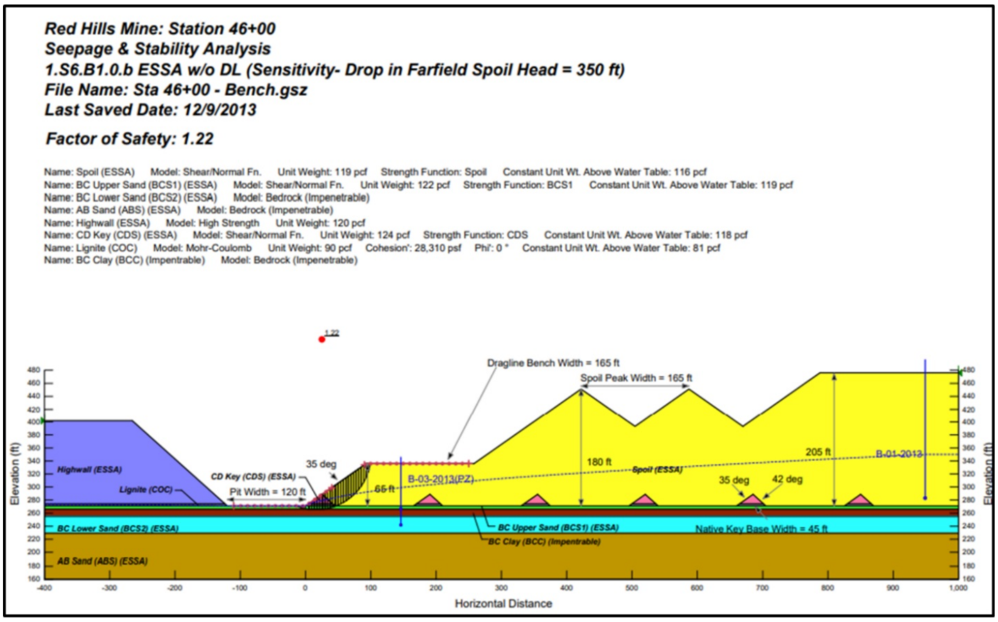
13.1.2. Spoil Stability Studies

The bulk of geotechnical studies at the Red Hills Mine since 2004 pertain to spoil stability which influence operation plans for production and reclamation. Two types of spoil failures have been observed at the mine. The first type comprised of a rotational failure occurring at the toe of the dragline bench with radial cracks extending into the bench toward the spoil piles. The second bench failure type observed at the mine included heaving of the C-seam followed by a slump failure. There were several spoil studies performed using software packages developed by

GEO-SLOPE International, and RocScience. Some of the pit slope analyses can be found in the report, titled "Design Report for Red Hills Mine Slope Stability Study" by Barr Engineering (Barr), 2014; "Red Hills Slope Stability Mitigation Test Plan" by Aquaterra, 2010; and "Red Hills Mine Slide Investigation" by Aquaterra, 2009.

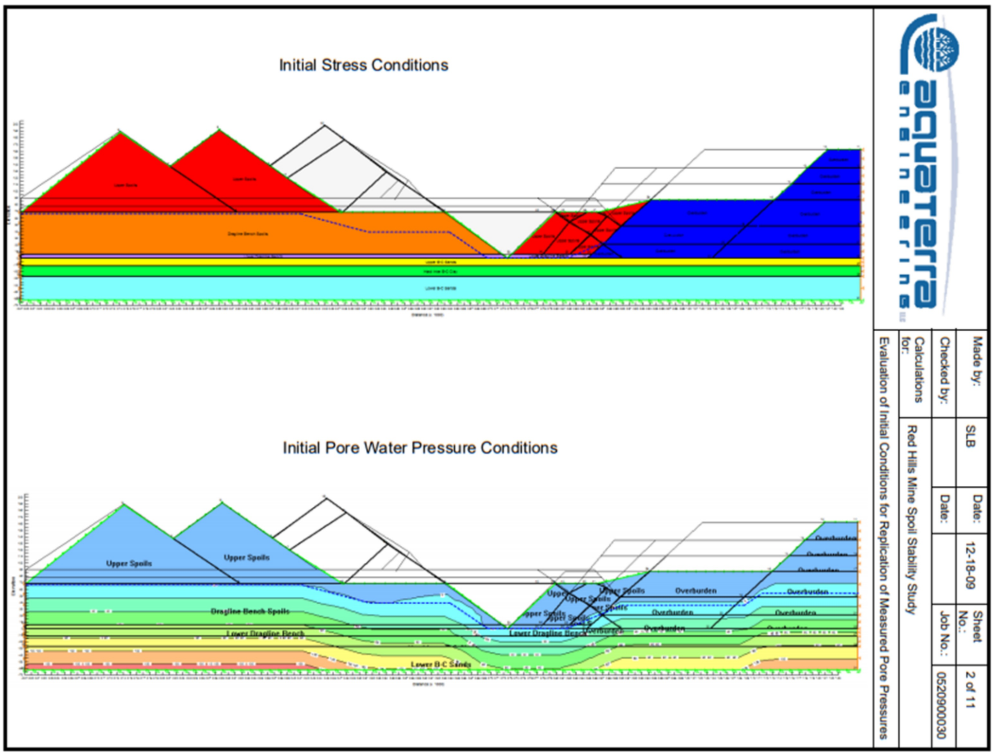
The report, "Design Report for Red Hills Mine Slope Stability Study," by Barr analyzed seepage conditions and slope stability of the levee setback and US Army Corps of Engineers (USACE) defined conditions with software created by GEO-SLOPE International Ltd. The integrated software suite is called GeoStudio 2012, which includes SEEP/W and SLOPE/W. SEEP/W is a finite element program that analyzes groundwater seepage within porous materials like rock and soil for traditional steady-state flow or transient analyses. The computed pore-water pressures and corresponding phreatic surface can then be imported into SLOPE/W for analysis. SLOPE/W uses limit equilibrium methods to perform slope stability analyses. An example of a slope stability analysis done by Barr is presented in Figure 13.3.

Figure 13.3 Soil Stability Assessment. (Barr Engineering, 2014)



The report "Red Hills Slope Stability Mitigation Test Plan" by Aquaterra tried to determine changes in stresses and pore pressures during the mining operation. A 2-D coupled stress-pore pressure model was conducted using the Sigma/W application as developed by GEO-SLOPE International. The Sigma/W program provides a finite element mesh analysis stresses and deformations within the subsurface soils sing transient loads. An example of a slope stability analysis is presented in Figure 13.4.

Figure 13.4 Slope Stability Study (Aquaterra Engineering, LLC., 2010)



To help remediate the potential rotational bench failures, the truck-shovel operation does not dump material within the first two spoil peaks from the active pit, and spoil piles are not to exceed 90-feet in height above the dragline bench height. Furthermore, extra attention is given to ensure water is not stored in spoil valleys for a prolonged period. In addition, the work area is inspected by shift supervisors and fleet leadmen for cracking, heaving, flowing groundwater, or any other abnormal conditions prior to starting work in an area, and following any precipitation or freeze/thaw event. The inspection requirements are specified as part of MLMC's safeguards under the Ground Control Plan. A certified person must document inspections of the work areas during each shift and after every rain, freeze, or thaw. Dragline operators and groundmen are continuously monitoring bench and spoil conditions as they dig.

Potential heaving of the C-seam followed by a slump failure was attributed to the ground water recharge and increased pore pressures due to seepage from three sand seams below the C-seam. These failures are described in depth in the Barr and Aquaterra reports. Based on these studies, earthquake drains, and dewatering well systems were implemented to address the increased head pressure from the lower aquifers. These systems were installed by registered drillers immediately following the severance of the C-seam. More details on these systems were provided in the "Red Hills Slope Stability Mitigation Test Plan" report. MLMC engineers continued to install earthquake drains for a few pits once the B-seam came back into existence. Once the earthquake drains were retired, MLMC then continued to monitor the pore pressures below the dragline bench as mining progressed with wireline piezometers for a few pits and noted no pressure changes. Although earthquake drains are not anticipated for MA3, MLMC will continue to monitor spoil stability for indications of conditions that would warrant installation of earthquake drains. This assumption is based on cross referencing sand thickness maps with the B-seam existence limits and projected pits. Pore pressures below bench grade will be monitored leading into this area of interest with the installation of wireline piezometers, followed by the installation of earthquake drains with the mining progression if deemed necessary by MLMC engineers.

A dewatering well system was installed annually ahead of mining from 2008 through 2014. As discussed in the hydrogeology portion of Section 7.3 of this TRS, the upper stratigraphic sands of the Wilcox sediments which are mined through are minor. The systems MLMC put into place were a recommendation from a geotechnical study with the idea that the groundwater flow, although minimal, was contributing to the saturation of the spoils contributing to spoil side failures. This system was discontinued as mining pits advanced and moved out of the area with the geological conditions that were producing these types of failures.

13.1.3. Excess Spoil Piles

In addition to pit design and spoil stability, regulations governing the permanent placement of excess spoil require geotechnical studies to ensure stability of the placed material. In 1999, Pritchard Engineering, Inc. carried out the geotechnical investigation to gather soil index properties and soil strength properties which were then used as inputs by the Company to perform a stability study under static and seismic conditions for the excess spoil piles in Mine Area 1, which at the time were in the MS-002 permit area. MLMC is in the process of constructing excess spoil piles for Mine Area 3, which is located in the MS-005 permit area. As mining operations continue in the MS-005 permit area, a geotechnical study of similar parameters will be conducted to assess the stability of the spoil piles in the MS-005 permit area. Due to the similarity of the pre-mine topography for the new excess spoil piles, similar soil characteristics/chemistry, the lateral extensiveness of the geology in the region, and furthermore an extended history of operating heavy equipment in various dump conditions, MLMC does not anticipate major changes to the mine plan from future geotechnical investigations of the excess spoil piles. Existing and proposed excess spoil pile locations are shown on Figure 13.1.

13.2. Lignite Production Rate, Mine Life, Mining Dimensions and Dilution and Recovery Factors

13.2.1. Production Rate

The Red Hills Mine typically supplies 2.6 to 3.2 million tons of lignite per year to the adjacent RHPP. Actual production is dictated by customer MMBtu demand. The details of the LOM plan are shown in Table 13.2.

Table 13.2 LOM Production Schedule

	2025	2026	2027	2028
Delivered Coal (000 tons)	2,800	2,700	2,700	2,800
Delivered MMBTU (000)	27,700	27,700	27,700	27,700
Calorific Value, Btu/lb	5,010	5,040	5,050	5,020
Total Overburden Material (000 CY)	33,900	35,200	36,200	31,600

	2029	2030	2031	2032	Total
Delivered Coal (000 tons)	2,800	2,800	2,700	700	**20,000**
Delivered MMBTU (000)	27,700	27,700	27,700	6,900	**200,800**
Calorific Value, Btu/lb	5,020	5,040	5,100	5,140	**5,000**
Total Overburden Material (000 CY)	34,700	36,400	39,600	8,100	**255,700**

13.2.2. Mine Life

MLMC provides the lignite for the RHPP under a contract that runs until April 1, 2032.

13.2.3. Mining Dimensions

Mining dimensions are discussed in Sections 13.1 and 13.3 of this TRS.

13.2.4. Haulroad Design

Haul roads and spoil ramps are typically designed to a minimum width of 90 feet to allow for two-way traffic. In some circumstances, one-lane roads may be established with proper signage. Highwall ramps are designed to a width of 70 feet, and dragline walkways must be a minimum of 120 feet wide.

13.2.5. Mining Dilution

ROM tonnages at the Red Hills Mine meet the following conditions:

- Minimum mining thickness: 1.0 ft;
- Maximum burden depth: approximately 320 feet;
- Average lignite density: approximately 80 lb/ft^3

The base of weathering, which closely aligns with the depth of the BOX as described in Section 11 of this TRS may affect lignite recovery. Special considerations for lignite above this depth must be considered as it may have been partially oxidized and typically exhibits unacceptable quality characteristics for the power plant.

Mining dilution was initially determined from statistical analysis of coal core data collected from 1975 through 1997. During the 2011 drilling exploration program, roof and floor samples were collected and analyzed for each coal seam to verify dilution parameters used in modeling. The drilling data was compared to actual as-delivered quality data and confirmed that the original dilution parameters remained applicable. Dilution parameters are applied to all lignite seams and are listed in Table 13.3.

Table 13.3 ROM Dilution Parameters

Structural (Roof and Floor)	
Loss (ft)	0.25
Gain (ft)	0.083

Quality (Roof and Floor)	
Density (lb/ft^3)	85.4
Calorific Value (Btu/lb)	1859
Moisture (%wt)	26.48
Ash (%wt)	53.98
Sulfur (%wt)	0.26

13.2.6. Recovery Factors

Recovery rates of individual coal seams are presented in Table 13.4 and were determined from various comparisons between surveyed severed tons, haul truck payloads, delivered tons to RHPP, and modeled tons accounting for dilution and minimum mining thickness. The low recovery of C-seam is due to a swath of lignite that is up to 50-feet wide that is left in the pit to assist with stabilizing the spoil and dragline bench.

Table 13.4 Recovery Rates by Seam

Seam	Recovery Rate
H	71%
G	84 %
F	97 %
E	90 %
D	100 %
C	67 %

13.3. Requirements for Stripping and Backfilling

The Red Hills Mine is a multiple lignite seam surface mining operation.

The primary burden removal units for a typical mining sequence at the Red Hills Mine include:

- one 82-cubic yard electric-powered walking dragline;
- one 41-cubic yard electric rope shovel;
- a fleet of 150-ton and 200-ton end-dump haul trucks and;
- four large track-type push dozers.

Lignite is severed and loaded by a surface miner or hydraulic backhoe.

Figure 13.5 through Figure 13.7 illustrate typical pit layouts to show the mining process. Similar mining processes will be followed in MA3 for production and reclamation. Figures are not to scale.

First, the truck and shovel fleet remove overburden to an elevation which approximates the first minable lignite seam; this will be the G or H seam. This overburden material is hauled to fill in the topography to final grade during the reclamation process. Truck and shovel operations may be required to remove other interburdens and rehandle material depending on sequencing/production and reclamation planning.

Following removal of the H and G seams, the dozers push the interburden, which overlies the F-seam, into the previously mined pit. This process is repeated through successive lignite seams until the accumulated interburden has reached a point where it is level across the pit. This typically occurs at or near the E-seam elevation.

Finally, the dragline sits spoil side on a bench primarily constructed from the material the dozers pushed and then removes both the D-seam and C-seam interburdens.

Figure 13.5 Pit Layout - Truck and shovel operation. (Mississippi Lignite Mining Company, 2019)

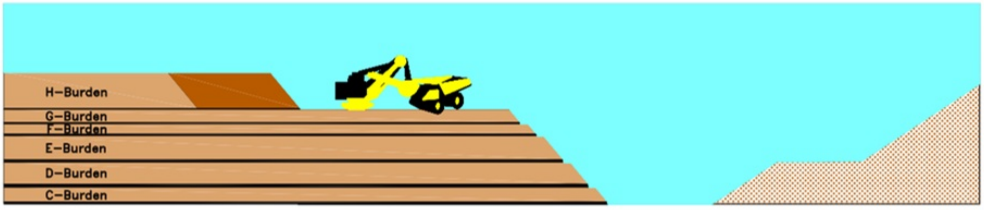


Figure 13.6 Pit Layout - Dozer operation. (Mississippi Lignite Mining Company, 2019)

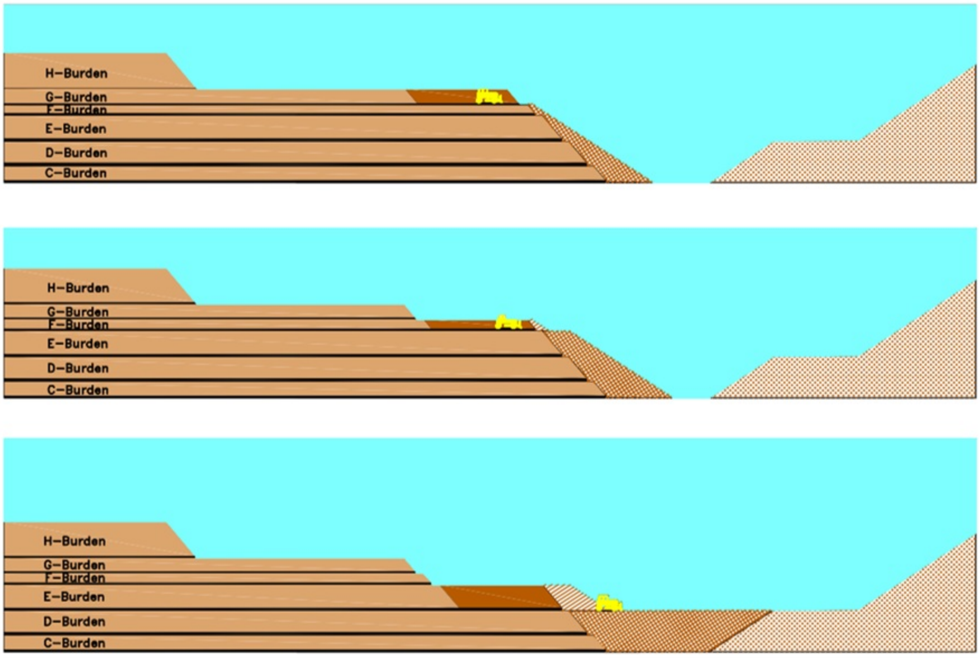
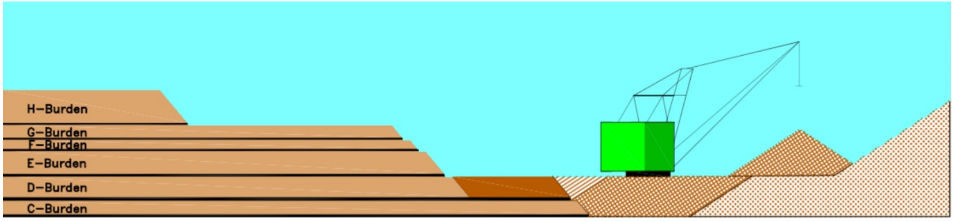
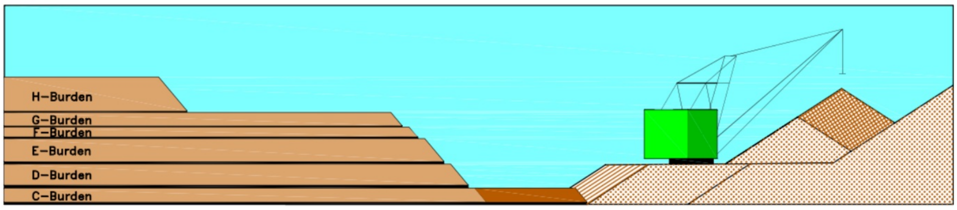


Figure 13.7 Pit Layout - Dragline operation. (Mississippi Lignite Mining Company, 2019)





Rough backfilling and grading of reclamation are accomplished using dozers as the haul trucks dump material between the dragline spoils. Hydraulic backhoes may be used to rehandle spoil material that exceeds final grade. In accordance with the mine permit requirements, a minimum of 4 feet of suitable plant growth material (SPGM), or red oxidized soil that meets textural parameters, must be placed on top of the gray unoxidized material in the dump unless otherwise approved. MLMC follows an approved final grading plan using a "balanced acreage" approach in that the same reclaimed areas must be brought up to grade within 29-months of lignite removal. This plan is approved for both permitted areas.

Previously in MA1, mining progresses through three to four pits per year. Due to a shorter pit length in MA3, MLMC anticipates mining five to seven pits per year.

13.4. Major Equipment and Personnel

A list of major and auxiliary equipment used at the Red Hills Mine is presented in Table 13.5. The equipment at the Red Hills Mine is well maintained, in good physical condition and is either updated or replaced periodically with newer models to maintain reliability and to keep up with technological advancements.

As equipment wears out, MLMC evaluates what replacement option will be the most cost-efficient, including the evaluation of both new and used equipment.

Table 13.5 Major and primary auxiliary equipment list

Unit(s)	Equipment	Approximate Production Rates	Major Fleet
1	Marion 8200 Dragline	3200 yd3 per hour	Dragline
1	P&H 2800 Electric Rope Shovel	2100 yd3 per hour	Truck and Shovel (T-S)
1	Wirtgen 4200 Surface-miner	2000 tons per hour	Lignite
1	CAT 6040 Hydraulic Backhoe	1800 yd3 per hour	T-S/Lignite Support
2	CAT 6040 Hydraulic Shovel	1800 yd3 per hour	T-S Support
1	CAT 5230 Hydraulic Shovel	1400 yd3 per hour	Lignite
1	Komatsu PC2000 Hydraulic Backhoe	1200 yd3 per hour	T-S/Lignite Support
4	CAT D-11 Tractors	850 yd3 per hour	Dozer Push
5	CAT D-10 Tractors		Dragline/Dump Support
1	CAT D-8 LGP Tractor		Auxiliary Support
3	CAT D-6 LGP Tractor		Ash Placement
1	CAT 844 Rubber Tire Tractor		T-S Support
12	CAT 789 A, B, C, & D End-Dump Trucks	200-ton payload	T-S and Lignite Haul
4	CAT 785 A & B End-Dump Trucks	150-ton payload	T-S and Lignite Haul
3	CAT 773 Side-Dump Ash Train	140-ton payload	Ash Placement
2	CAT 24 Class Motor Grader		Road/Reclamation Grading
2	CAT 16 Class Motor Grader		Road/Reclamation Grading
1	21,000 Gallon CAT 777 Water Truck		Dust Suppression
1	32,000 Gallon CAT 785 Water Truck		Dust Suppression
3	3-5 yd3 CAT Backhoes		Auxiliary Support
4	40 Tons CAT ADT trucks	40-ton payload	Auxiliary Support

At normal operating levels, the Red Hills Mine on average employs +/-200 personnel (**Table 13.6**).

Table 13.6 MLMC Personnel

STAFF		WORKFORCE	
Full Time	42	Production	101
Interns/Co-ops	1 or 2	Maintenance	55
		Warehouse	5
		Temporary	Varies

14. Processing and Recovery Methods

The overall average quality of the mined lignite seams meets the quality specifications stated in the LSA without beneficiation. No mineral processing is performed by MLMC.

15. Infrastructure

The Red Hills Mine public utility lines and facilities locations are presented in**Figure 15.1** showing the mine infrastructure and details of the mine facilities.

MLMC purchases power from 4-County Electric Power Association, a cooperative of the TVA. A 69kV line runs parallel to the TVA 500kV line from the Highway 9 Right-of-Way (R-O-W) to the mine office substation. This line then continues past the office to feed the RP-27-1 transformer and the Pump Building transformer.

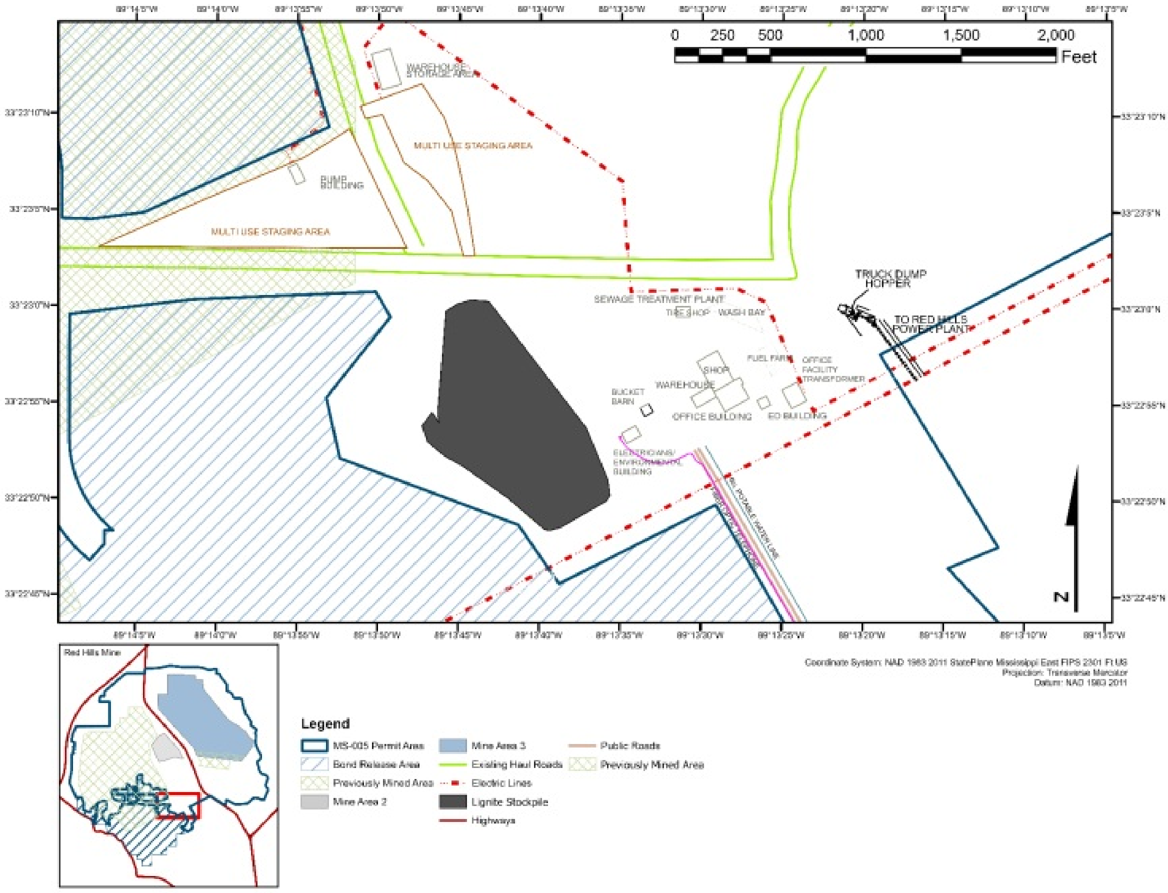
A second 69kV line runs north along the west R-O-W of Highway 9 to feed the dragline substation currently in use. This dragline substation will be used for the remainder of the MS-005 permit area. MLMC has bored under Highway 9 to feed dragline cable to the east side of the highway.

Water for the mine office facilities is supplied by the Reform Water Association via a 6-inch line which runs along the R-O-W of McIntire Road. A registered groundwater well sourced from the Lower Wilcox aquifer feeds the equipment wash bay, boot wash, irrigation, and fire hydrants.

The Red Hills Mine has a sanitary waste treatment plant with a permitted NPDES outfall. This is an active sludge treatment plant. Onsite sedimentation ponds are permitted for Beneficial Water Use and serve as the water source for dust suppression

There are no leach pads or tailings ponds at the Red Hills Mine. Lignite is mined and transported to a stockpile or to the customer's hopper. Public roads are not used for the transport of lignite to the RHPP. Mine site haul routes are depicted in Figure 13.1 and Figure 15.1. To transport lignite from the active pit to the lignite stockpile or the customer's hopper, an overpass for Highway 9 traffic has been constructed northeast of the Hopper. Mine traffic generally travels below the Highway 9 traffic via an underpass. A secondary haul route will be available via the dragline deadhead road. This is an at-grade crossing approximately 1,300 feet southeast of the overpass/underpass. The highway department must be notified in advance to detour traffic around this at-grade crossing; therefore, this crossing will only be used to mobilize large equipment or emergency use.

Figure 15.1 Red Hills Mine Facilities Map



16. Market Studies

This section contains forward-looking information related to the market studies for the Red Hills Mine. The material factors that could cause actual results to differ from the conclusions, estimates, designs, forecasts or projections include plant dispatch rate, plant availability rate, fuel pricing, and other commodity pricing.

16.1. Markets

The primary market for the Red Hills Mine lignite is the adjacent RHPP for which the mine was developed. The Red Hills Mine is a mine-mouth operation where the lignite is delivered directly to the power plant. The Red Hills Mine is a high moisture, low calorific value fuel, which precludes transporting the lignite as a viable option to expand market share, thus no known marketing studies have been conducted for the Red Hills Mine. The LOM plan assumes the RHPP will not continue to operate after the expiration of the current LSA with CGLP and the expiration of the existing PPA between TVA and CGLP on April 1, 2032. The Red Hills Mine is expected to begin final reclamation in April 2032. The Company and MLMC have made efforts to identify specialty niche markets for the lignite with limited success.

16.2. Material Contracts

Red Hills Mine is a fully developed and functioning mining operation. All aspects of the mining, haulage and delivery of lignite to the RHPP are defined in the LSA between CGLP and MLMC. The RHPP supplies electricity to the TVA under a long-term PPA. CGLP leases the RHPP from a Southern Company subsidiary pursuant to a leveraged lease arrangement. The LOM plan assumes the RHPP will not continue to operate after the expiration of the current LSA with CGLP and the expiration of the existing PPA between TVA and CGLP on April 1, 2032.

Red Hills Mine is an active operation and all material contracts are in place for the continued operation of the mine. The Red Hills Mine is a mine-mouth project where the lignite is delivered directly to the power plant using off highway haul trucks.

The base price for the dedicated lignite is defined in the LSA and consists of eight indexed components in addition to a power cost component, a pass-through component, a royalty component and a fixed component. The base price in the LOM plan is evaluated on an annual basis and is determined based on the actual performance of the 8 indexed components specified in the LSA. Over the LOM plan, the average price per ton for lignite delivered and sold is $34.41 providing revenues totaling approximately $685 M. The Red Hills Mine began commercial deliveries in 2001. The sales price over the last three years has averaged $31 as shown in Table 16.1. The forecasted coal price for the LOM is also shown in Table 16.1.

Table 16.1 Historical and Forecasted Coal Price

Historical	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024**	Total*
Tons Sold (000 ton)	3,200	2,600	3,200	3,000	2,400	3,000	2,600	2,500	3,000	3,200	2,900	1,900	33,500
Coal Price $/Ton	20.61	21.61	22.61	23.61	24.61	25.61	26.61	27.61	27.20	29.66	29.14	35.60	30.88

Forecasted	2025	2026	2027	2028	2029	2030	2031	2032	Total
Tons Sold (000 ton)	2,800	2,700	2,700	2,800	2,800	2,800	2,700	700	20,000
Coal Price $/Ton	31.30	34.46	32.86	33.02	34.65	35.99	36.71	41.90	34.41

*Average Coal Price $/Ton is from 2022-2024.
**During 2024, a mechanical issue impacted one of two boilers at the Red Hills Power Plant. While this issue has been resolved, it resulted in a reduction in customer deliveries in 2024.

17. Environmental Studies, Permitting, and Plans, Negotiations, or Agreements with Local Individuals or Groups

17.1. Environmental and Baseline Studies

In July, 1998, a final Environmental Impact Statement (EIS) was issued for the Red Hills Power Project. The impacts of the Red Hills Mine were considered during this process. This EIS evaluated anticipated impacts associated with mining at the Red Hills Mine. The EIS evaluated project impacts to the following resources:

- Air Resources
- Geology
- Soils
- Groundwater Resources
- Surface Water Resources
- Aquatic Ecology
- Streams and Wetlands
- Terrestrial Ecology
- Threatened and Endangered Species
- Land Use
- Cultural and Historical Resources
- Socioeconomics
- Environmental Justice
- Transportation Facilities
- Public Health
- Hazardous and Solid Waste
- Noise
- Recreation
- Visual Resources

The EIS evaluated these areas individually for the action and no action alternatives as well as cumulative impacts for past, present and proposed actions. A Record of Decision (ROD) was issued August 8, 1998 by the TVA that detailed the decision to build the Red Hills Mine. The EIS encompasses all areas within the currently approved Surface Mine Control and Reclamation Act (SMCRA) permits.

The results of the geological baseline studies are detailed in Section 6 of this report. Additionally, the results of the surface and groundwater baseline studies and geotechnical studies are documented in Sections 7.3 and 7.4, respectively. In addition, the Red Hills Mine completed baseline assessments of the area soils, prime farmlands, land uses, biological resources, threatened and endangered species, and cultural resources which were used to support the mining permits continuously issued by the Mississippi Department of Environmental Quality (MDEQ) since 1998.

17.2. Waste Disposal, Site Monitoring and Water Management

17.2.1. Waste Disposal

No processing of lignite occurs at the Red Hills Mine; therefore, no lignite processing or tailing wastes have been or will be generated.

17.2.2. Site Monitoring

The Red Hills Mine is required to conduct routine groundwater, surface water and soil sampling in accordance with SMCRA and NPDES permit requirements. Surface and groundwater monitoring occur both within the active mine area as well as in adjacent, undisturbed areas upstream and downstream of the active mining operations. Red Hills Mine also conducts routine soil sampling to ensure the reclaimed environment meets regulatory chemical and textural requirements. The water and soil data are submitted to MDEQ in accordance with permit requirements.

Red Hills Mine will continue to monitor surface water, groundwater, and soils in accordance with all permit requirements until such time mining and reclamation activities are complete and MDEQ has released the entire project from the reclamation performance bond requirements. This release can only happen once Red Hills Mine has quantitatively demonstrated that the reclaimed areas meet performance criteria detailed in the mining permit. Once the reclamation performance bond is released, the Red Hills Mine will have no further site monitoring requirements.

17.2.3. Water Management

Because rainfall averages more than 55 inches per year, water management is a critical focus at the Red Hills Mine. Prior to initiating mining activities, streams that would otherwise flow through the active mine area are typically rerouted around the perimeter of the mine. This allows the natural hydrologic balance to be maintained except for stormwater that falls within the footprint of the active mine area. Red Hills manages stormwater by constructing large, strategically located sedimentation ponds. The sedimentation ponds are constructed in accordance with permit requirements to retain a 10-year, 24-hour storm event. Once the retained water meets NPDES water quality requirements, the water is released back into the natural system. The results of the NPDES monitoring are reported monthly to MDEQ through the eDMR system.

17.3. Project Permitting Requirements

The Red Hills Mine is operating under the state of Mississippi Surface Coal Mining and Reclamation Permit MS-005. The permit was issued by the Mississippi Department of Environmental Quality (MDEQ) under delegated authority of the United States Department of the Interior, Office of Surface Mining Reclamation Enforcement (OSMRE) under the Surface Mining Control and Reclamation Act (SMCRA).

17.3.1. Permit Status

In addition to the mining permits, the Red Hills Mine is required to obtain and maintain numerous other regulatory permits and approvals (**Table 17.1**).

Table 17.1 Red Hills Mine Permit Summary and Status

Type of Permit	Name and Address of Issuing Authority	Identification Number	Status
State Coal Exploration License	Department of Environmental Quality Office of Geology P. O. Box 20307 Jackson, Mississippi 39289-1307	NA	Issued 08/15/00
State Coal Mining Permit	Department of Environmental Quality Office of Geology P.O. Box 20307 Jackson, Mississippi 39289-1307	MS-002 Renewal 3 MS-004 MS-005	Issued 02/13/18 Issued 02/11/20 Issued 2/02/2023
Mine Identification No.	Mine Safety and Health Administration U. S. Department of Labor District II 1030 London Dr, Suite 400 Birmingham, Alabama 35211	No. 22-00690	Issued 08/26/97
State of Mississippi Water Pollution Control Permit (includes Mining Stormwater Pollution Prevention Plan)	Department of Environmental Quality Office of Pollution Control P. O. Box 10385 Jackson, Mississippi 39289-0385 Issuing Authority: Mississippi Environmental Quality Permit Board	No. MS0054046 No. MSR108199	Modified 02/11/20 Issued 06/15/20
Section 404 Permit	Vicksburg District P. O. Box 60 Vicksburg, MS 39180-0060	No. MVK-2017-257 No. MVK-2016-509	Issued 3/28/18 Modified 7/11/18 Issued 12/21/20
Section 401 State Water Quality Certification	Department of Environmental Quality Office of Pollution Control P. O. Box 10385 Jackson, Mississippi 39289-0385 Issuing Authority: Mississippi Environmental Quality Permit Board	NA	Issued by the Commission for USACE
Exclusion for Rubbish Disposal Activities	Department of Environmental Quality Office of Pollution Control P. O. Box 10385 Jackson, Mississippi 39289-0385	NA	Issued 08/25/98
Mississippi Conditionally Exempt Small Quantity Generator	Department of Environmental Quality Office of Pollution Control P. O. Box 10385 Jackson, Mississippi 39289-0385	MSR000005330	Issued 3/17/99
Spill Prevention Control and Countermeasure Plan	USEPA, Region IV and Department of Environmental Quality Office of Pollution Control P. O. Box 10385 Jackson, Mississippi 39289-0385	NA	Revised 6/11/18

Dragline Boom Height	U.S. Department of Transportation FAA 2300 East Devon Avenue Des Plains, Illinois 60018	NA	Exemption Request Approved 3/3/98
Radio Station Authorization	Federal Communications Commission Wireless Telecommunications Bureau	NA	Issued 10/21/2015
Water Withdrawal Permit for Beneficial Uses for Public Water of the State of Mississippi	Department of Environmental Quality Office of Land and Water Resources P. O. Box 10385 Jackson, Mississippi 39289-0385	No. MS-GW-15160 No. MS-GW-15254 No. MS-SW-02755 No. MS-SW-02791 No. MS-SW-10088 No. MS-SW-10104 No. MS-SW-10150 No. MS-SW-10530	Well (Issued 8/25/98) Well (Re-issued 07/16/2018) R-1 (Re-issued 05/12/2008) P-4-1 (Re-issued 05/12/2008) RP-33-1 (Issued 4/20/2009) P-29-2 (Issued 6/22/2009) RP-27-1 (Issued 8/23/2010) SP-8 (Issued 5/4/2020)
Beneficial Use Determination (BUD)	Department of Environmental Quality Office of Pollution Control P.O. Box 10385 Jackson, Mississippi 39289-0631	BUD 0015 BUD 0099	Issued 12/14/06 Issued 05/04/21
Handheld XRF Analyzer Analytical X-Ray	Mississippi State Department of Health Division of Radiology 3150 Lawson Street Jackson, Mississippi 39213	No. X-326	Issued 09/08/20
Work within TVA Transmission Right-of-Way	TVA Transmission R-O-W Team Tennessee Valley Authority 400 West Summit Hill Drive Knoxville, TN 37902	NA	Issued 03/23/20
Road Closures, Relocations and operations within 100' of Outside Right of Ways	The Choctaw County Board of Supervisors P. O. Box 250 Ackerman, Mississippi 39734	Prewitt Road State HWY 415 State HWY 415 East Clear Springs Rd. East Clear Springs Rd. East Clear Springs Rd. McIntire Road McIntire Road McIntire Road Nebo Road Nebo Road Null Road Null Road Salem-Bywy Road Salem-Bywy Road Salem-Bywy Road Salem-Bywy Road	Issued 08/01/2011 Issued 03/22/04 Issued 03/26/04 Issued 03/22/04 Issued 6/8/2009 Issued 2012 Issued 10/02/05 Issued 2012 Issued 2013 Issued 03/17/03 Issued 2013 Issued 10/02/05 Issued 2013 Issued 03/22/04 Issued 05/24/04 Issued 08/30/04 Issued 04/03/06

		Salem-Bywy Road	Issued 2013
		Salem-Bywy Road	Issued 2015
	MDOT	State HWY 415	Issued 03/26/04
	Post Office Box 2060	State HWY 9	Issued 02/21/20
	Tupelo, Mississippi 38803-2060	State HWY 9	Issued 08/25/21

17.3.2. Reclamation Bond Requirements

MDEQ regulations require the Red Hills Mine post a reclamation performance bond that would allow MDEQ to affect final reclamation of the project in the unlikely event the Red Hills Mine goes out of business. Bonding is estimated based on a worst-case scenario. The amount of the financial security as of December 31, 2024 is $4 M.

17.4. Plans, Negotiations, or Agreements with Local Individuals or Groups

The Red Hills Mine has secured agreements with all third parties that are necessary to conduct mining operations in accordance with applicable law.

17.5. Mine Closure Plans

Following the expiration of the LSA, the mine will be required to complete final remediation in accordance with the detailed plans in the approved mining permit. Final reclamation and closure activities began in Mine Area 1 in 2023 as active mining in this area has been completed. Closure activities in both Mine Area 1 and Mine Area 3 will continue throughout the mine life, with the projected completion of the expanded permit area in 2045. Financial assurance for the ultimate reclamation of facilities is documented in the reclamation plan, and security for costs that will be incurred to execute site closure is provided by a third-party insurer to the State of Mississippi in the form of a surety bond.

17.6. QP's Opinion of Adequacy of Current Plans

MLMC currently has all permits in place for the Red Hills Mine to operate and adhere to a mine plan projected to April 1, 2032. Barring any regulatory changes out of MLMC's control, the QP does not anticipate hurdles for approval of future renewal applications. The QP bases this opinion on the mine's history to meet regulatory requirements. Proper monitoring is ongoing in accordance with permit requirements. Furthermore, appropriate bonding and closure plans are in place.

17.7. Description of any Commitments to Ensure Local Procurement and Hiring

Purchasing strives to place orders with regards to dependability and service records of the supplier, the nature of the guaranty and warranty of the product, its price, and quality. Preference is given to suppliers who are developing new and improved products or equipment, or designing and developing a special product, specifically for the Red Hills Mine. Consideration is also provided to local suppliers near the Red Hills Mine. Suppliers must have a reputation of adhering to specifications and delivery schedules.

Positions at the Red Hills Mine are posted with Mississippi Department of Employment Security for priority availability to all veterans and other job seekers. MLMC also participates with regional state job fairs, recruits on local college campuses, and participates in local community sponsored activities.

18. Capital and Operating Costs

18.1. Operating Costs

Annual operating costs were estimated in conjunction with the mining methods discussed in Section 13. LOM operating costs for a plan delivering approximately 27.7 MMBtu per year to the RHPP are expected to total approximately $645 M from January 2025 through the end of reclamation in 2045 are summarized in Table 18.1.

All costs were estimated to a PFS level of study based on historical costs and performance measures that have been maintained by MLMC since its inception. These costs are reviewed and updated on an annual basis to account for changes in site conditions or the operating plan. This information was then used to estimate the projected future costs included in the LOM plan from January 2025 through the expiration of the LSA on April 1, 2032. All costs were escalated at various rates based on the forward-looking Consumer/Producer Price Index with budgeted 2024 costs used as the base year.

Operating costs included major cost categories for mine development, burden removal, severing of lignite, reclamation, maintenance and handling of stockpiled lignite and delivery to the adjacent RHPP along with the necessary maintenance required to keep all equipment operating safely and efficiently. Direct costs were categorized as expenses directly related to the severing and delivery of lignite. All other general business expenses were categorized as indirect costs. Direct costs included production, maintenance, and staff labor, materials and supplies, fuel, equipment repairs, outside contractors, administration, production taxes and royalties, depletion, depreciation, and amortization (DD&A), inventory adjustments, interest expense, income taxes, and accretion on asset retirement obligations (ARO). Accretion costs are estimated by taking the escalated cash flows of the ARO liability over time and discounting it to its present value as required under U.S. GAAP.

Table 18.1 LOM Operating Costs to deliver approximately 27.7 MMBtu per year

Operating Cost	Cost (M$)
Direct Cost of Sales	$623.24
Indirect Cost of Sales	$22.08
Operating Cost	$645.32

18.2. Capital Costs

Capital Costs were estimated to a PFS level of study based on vendor quotes, historical land purchases, mine development costs, mitigation costs and other costs. Capital costs to fulfil the LSA for a LOM plan delivering approximately 27.7 MMBtu per year to the RHPP are expected to total approximately $31 M from January 2025 through the end of the LSA on April 1, 2032 and are summarized in Table 18.2. Consistent with operating costs, all capital costs were escalated at various rates based on the forward-looking Customer/Producer Price Index using 2024 as the base year. There are risks regarding the estimated capital costs including escalating costs of raw materials, equipment availability or supply chain gaps.

Table 18.2 LOM Capital Costs to deliver approximately 27.7 MMBtu per year

Capital Cost	Cost (M$)
Equipment Expenditures	$18.5
Development	$1.6
Wetlands	$6.8
Reserve/Land Acquisition	$4.0
Capital Cost	$30.9

19. Economic Analysis

This section contains forward-looking information related to the economic analysis for the Red Hills Mine. The material factors that could cause actual results to differ from the conclusions, estimates, designs, forecasts or projections include estimates of mineral resources and reserves, mine production plans, labor and salary rates, mine closure cost, plant dispatch rate, plant availability rate, fuel and other commodity pricing, and royalty, production, or income tax rates.

19.1. Key Assumptions, Parameters and Methods

The primary key assumption to determine the economic viability of the Red Hills Mine was the annual operating performance of the RHPP. The forecasted operating performance of RHPP was determined using two main inputs: the annual projection notice (nomination for MMBtu requirements) received from the RHPP based on projected customer requirements and a comparison to prior years actual delivered lignite fuel to develop the expectation for future MMBtu requirements. The estimated annual MMBtu requirement used in the Red Hills LOM Model was approximately 27.7 MMBtu. This resulted in a production schedule of approximately 2.7 Mt of dedicated lignite per year and was assumed to continue for the full LSA contract term, expiring on April 1, 2032.

The base price for the dedicated lignite is defined in the LSA. This base price consists of eight indexed components in addition to a power cost component, a pass-through component, a royalty component and a fixed component. Over the LOM, the average estimated sales price per ton for lignite delivered and sold is $34.41 providing revenues totaling approximately $685 M.

Key assumptions and methods used to determine the capital and operating costs associated with the production schedule were detailed previously in Section 18.0 Capital and Operating Costs of this TRS.

Additional key assumptions include:

- The LOM production plan was based primarily on surface mining methods including a truck and shovel, dozer push and dragline operations;
- Total number of employees per year was approximately 200, but varies by year depending on the forecasted overburden to be moved and the dispatch of the RHPP. Also included are temporary employees on an as needed basis;
- Diesel price was estimated to be $2.39 per gallon at the beginning of 2025. This price was escalated based on NY Harbor ULSD Futures for 2025, 2026 and 2027. After 2027 a flat 3% escalation was assumed. This projected diesel costs to reach $2.66 per gallon by 2032;
- Revenue $/MMBtu was escalated using the eight indexed components defined in the LSA;
- The economic analysis period of the Red Hills Mine LOM plan was the remaining production operation from January 1, 2025 until April 1, 2032 plus 13 years of post-mining reclamation;
- $0.064/ton sold Reclamation Fee assessed on delivered tons;
- Discount rate of 10% was used to account for cost of capital and;
- 12% estimated effective income tax rate. The effective income tax rate of 12% differs from the U.S. federal statutory rate primarily due to the benefit from percentage depletion. The benefit of percentage depletion is not directly related to the amount of pre-tax income recorded in a period.

19.2. Annual Cash Flows

The Income Statement and Annual Cash Flows based on the lignite production schedule for the LOM plan, along with the Net Present Value are detailed in Table 19.1. A Discount Rate of 10% was used as this was consistent with the Red Hills Mine's weighted average cost of capital. The calculation of Net Present Value and Internal Rate of Return are nuanced due to the ongoing nature of this mining operation. As modeled, the cash flows for the period 2025 through 2045 indicate the project is cash flow positive over the remaining life of the project.

In the opinion of the QP, the income statement and cash flow projection based on the LOM plan assumptions as shown in Table 19.1 are reasonable in light of historical trends, current conditions and expected future developments. As modeled, the future cash flow projection is estimated to be approximately $88 M and the net present value (10%) is estimated to be approximately $58 M after tax.

Note that the net present value estimated for this report does not consider previous cash inflows and outflows and is only estimated from 2025 through the remainder of the LOM.

Table 19.1 Summary of Income Statement and Cash Flow for LOM plan delivering approximately 27.7 MMBtu

Income Statement ($M unless noted)	2025	2026	2027	2028	2029
Tons Sold (in thousands)	2,800	2,700	2,700	2,800	2,800
Revenue/Ton	$ 31.30	$ 34.46	$ 32.86	$ 33.02	$ 34.65
Total Revenue	$ 86,582	$ 94,726	$ 90,210	$ 91,124	$ 95,713
Expenses					
Labor, Material Fuel	$ 48,124	$ 47,530	$ 48,433	$ 48,626	$ 50,948
Royalties & Production Taxes	$ 2,685	$ 3,639	$ 4,142	$ 4,009	$ 4,344
Other Expenses	$ 35,598	$ 30,176	$ 29,014	$ 34,386	$ 35,125
Income Taxes	$ (21)	$ (1,606)	$ (1,035)	$ (493)	$ (636)
Net Income	**$ 154**	**$ 11,775**	**$ 7,586**	**$ 3,612**	**$ 4,661**
EBITDA	**$ 11,811**	**$ 26,382**	**$ 21,966**	**$ 17,540**	**$ 19,087**
Capital Expenditures	$ (12,778)	$ (6,653)	$ (1,902)	$ (2,636)	$ (3,671)
Investing Activities	$ 8,485	$ (132)	$ 1,645	$ 4,861	$ 1,060
Financing Activities	$ (4,691)	$ (5,531)	$ (4,678)	$ (4,437)	$ (4,114)
Mine Closing	$ (6,925)	$ (6,739)	$ (1,684)	$ (426)	$ (250)
Income Taxes	$ (21)	$ (1,606)	$ (1,035)	$ (493)	$ (636)
Increase (decrease) in Cash	**$ (4,118)**	**$ 5,722**	**$ 14,313**	**$ 14,410**	**$ 11,477**

Income Statement ($M unless noted)	2030	2031	2032	2033-2045	Total
Tons Sold (in thousands)	2,800	2,700	700	-	20,000
Revenue/Ton	$ 35.99	$ 36.71	$ 41.90	$ -	$ 34.40
Total Revenue	$ 99,062	$ 99,712	$ 28,255	$ -	$ 685,385
Expenses					
Labor, Material Fuel	$ 53,086	$ 55,959	$ 13,824	$ -	$ 366,529
Royalties & Production Taxes	$ 3,525	$ 3,402	$ 623	$ -	$ 26,368
Other Expenses	$ 38,913	$ 27,792	$ 15,638	$ 10,072	$ 256,714
Income Taxes	$ (425)	$ (1,507)	$ 220	$ 1,209	$ (4,293)
Net Income	**$ 3,113**	**$ 11,052**	**$ (1,610)**	**$ (8,863)**	**$ 31,481**
EBITDA	**$ 15,649**	**$ 23,890**	**$ 4,108**	**$ (752)**	**$ 139,681**
Capital Expenditures	$ (1,165)	$ (1,105)	$ (1,016)	$ -	$ (30,925)
Investing Activities	$ 12,156	$ 1,761	$ 19,363	$ 8,918	$ 58,118
Financing Activities	$ (3,682)	$ (3,580)	$ (2,211)	$ (2,684)	$ (35,607)
Mine Closing	$ (119)	$ (123)	$ (13,070)	$ (9,246)	$ (38,583)
Income Taxes	$ (425)	$ (1,507)	$ 220	$ 1,209	$ (4,293)
Increase (decrease) in Cash	**$ 22,414**	**$ 19,336**	**$ 7,393**	**$ (2,557)**	**$ 88,391**

Net Present Value (10%)	**$57,624**
Internal Rate of Return	**235.0%**

19.3. Sensitivity Analysis

Additional LOM scenarios were modeled to analyze the effect of changes in key assumptions and included in the previous submission of this document. The most significant affect was an increase in the annual MMBtu requirement. A 10% upside case with an increased annual MMBtu requirement by the RHPP to 30,090,235 MMBtu was considered. This scenario is well within the operating capacity of the RHPP, and results in an average increase in cash flows of $2 M on an annual basis. Significant risk from a downside case, where the RHPP takes less than the LOM plan MMBtu's, is protected by a minimum annual take provision included in the LSA.

Additionally, recovery rates were looked at from a sensitivity stand point. Any changes to recovery that occurred over the previous 2 years were analyzed and determined to not be material.

Other key assumptions considered were the effects of an increase in diesel prices and labor. Any increase in the cost of labor or diesel fuel has an offsetting effect on revenue due to the labor and diesel indices used to calculate revenue also increasing. Typically, any additional costs incurred by increased labor and diesel pricing is offset by the adjusted revenue calculation. Ultimately the main factor affecting profitability at MLMC is customer demand.

20. Adjacent Properties

There are no other properties adjacent to the Red Hills Mine. There is no information used in this TRS that has been sourced from adjacent properties. No public drilling information was available or sourced for the development of the geological model.

The drilling and exploration activities at the Red Hills Mine well defines the lignite geology, Mineral Resource estimates and Mineral Reserve estimates. Due to this and the relatively simple geology at the Red Hills Mine, material changes to the Mineral Resource estimates and Mineral Reserve estimates are not likely if adjacent property information is included in future estimates.

21. Other Relevant Data and Information

In the QPs opinion, all material information has been stated in the above sections of this TRS.

22. Interpretations and Conclusions

22.1. Mineral Resources

In the QP's opinion, the geological data, sampling, modeling, and estimate are carried out in a manner that both represents the data well and mitigates the likelihood of material misrepresentations for the statements of Mineral Resources. There are currently no recommendations for Mineral Resources.

22.2. Mineral Reserves

In the QP's opinion, the operational and mine planning data, LOM Plan, and estimation are carried out in a manner that both represents the data and operational experience and methodology well and mitigates the likelihood of material misrepresentations for the statements of Mineral Reserves. There are currently no recommendations for Mineral Reserves.

23. Recommendations

23.1. Mineral Resources

The QP has the following recommendations for additional work:

- Additional coal coring should be performed in Mine Area 3 to better define upper seams qualities while potentially expanding and upgrading mineral resources and reserves. Estimated cost for this recommendation is $2 million.
- Continue secondary laboratory splitting and testing QA/QC program. Estimated cost of $160,000 over the remaining eight full years of production.

23.2. Mineral Reserves

The QP has no recommendations for additional work.

Current work plans that are budgeted in the discounted cash flows (DCF) that the Red Hills Mine will complete include:

- Monitor pit pore pressures in future in pit areas identified of potential concern. No cost is estimated unless conditions arise where additional studies and mitigation controls are needed to address the stability issues.
- Continue to evaluate used equipment to reduce capital costs, reconciliation of actual to budget lignite recoveries, qualities and costs which is part of MLMC's annual operational budgeting process.

24. References

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25. Reliance on Information Provided by the Registrant

At time of signing, the QPs for this report are employees of the registrant, and all information was sourced from the registrant or studies commissioned by the registrant.